REPORT TO THE LEGISLATURE ON THE REGULATORY ACTIVITIES OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Pursuant to
Chapter 1702, Statutes of 1990 (SB 1928)

JULY 2015

Cleaning the Air that We Breathe…

REPORT TO THE LEGISLATURE ON THE REGULATORY ACTIVITIES OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PURSUANT TO CHAPTER 1702, STATUTES OF 1990 (SB 1928)

JULY 2015

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD

Chairman: WILLIAM A. BURKE, Ed.D.
Speaker of the Assembly Appointee

Vice Chairman: DENNIS YATES
Mayor, City of Chino
Cities Representative, San Bernardino County

Members:

Michael D. Antonovich
Supervisor, County of Los Angeles

Ben Benoit
Mayor, City of Wildomar
Cities Representative, Riverside County

John J. Benoit
Supervisor, County of Riverside

Joe Buscaino
Councilmember, City of Los Angeles
City of Los Angeles Representative

Michael Cacciotti
Councilmember, City of South Pasadena
County of Los Angeles
Cities Representative, Eastern Region

Joseph K. Lyou, Ph.D.
Governor's Appointee

Judith Mitchell
Councilmember, City of Rolling Hills Estate
County of Los Angeles
Cities Representative, Western Region

Shawn Nelson
Supervisor, County of Orange

Dr. Clark E. Parker Sr.
Senate Rules Committee Appointee

Miguel A. Pulido
Mayor, City of Santa Ana
Cities Representative, Orange County

Janice Rutherford
Supervisor, County of San Bernardino

Barry R. Wallerstein, D.Env.
Executive Officer

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The South Coast Air Quality Management District (SCAQMD) is subject to internal and external reviews of its air quality programs. These include annual reviews of the District's budget, forecast and proposed operating budget for the upcoming fiscal year, and compliance program audits. In addition, the SCAQMD is required to submit to the California Air Resources Board (CARB) and State Legislature an annual review of its regulatory activities for the preceding calendar year. The attached report satisfies this latter requirement which is mandated pursuant to Chapter 1702, Statutes of 1990 (SB 1928, Presley), Section 40452 of the California Health and Safety Code.

Required elements of this report include:

- Summary of each major rule and rule amendment adopted by the District Board in the preceding calendar year, with detailed information about their costs, emission reduction benefits and other alternatives considered;
- Number of permits to operate or construct issued, denied or not renewed, segregated by industry type;
- Emission offset transactions and applications during the previous fiscal year;
- Forecast of budget and staff increases proposed for the following fiscal year;
- Identification of all sources of revenue used or proposed to finance SCAQMD activities; and
- Results of the SCAQMD's Clean Fuels Program.

Chapter I summarizes last year's rulemaking and permitting activity, including offset transactions. Chapter II references the District's draft budget and three-year forecast and existing revenue sources.

Information on the SCAQMD's Clean Fuels Program is also a requirement of this report. Legislation enacted in 1999 now also requires an independent report to the Legislature on the Clean Fuels Program by March 31 of each year [Health and Safety Code 40448.5.1]. The Clean Fuels Program Annual Report and Plan Update is included in this document as Chapter III. Chapter IV is the Annual Regional Clean Air Incentives Market (RECLAIM) Audit Report for the 2013 Compliance Year (inclusion in this report to the Legislature is required by SCAQMD Rule 2015). The report assesses emission reductions, average annual price and availability of RECLAIM Trading Credits, job impacts, compliance issues, and other measures of performance for the fifth year of this program.

In addition to the requirements of this report, various outreach activities are carried out by the SCAQMD Legislative & Public Affairs Office. Information on these activities is included in a monthly report to the SCAQMD's Governing Board and is available by contacting the SCAQMD at 909-396-3242 or visiting the website at www.aqmd.gov.

CHAPTER I
RULE DEVELOPMENT AND PERMIT ACTIVITIES

Implementation of a Temporary Moratorium on the Use of NOx Emission Reduction Credits for Compliance with Rule 2202 – On-Road Motor Vehicle Mitigation Options

A temporary moratorium was implemented on the transfer of NOx Emission Reduction Credits (ERCs) into the Rule 2202 program from January 10, 2014 to July 1, 2014. Only ERCs for VOCs and CO were allowed to be transferred into the Rule 2202 program during the moratorium. Short-term ERCs (i.e., STERCs) continued to be allowed to be transferred into the Rule 2202 program. The purpose of the restriction on the use of NOx ERCs in the program was to prevent their depletion, ensuring the availability for use by stationary sources. The moratorium allowed staff to evaluate the use of long-term emission credit streams in the program and the effect on the New Source Review program. *Estimated Emission Reductions*: None. *Alternatives*: None. *Cost Effectiveness*: N/A. *Socioeconomic Impact*: None. *Source of Funding*: Transportation Fees and Mobile Source Fees.
[Moratorium Adopted January 10, 2014]

Rule 1420.1 ─ Emissions Standard for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities

Amendments to Rule 1420.1 were adopted to reduce arsenic, benzene, and 1,3-butadiene emissions generated by large lead-acid battery recycling facilities. The amendments to Rule 1420.1 included requirements for ambient air concentration limits for arsenic, as well as hourly emission limits of arsenic, benzene, and 1,3-butadiene. The amendments to Rule 1420.1 also contained additional administrative, monitoring and source testing requirements for stack emissions. *Estimated Emission Reductions*: 31 pounds per day Arsenic, 3,679 pounds per day Benzene, and 487 pounds per day 1,3-Butadiene. *Alternatives*: None. *Cost Effectiveness*: N/A. *Socioeconomic Impact*: See Socioeconomic Impact Analysis section. *Source of Funding*: Permit Fees, Emission Fees, and Annual Operating Fees.
[Amended January 10, 2014]

Rule 1420.1 ─ Emissions Standard for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities

The amendments to Rule 1420.1 required owners or operators of large lead-acid battery recycling facilities to provide funding and participate in a demonstration program of a multi-metals continuous emissions monitoring system (CEMS) to monitor lead, arsenic, and other metals. The amendments to Rule 1420.1 also included requirements to collect fees for the SCAQMD or its contractor to assemble, install, maintain, train, test, analyze and decommission a multi-metals CEMS for use in the SCAQMD area of jurisdiction; and reimburse SCAQMD for any and all expenses incurred by the independent third-party investigator in the investigation, inspection and generation of a written report. *Estimated Emission Reductions*: None. *Alternatives*: None. *Cost Effectiveness*: N/A. See Socioeconomic Impact Analysis section. *Source of Funding*: Permit Fees and Facility Payment.
[Amended March 7, 2014]

Rule 102 – Definition of Terms

The U.S. EPA excluded trans-1-chloro-3,3,3-trifluoropropene, also known as HFO-1233zd, from the federal volatile organic compound (VOC) definition on the basis that the compound has a negligible contribution to tropospheric ozone formation. The U.S. EPA's final ruling, delisting HFO-1233zd as a VOC, became effective on September 27, 2013. HFO-1233zd is non-flammable and is low in toxicity based on toxicological studies conducted on the compound. It is not listed as a hazardous air pollutant under the Clean Air Act. Further, HFO-1233zd has other desirable environmental properties, specifically, a negligible ozone depleting potential (ODP) and a very low global warming potential (GWP) value. Based on staff's review of relevant data pertaining to this compound, the SCAQMD added HFO-1233zd to the list of compounds exempt from the definition of VOC in Rule 102's Group I compounds. HFO-1233zd is expected to be used as a compliant substitute solvent for HCFC-225 in vapor degreasing operations for precision cleaning of critical parts used in aerospace and military applications. However, due to its favorable solvency properties, HFO-1233zd has a wide range of applications and can also be used as a blowing agent for closed cell insulating foams; as a solvent in aerosol products for electronics cleaning; and as a refrigerant in chillers. *Estimated Emission Reductions*: None. *Alternatives*: None. *Cost Effectiveness*: N/A. *Socioeconomic Impact*: None. *Source of Funding*: Emission Fees.
[Amended May 2, 2014]

Rule 1130 – Graphic Arts

The amendments to Rule 1130 incorporated certain U.S. EPA Control Techniques Guidelines recommendations applicable to printing operations not included in the previous version of the rule that pertain to the overall add-on control device efficiency and VOC content requirements for fountain solutions. The amendments to Rule 1130 further added a prohibition of storage of non-compliant VOC-containing materials at a worksite, removed obsolete rule language, updated definitions for consistency with other SCAQMD rules, added a rule exemption for graphic arts materials that have a VOC content of no more than 10 grams per liter (g/L), as applied, and made minor corrections and clarifications. Since affected facilities were shown to already comply with the requirements, the amendments were not expected to achieve additional VOC reductions. *Estimated Emission Reductions*: None. *Alternatives*: None. *Cost Effectiveness*: N/A. *Socioeconomic Impact*: None. *Source of Funding*: Emission Fees and Annual Operating Fees.
[Amended May 2, 2014]

Rule 1155 – PM Control Devices

Rule 1155 was originally adopted in December 2009 and subsequently submitted to CARB for approval and inclusion in the SIP. CARB approved the inclusion of Rule 1155 into the SIP and submitted Rule 1155 to the U.S. EPA in July 2010 for approval. U.S. EPA had raised concerns about certain exemptions in Rule 1155 during equipment start-up. In order to address U.S. EPA's concerns affecting approval of this rule into the SIP, Rule 1155 was administratively amended to clarify that certain provisions of Rule 401 – Visible Emissions, and the provisions of Rule 404 – Particulate Matter – Concentration, would be applicable to equipment subject to Rule 1155. *Estimated Emission Reductions*: None. *Alternatives*: None. *Cost Effectiveness*: N/A. *Socioeconomic Impact*: None. *Source of Funding*: Emission Fees and Annual Operating Fees.
[Amended May 2, 2014]

Regulation III – Fees

Amendments to Regulation III – Fees, included an adjustment by the change in the Consumer Price Index (CPI) (1.6 percent) pursuant to Rule 320 - Automatic Adjustment Based on CPI for Regulation III Fees. The amendments also included an additional six percent increase in fees for permit processing and annual permit renewal, phased in over two years, to address an identified shortfall in costs associated with issuing the permits. As a result of the amendments to Regulation III, fees would increase in each of these two categories by three percent for fiscal years 2014/15 and 2015/16. *Estimated Emission Reductions*: None. *Alternatives*: None. *Cost Effectiveness*: N/A. *Socioeconomic Impact*: See Socioeconomic Impact Analysis section. *Source of Funding*: Permit Fees and Annual Operating Fees.
[Amended June 6, 2014]

Rule 2202 – Road Motor Vehicle Mitigation Options, Rule 2202 Implementation Guidelines, Rule 301 – Permitting and Associated Fees, and Rule 311 - Air Quality Investment Program Fees

In January 2014, the SCAQMD Governing Board approved a moratorium on the transfer of oxides of nitrogen (NOx) Emission Reduction Credits (ERCs) into Rule 2202, beginning January 10, 2014 through July 1, 2014. SCAQMD staff was directed to review the status of stationary source ERC banks and the potential impact of credit transfers into Rule 2202. In response to this review, the following amendments were adopted in: Rule 2202 - On-Road Motor Vehicle Mitigation Options; the accompanying rule Implementation Guidelines; Rule 301 – Permitting and Associated Fees; and, Rule 311 Air Quality Investment Program (AQIP) Fees. In particular, sections of Rule 2202 and the Implementation Guidelines were amended to address the use of ERCs and clarify the use of other existing emission credits. Further, Rule 301 was amended to include a Short Term Emission Reduction Credit (STERC) transfer fee. AQIP is a program option for applicable worksites within Rule 2202. The amendments had the effect of reducing the per employee fee to more accurately reflect the costs to obtain the required emission reductions. *Estimated Emission Reductions*: None. *Alternatives*: None. *Cost Effectiveness*: N/A. *Socioeconomic Impact*: None. *Source of Funding:* Transportation Fees and Mobile Source Fees.
[Amended June 6, 2014]

Rule 2449 – Control of Oxides of Nitrogen Emissions from Off-Road Diesel Vehicles

In May 2008, the Governing Board adopted Rule 2449 implementing the Surplus Off-Road Opt-in for NOx (SOON) provisions of the State In-Use Off-Road Diesel Vehicle Regulation. On December 14, 2011, CARB amended the In-Use Off-Road Diesel Vehicle Regulation and removed Section 2449.2, Title 13 of the California Code of Regulation (CCR). As part of that action, CARB renumbered the SOON Provision Section 2449.3 to Section 2449.2. As a result, Rule 2449 was administratively amended to revise the reference from Section 2449.3 to Section 2449.2 of Title 13 of the California Code of Regulation. *Estimated Emission Reductions*: 4 to 8 tons per day NOx. *Alternatives*: None. *Cost Effectiveness*: $17,720 per ton of NOx reduced. *Socioeconomic Impact*: Refer to Socioeconomic Impact Analysis section. *Source of Funding*: Carl Moyer Program (Administrative Costs).
[Amended July 11, 2014]

Rule 1111 –Reduction of NOx Emissions from Natural Gas Fired, Fan-type Central Furnaces

The purpose of Rule 1111 is to control emissions of nitrogen oxides (NOx) from gas-fired fan-type residential space heating furnaces with heat input ratings between 50,000 and 175,000 British thermal units per hour (Btu/hr). The rule applies to manufacturers, distributors, sales outlets and installers of such furnaces. The amendments to Rule 1111 provided manufacturers additional time to produce residential furnaces that meet the upcoming NOx emission limit of 14 nanograms per Joule (ng/J). However, not all manufacturers will be able to produce compliant furnaces by the compliance dates. As a result, an alternate compliance option was added to Rule 1111 that would allow manufacturers of residential furnaces to pay a per unit mitigation fee for each condensing, non-condensing, weatherized and mobile home furnace distributed or sold into the SCAQMD in lieu of meeting the new lower NOx emission limit. Specifically, the amendments to Rule 1111 delayed the compliance date for condensing (high efficiency) units from October 1, 2014 until April 1, 2015. This delay provided manufacturers additional time for testing new furnace designs, and submitting and receiving approval of alternate compliance plans for non-compliant condensing furnaces. Based on sales estimates for condensing furnaces in southern California, the amendments to Rule 1111 were expected to result in peak daily emission reductions foregone of up to 46 pounds per day during the period from October 1, 2014 until April 1, 2015. These foregone emission reductions, from the sale and installation of non-compliant furnaces during those six months were not able to be completely mitigated during the delay period because the mitigation program did not go into effect until the period beginning on January 1, 2015 and ending on April 1, 2015. However, the mitigation program was able to offset emission reductions foregone for the remainder of the lifetime of these furnaces once mitigation fees were received during the last calendar quarter of 2014 and the first quarter of 2015. The mitigation fee was used to fund existing SCAQMD programs including the clean leaf-blower and lawn mower exchange programs. *Estimated Emission Reductions*: 46 pounds per day NOx emission reductions foregone during the period from October 1, 2014 until April 1, 2015. *Alternatives*: None. *Cost Effectiveness*: N/A. *Socioeconomic Impact*: None. *Source of Funding*: Emission Fees and Annual Operating Fees.
[Amended September 5, 2014]

Rule 1151 – Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations

Amendments to Rule 1151 were comprised of administrative changes that removed obsolete rule language and made minor revisions and editorial corrections. The amendments also added new definitions for the following terms: automotive graphic arts operation; solvent cleaning; and, weld-through primer. In addition, the amendments revised the transfer efficiency equivalency section and added an exemption from the transfer efficiency requirements for automotive graphic arts operations, truck bed liner coatings, and underbody coatings. Finally, the amendments to Rule 1151 updated existing definitions, and included other minor changes for clarity and consistency throughout the rule. *Estimated Emission Reductions*: None. *Alternatives*: None. *Cost Effectiveness*: N/A. *Socioeconomic Impact*: None. *Source of Funding*: Emission Fees and Annual Operating Fees.
[Amended September 5, 2014]

Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens

Oxides of nitrogen (NOx) emission limits ranging from 40 parts per million (ppm) to 60 ppm, a carbon monoxide (CO) limit of 800 ppm, and an emission testing requirement were originally adopted into Rule 1153.1 for commercial food ovens, roasters and smokehouses. However, the amendments to Rule 1153.1 delayed compliance dates for at least two additional years beyond the dates currently set in Rule 1147, currently applicable to the same sources. In addition, amendments to Rule 1153.1 phased in compliance based on a longer 20 year equipment life instead of the 15 years used in Rule 1147. Mitigation fees were used to reduce NOx emissions through the SCAQMD's leaf blower exchange program. *Estimated Emission Reductions*: Approximately 120 pounds per day of NOx emission reductions foregone by 2023. *Alternatives*: Four alternatives were analyzed as follows: Alternative A - No Project; Alternative B - Additional Delayed Compliance; Alternative C -Expedited Compliance; and, Alternative D - Lower Emission Limits. *Cost Effectiveness*: N/A. *Socioeconomic Impact*: Refer to Socioeconomic Impact Analysis section. *Source of Funding*: Emission Fees and Annual Operating Fees.
[Adopted November 7, 2014]

Rule 1325 – Federal PM2.5 New Source Review Program

Amendments to Rule 1325 made administrative changes to the rule's definitions, requirements, and exclusions. A clarification was added to specify that Rule 1325 would apply to PM2.5 and its precursors. The Lowest Achievable Emission Rate (LAER) definition was also modified to reference 40 CFR 51.165 (a)(1)(xiii). A provision was included to specify that approval to construct would not relieve owners and operators of the responsibility to comply fully with applicable provisions of the permit and other requirements under local, State or Federal law. A reference to Rule 1315 – Federal New Source Review Tracking System was included to denote that the provisions in Rule 1315 do not apply to Rule 1325. In addition, the provision that stated that Rule 1325 applied as opposed to other Regulation XIII rules was removed. The removal clarified that Rule 1306 – Emission Calculations, and Rule 1309 – Emission Reduction Credits and Short Term Credits, would apply. Finally, the amendments to Rule 1325 updated existing definitions, and included other minor changes for clarity and consistency throughout the rule. *Estimated Emission Reductions*: None. *Alternatives*: None. *Cost Effectiveness*: N/A. *Socioeconomic Impact*: None. *Source of Funding*: Permit Fees, Emission Fees, and Annual Operating Fees.
[Amended December 5, 2014]

ALTERNATIVES TO RULES AND RULE AMENDMENTS

Projects undertaken by public agencies are subject to the California Environmental Quality Act (CEQA), so rules and regulations promulgated by the SCAQMD must be reviewed to determine if they are considered to be a "project" as defined by CEQA. If they are not a "project" or they are specifically exempt from CEQA, no further action is necessary. If the project has the potential to create significant adverse effects on the environment, then an environmental analysis is necessary.

The SCAQMD operates under a regulatory program certified by the Secretary for Resources pursuant to Public Resources Code (PRC) §21080.5. Certification means that the SCAQMD can incorporate its environmental analyses into documents other than environmental impact reports (EIRs), negative declarations (NDs), or mitigated NDs (MNDs). In addition, certified CEQA programs are not subject to a limited number of specific CEQA requirements identified in PRC §21080.5. All documents prepared by the SCAQMD under its certified regulatory program are called Environmental Assessments (EAs). SCAQMD rules and regulations are subject to the SCAQMD's certified CEQA program, while plans (e.g., AQMP) are not.

New rules or existing rules being amended often require a comprehensive environmental impact analysis. The environmental analyses in EAs include:

- identification of significant adverse environmental impacts evaluated based on environmental checklist topics;
- identification, if necessary, of measures to mitigate adverse environmental impacts to the greatest extent feasible;
- if necessary, a discussion and comparison of the relative merits of feasible project alternatives that generally achieve the goals of the project, but may generate fewer or less severe adverse environmental impacts;
- identification of environmental topics not adversely affected by the project, etc.

Supplemental EAs, Addenda, and EAs for projects determined not to have significant environmental impacts often contain a more focused analysis of potential environmental impacts. If it is concluded in these documents that no significant adverse environmental impacts would be generated by the proposed project, an analysis of project alternatives is not required. If significant adverse environmental impacts are identified, alternatives must be identified and an analysis of the relative merits of each alternative is required.

The following section lists all new and amended rules adopted by the Governing Board in 2014 by month. The type of CEQA document (including projects exempt from CEQA) is described for each new rule or rule amendment project. Alternatives are summarized for those projects requiring an alternatives analysis.

JANUARY 10, 2014

1. **Implementation of a Temporary Moratorium on the Use of NOx Emission Reduction Credits for Compliance With Rule 2202 – On-Road Motor Vehicle Mitigation Options: Notice of Exemption.** TA temporary moratorium was implemented on the transfer of NOx Emission Reduction Credits (ERCs) into the Rule 2202 program from January 10, 2014 to July 1, 2014. Only ERCs for VOCs and CO were allowed to be transferred into the Rule 2202 program during the moratorium. Short-term ERCs (i.e., STERCs) continued to be allowed to be transferred into the Rule 2202 program. The purpose of the restriction on the use of NOx ERCs in the program was to prevent their depletion, ensuring the availability for use by stationary sources. The moratorium allowed staff to evaluate the use of long-term emission credit streams in the program and the effect on the New Source Review program. A Notice of Exemption was prepared for the project. Since the project was exempt from CEQA, no alternatives analysis was required.

2. **Rule 1420.1 ─ Emissions Standard for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities: Final Environmental Assessment.** Amendments to Rule 1420.1 were adopted to reduce arsenic, benzene, and 1,3-butadiene emissions generated by large lead-acid battery recycling facilities. The amendments to Rule 1420.1 included requirements for ambient air concentration limits for arsenic, as well as hourly emission limits of arsenic, benzene, and 1, 3-butadiene. The amendments to Rule 1420.1 also contained additional administrative, monitoring and source testing requirements for stack emissions. A Final Environmental Assessment was prepared for the project that concluded that there will be no significant adverse environmental impacts. Since no significant adverse environmental impacts were identified, no alternatives analysis was required.

FEBRUARY 7, 2014

No rules were adopted or amended in February.

MARCH 7, 2014

1. **Rule 1420.1 ─ Emissions Standard for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities: Notice of Exemption.** The amendments to Rule 1420.1 required owners or operators of large lead-acid battery recycling facilities to provide funding and participate in a demonstration program of a multi-metals continuous emissions monitoring system (CEMS) to monitor lead, arsenic, and other metals. The amendments to Rule 1420.1 also included requirements to collect fees for the SCAQMD or its contractor to assemble, install, maintain, train, test, analyze and decommission a multi-metals CEMS for use in the SCAQMD area of jurisdiction; and reimburse SCAQMD for any and all expenses incurred by the independent third-party investigator in the investigation, inspection and generation of a written report. A Notice of Exemption was prepared for the project. Since the project was exempt from CEQA, no alternatives analysis was required.

APRIL 4, 2014

No rules were adopted or amended in April.

APRIL 25, 2014 *(SPECIAL MEETING)*

No rules were adopted or amended at this special meeting in April.

MAY 2, 2014

1. **Rule 102 – Definition of Terms: Notice of Exemption.** The U.S. EPA excluded trans-1-chloro-3,3,3-trifluoropropene, also known as HFO-1233zd, from the federal volatile organic compound (VOC) definition on the basis that the compound has a negligible contribution to tropospheric ozone formation. The U.S. EPA's final ruling, delisting HFO-1233zd as a VOC, became effective on September 27, 2013. HFO-1233zd is non-flammable and is low in toxicity based on toxicological studies conducted on the compound. It is not listed as a hazardous air pollutant under the Clean Air Act. Further, HFO-1233zd has other desirable environmental properties, specifically, a negligible ozone depleting potential (ODP) and a very low global warming potential (GWP) value. Based on staff's review of relevant data pertaining to this compound, the SCAQMD added HFO-1233zd to the list of compounds exempt from the definition of VOC in Rule 102's Group I compounds. HFO-1233zd is expected to be used as a compliant substitute solvent for HCFC-225 in vapor degreasing operations for precision cleaning of critical parts used in aerospace and military applications. However, due to its favorable solvency properties, HFO-1233zd has a wide range of applications and can also be used as a blowing agent for closed cell insulating foams; as a solvent in aerosol products for electronics cleaning; and as a refrigerant in chillers. The proposed amended rule is not anticipated to result in additional emission reductions, considering the primary use will be to replace another exempt solvent that will be phased out by the end of 2014. A Notice of Exemption was prepared for the project. Since the project was exempt from CEQA, no alternatives analysis was required.

2. **Rule 1130 – Graphic Arts: Final Environmental Assessment.** The amendments to Rule 1130 incorporated certain U.S. EPA Control Techniques Guidelines recommendations applicable to printing operations not included in the previous version of the rule that pertain to the overall add-on control device efficiency and VOC content requirements for fountain solutions. The amendments to Rule 1130 further added a prohibition of storage of non-compliant VOC-containing materials at a worksite, removed obsolete rule language, updates definitions for consistency with other SCAQMD rules, added a rule exemption for graphic arts materials that have a VOC content of no more than 10 grams per liter (g/L), as applied, and made minor corrections and clarifications. Since affected facilities were shown to already comply with the requirements, the amendments were not expected to achieve additional VOC reductions. A Final Environmental Assessment was prepared for the project that concluded that there will be no significant adverse environmental impacts. Since no significant adverse environmental impacts were identified, no alternatives analysis was required.

3. **Rule 1155 – PM Control Devices: Notice of Exemption.** Rule 1155 was originally adopted in December 2009 and subsequently submitted to CARB for approval and inclusion in the SIP. CARB approved the inclusion of Rule 1155 into the SIP and submitted Rule 1155 to the U.S. EPA in July 2010 for approval. U.S. EPA had raised concerns about certain exemptions in Rule 1155 during equipment start-up. In order to address U.S. EPA's concerns affecting approval of this rule into the SIP, Rule 1155 was administratively amended to clarify that certain provisions of Rule 401 – Visible Emissions, and the provisions of Rule 404 – Particulate Matter – Concentration, would be applicable to equipment subject to Rule 1155. A Notice of Exemption was prepared for the project. Since the project was exempt from CEQA, no alternatives analysis was required.

MAY 15-16, 2014 *(SPECIAL MEETINGS*)

No rules were adopted or amended at these special meetings in May.

JUNE 6, 2014

1. **Regulation III – Fees: Notice of Exemption.** Amendments to Regulation III – Fees, included an adjustment by the change in the Consumer Price Index (CPI) (1.6 percent) pursuant to Rule 320 - Automatic Adjustment Based on CPI for Regulation III Fees. The amendments also included an additional six percent increase in fees for permit processing and annual permit renewal, phased in over two years, to address an identified shortfall in costs associated with issuing the permits. As a result of the amendments to Regulation III, fees would increase in each of these two categories by three percent for fiscal years 2014/15 and 2015/16. A Notice of Exemption was prepared for the project. Since the project was exempt from CEQA, no alternatives analysis was required.

2. **Rule 2202 – On-Road Motor Vehicle Mitigation Options, Rule 2202 Implementation Guidelines, Rule 301 – Permitting and Associated Fees, and Rule 311 Air Quality Investment Program Fees: Notice of Exemption.** In January 2014, the SCAQMD Governing Board approved a moratorium on the transfer of oxides of nitrogen (NOx) Emission Reduction Credits (ERCs) into Rule 2202, beginning January 10, 2014 through July 1, 2014. SCAQMD staff was directed to review the status of stationary source ERC banks and the potential impact of credit transfers into Rule 2202. In response to this review, the following amendments were adopted in: Rule 2202 - On-Road Motor Vehicle Mitigation Options; the accompanying rule Implementation Guidelines; Rule 301 – Permitting and Associated Fees; and, Rule 311 Air Quality Investment Program (AQIP) Fees. In particular, sections of Rule 2202 and the Implementation Guidelines were amended to address the use of ERCs and clarify the use of other existing emission credits. Further, Rule 301 was amended to include a Short Term Emission Reduction Credit (STERC) transfer fee. AQIP is a program option for applicable worksites within Rule 2202. The amendments had the effect of reducing the per employee fee to more accurately reflect the costs to obtain the required emission reductions. A Notice of Exemption was prepared for the project. Since the project was exempt from CEQA, no alternatives analysis was required.

JUNE 13, 2014 *(SPECIAL MEETING)*

No rules were adopted or amended at this special meeting in June.

JULY 11, 2014

1. **Rule 2449 – Control of Oxides of Nitrogen Emissions from Off-Road Diesel Vehicles: Notice of Exemption.** In May 2008, the Governing Board adopted Rule 2449 implementing the Surplus Off-Road Opt-in for NOx (SOON) provisions of the State In-Use Off-Road Diesel Vehicle Regulation. On December 14, 2011, CARB amended the In-Use Off-Road Diesel Vehicle Regulation and removed Section 2449.2, Title 13 of the California Code of Regulation (CCR). As part of that action, CARB renumbered the SOON Provision Section 2449.3 to Section 2449.2. As a result, Rule 2449 was administratively amended to revise the reference from Section 2449.3 to Section 2449.2 of Title 13 of the California Code of Regulations. A Notice of Exemption was prepared for the project. Since the project was exempt from CEQA, no alternatives analysis was required.

AUGUST 2014

There was no Governing Board meeting in August, so no rules were adopted or amended.

SEPTEMBER 5, 2014

1. **Rule 1111 –Reduction of NOx Emissions from Natural Gas Fired, Fan-type Central Furnaces: Final Environmental Assessment:** The purpose of Rule 1111 is to control emissions of nitrogen oxides (NOx) from gas-fired fan-type residential space heating furnaces with heat input ratings between 50,000 and 175,000 British thermal units per hour (Btu/hr). The rule applies to manufacturers, distributors, sales outlets and installers of such furnaces. The amendments to Rule 1111 provided manufacturers additional time to produce residential furnaces that meet the upcoming NOx emission limit of 14 nanograms per Joule (ng/J). However, not all manufacturers will be able to produce compliant furnaces by the compliance dates. As a result, an alternate compliance option was added to Rule 1111 that would allow manufacturers of residential furnaces to pay a per unit mitigation fee for each condensing, non-condensing, weatherized and mobile home furnace distributed or sold into the SCAQMD in lieu of meeting the new lower NOx emission limit. Specifically, the amendments delayed the compliance date for condensing (high efficiency) units from October 1, 2014 until April 1, 2015. This delay provided manufacturers additional time for testing new furnace designs, and submitting and receiving approval of alternate compliance plans for non-compliant condensing furnaces. Based on sales estimates for condensing furnaces in southern California, the amendments to Rule 1111 were expected to result in peak daily emission reductions foregone of up to 46 pounds per day during the period from October 1, 2014 until April 1, 2015. These foregone emission reductions, from the sale and installation of non-compliant furnaces during those six months were not able to be completely mitigated during the delay period because the mitigation program did not go into effect until the period beginning on January 1, 2015 and ending on April 1, 2015. However, the mitigation program was able to offset emission reductions foregone for the remainder of the lifetime of these furnaces once mitigation fees were received during the last calendar quarter of 2014 and the first quarter of 2015. The mitigation fee was used to fund existing SCAQMD programs including the clean leaf-blower and lawn mower exchange programs. A Final Environmental Assessment was prepared for the project that concluded that there would be no significant adverse environmental impacts. Since no significant adverse environmental impacts were identified, no alternatives analysis was required.

2. **Rule 1151 – Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations: Notice of Exemption.** Amendments to Rule 1151 were comprised of administrative changes that removed obsolete rule language and made minor revisions and editorial corrections. The amendments also added new definitions for the following terms: automotive graphic arts operation; solvent cleaning; and, weld-through primer. In addition, the amendments revised the transfer efficiency equivalency section and added an exemption from the transfer efficiency requirements for automotive graphic arts operations, truck bed liner coatings, and underbody coatings. Finally, the amendments to Rule 1151 updated existing definitions, and included other minor changes for clarity and consistency throughout the rule. A Notice of Exemption was prepared for the project. Since the project was exempt from CEQA, no alternatives analysis was required.

OCTOBER 3, 2014

No rules were adopted or amended in October.

NOVEMBER 7, 2014

1. **Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens: Final Environmental Assessment.** Rule 1153.1 was adopted to limit emissions of nitrogen oxides (NOx) and carbon monoxide (CO) from the combustion of gaseous and liquid fuels in commercial food ovens, roasters and smokehouses. This equipment was previously regulated by SCAQMD Rule 1147 – NOx Reductions from Miscellaneous Sources and Regulation XIII – New Source Review (NSR). However, because control technologies have not matured in a timely manner for commercial food ovens, SCAQMD staff chose to regulate these sources separately from the other Rule 1147 sources. Under Rule 1153.1, the commercial food ovens were placed on a more suitable compliance schedule with achievable emission limitations. NOx emission reductions for Rule 1153.1 were delayed compared with Rule 1147, and were estimated to result in approximately 120 pounds per day of peak daily NOx emissions foregone by 2023 as a result of an increase in the allowable NOx ppm limit and exemption of smaller units. The quantity of peak daily NOx emission reductions foregone was shown to exceed the NOx significance threshold for operation of 55 pounds per day. Thus, Rule 1153.1 was concluded to result in significant adverse operational air quality impacts. Rule 1153.1 also included options for alternate compliance plans, equipment certification and a mitigation fee option that currently exists in Rule 1147. In Rule 1147, all mitigation fees are used to reduce NOx emissions through the SCAQMD's leaf blower exchange program. The fees collected as a result of the implementation of Rule 1153.1 from the affected facilities electing to use the mitigation fee option are required to be used in the same manner as fees collected for Rule 1147. By funding this program, emission reductions to be generated were shown to provide a regional air quality and corresponding GHG benefit that would reduce the impact from the potential delay in emission reductions from those facilities choosing to delay compliance. The use of these fees was expected to fully offset the adverse air quality impact, but this result could not have been foreseen at the time of adoption. No further feasible mitigation measures were identified that would reduce or eliminate the expected foregone emission reductions. Consequently, the operational air quality emissions impacts from the project were not mitigated to less than significant. A Final Environmental Assessment was prepared that concluded the amendments could generate significant adverse operational air quality impacts from NOx emission reductions foregone. Therefore, an alternatives analysis was required and prepared that included the following alternatives.

   Alternative A - No Project: Alternative A or "no project" means that the project would not be adopted and the current universe of equipment would continue to be subject to the NOx emission limits according to the current compliance schedule in Rule 1147.

   Alternative B - Additional Delayed Compliance: Alternative B provided a higher emission limit and an additional delay of NOx emission limit compliance requirements and for affected facilities beyond the project. All other requirements and conditions in the project would still apply.

   Alternative C - Expedited Compliance: Alternative C required expedited compliance of NOx emission limits compared to the project, but allowed a delay of NOx emission limit compliance requirements compared to Rule 1147. All other requirements and conditions in the project would still apply.

Alternative D - Lower Emission Limits: Alternative D required affected facilities to meet lower, more stringent NOx emission limits than the emission compliance limits of the project. All other requirements and conditions in the project would still apply.

The staff proposal was adopted by the Governing Board.

DECEMBER 5, 2014

1. **Rule 1325 – Federal PM2.5 New Source Review Program: Notice of Exemption.** Amendments to Rule 1325 made administrative changes to the rule's definitions, requirements, and exclusions. A clarification was added to specify that the rule applies to PM2.5 and its precursors. The Lowest Achievable Emission Rate (LAER) definition was modified to reference 40 CFR 51.165 (a)(1)(xiii). A provision was included to specify that approval to construct would not relieve owners and operators of the responsibility to comply fully with applicable provisions of the permit and other requirements under local, State or Federal law. A reference to Rule 1315 – Federal New Source Review Tracking System, was included to denote that the provisions in Rule 1315 do not apply to Rule 1325. In addition, the provision that stated that Rule 1325 applied as opposed to other Regulation XIII rules was removed. The removal clarified that Rules 1306 – Emission Calculations and 1309 – Emission Reduction Credits and Short Term Credits, would apply. Finally, the amendments to Rule 1325 updated existing definitions, and included other minor changes for clarity and consistency throughout the rule. A Notice of Exemption was prepared for the project. Since the project was exempt from CEQA, no alternatives analysis was required.

CEQA LEAD AGENCY PROJECTS

The SCAQMD also acts as the Lead Agency under CEQA for non-SCAQMD projects where the SCAQMD typically has primary approval, i.e., discretionary permitting, authority. Under CEQA, the Lead Agency is responsible for determining whether an Environmental Impact Report (EIR), Negative Declaration or other type of CEQA document is necessary for any proposal considered to be a "project" as defined by CEQA. Further, the Lead Agency is responsible for preparing the environmental analysis, complying with all procedural requirements of CEQA, and approving the environmental documents. All documents prepared by the SCAQMD for permit projects are subject to the standard CEQA requirements.

Since January 2014, SCAQMD staff has been responsible for preparing or having prepared CEQA documents for stationary source permit projects. The lead agency projects that were approved by the SCAQMD in 2014 are identified below.

JANUARY 2014

No projects were approved in January.

FEBRUARY 2014

No projects were approved in February.

MARCH 2014

No projects were approved in March.

APRIL 2014

No projects were approved in April.

MAY 2014

No projects were approved in May.

JUNE 2014

No projects were approved in June.

JULY 2014

No projects were approved in July.

AUGUST 21, 2014

1. **Final Supplemental Negative Declaration for the Warren E&P, Inc. WTU Central Facility, New Equipment Project:** The project consisted of modifications and improvements to the gas handling system for a previously approved gas sales project. In particular, the project consisted of replacing the six existing and three previously proposed microturbines with an additional Bekaert CEB® for improved operational effectiveness. The project did not make any changes to the gas conditioning system that was analyzed in the previously approved project. The system will discharge the sales gas to the SoCalGas distribution pipeline. Tail gas and excess oil field gas will be combusted in one or both of the Bekaert CEB® units. Based on the analysis of potential environmental impacts from the project, it was concluded that the

project would not create significant adverse environmental impacts. Since no significant adverse environmental impacts were identified, no alternatives analysis was required.

The project was adopted by the SCAQMD's decision-making body.

SEPTEMBER 2014

No projects were approved in September.

OCTOBER 10, 2014

1. **Final Negative Declaration for the Ultramar Inc. Wilmington Refinery Cogeneration Project:** Ultramar Inc. proposed to install a 35 megawatt Cogeneration Unit that included a natural gas-fired turbine, a heat recovery steam generator equipped with a duct burner for supplemental steam production, a selective catalytic reduction (SCR) unit and catalyst for emissions control of nitrogen oxides and carbon monoxide, an evaporative cooler, the necessary piping to connect to an existing aqueous ammonia tank to supply ammonia to the SCR unit, and a new control room. The installation of the Cogeneration Unit would substantially decrease the Refinery's need for offsite sources of electricity and limit the use of several existing boilers that produce steam at the Refinery. The Cogeneration Unit would be located within the confines of the existing Ultramar Inc. Wilmington Refinery. Based on the analysis of potential environmental impacts from the project, it was concluded that the project would not create significant adverse environmental impacts. Since no significant adverse environmental impacts were identified, no alternatives analysis was required.

   The project was adopted by the SCAQMD's decision-making body.

NOVEMBER 2014

No projects were approved in November.

DECEMBER 5, 2014

1. **Final Mitigated Negative Declaration for the Toxic Air Contaminant Reduction for Compliance with SCAQMD Rules 1420.1 and 1402 at the Exide Technologies Facility:** Exide Technologies proposed a project to reduce toxic emissions of arsenic, benzene and 1,3-butadiene to comply with the recent amendments made to SCAQMD Rule 1420.1 - Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities, as well as to assure compliance with requirements in SCAQMD Rule 1402 - Control of Toxic Air Contaminants from Existing Sources including the Proposed Revised Final Risk Reduction Plan. Compliance will be accomplished with the installation of air pollution control equipment including two regenerative thermal oxidizers, two scrubbers, and dust collectors. Based on the analysis of potential environmental impacts from the project, it was concluded that the project would not create significant adverse environmental impacts after mitigation. A mitigation monitoring plan was adopted for the project. Since no significant adverse environmental impacts were identified, no alternatives analysis was required.

   The project was adopted by the SCAQMD's decision-making body.

DECEMBER 12, 2014

1. **Final Negative Declaration for the Phillips 66 Los Angeles Refinery – Carson Plant Crude Oil Storage Capacity Project:** Phillips 66 proposed to increase crude oil storage capacity at its Los Angeles Refinery Carson Plant by installing one new 615,000 barrel (bbl) crude oil storage tank with a geodesic dome, and increasing the annual permit throughput limit and installing geodesic domes on two existing 320,000 bbl crude oil storage tanks. Two new feed/transfer pumps and one 14,000 bbl water draw surge tank with associated pumps and pipelines to the existing brine stripper would also be installed. Tie-ins to the Pier "T" crude oil delivery pipeline from Berth 121 would be installed and one new electrical power substation would be constructed. The project would be located within the confines of the existing Phillips 66 Los Angeles Refinery – Carson Plant. Based on the analysis of potential environmental impacts from the project, it was concluded that the project would not create significant adverse environmental impacts. Since no significant adverse environmental impacts were identified, no alternatives analysis was required.

   The project was adopted by the SCAQMD's decision-making body.

SOCIOECONOMIC IMPACT ANALYSES

California Health and Safety Code §40440.8 requires the SCAQMD to perform socioeconomic impact assessments for its rules and regulations that will significantly affect air quality or emissions. Prior to implementing the requirements of §40440.8, SCAQMD staff had been evaluating the socioeconomic impacts of its actions pursuant to a 1989 resolution of its Governing Board. Additionally, SCAQMD staff assesses socioeconomic impacts of CEQA (California Environmental Quality Act) alternatives to those rules with significant cost and emission reduction impacts.

The elements of socioeconomic impact assessments include direct effects on various types of affected industries in terms of control costs and cost-effectiveness as well as public health benefits. Additionally, SCAQMD staff uses an economic model developed by Regional Economic Models, Inc. (REMI) to analyze the potential direct and indirect socioeconomic impacts of SCAQMD rules on Los Angeles, Riverside, Orange, and San Bernardino Counties. These impacts include, but are not limited to, employment, competitiveness, and ethnic and income distributions.

In 2014, ten rules were amended and one new rule was adopted. Out of the ten amended rules, eight rules had no significant socioeconomic impacts.

Newly-Adopted Rule

Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens was adopted to reduce NOx emissions from food ovens, equipment that was previously subject to Rule 1147. Rule 1153.1 has higher NOx emission limits than Rule 1147. Compared with Rule 1147, Rule 1153.1 delayed NOx emission limit compliance dates for existing (in-use) permitted equipment and includes a carbon monoxide emission limit. Rule 1153.1 also established test methods and provided alternate compliance options.

Rule 1153.1 is expected to lower compliance costs for owner/operators of food ovens, roasters, and smokehouse ovens. The reduced equipment replacement cost (savings) for the 135 small and low use ovens exempt from the emission limits in Rule 1153.1 will be on the order of $2,500 to $7,500 per burner. Rule 1153.1 also has later compliance dates compared to Rule 1147 which delays the costs from equipment replacement and testing for larger units.

Rule Amendments with Socioeconomic Impacts

The January 10, 2014 amendments to Rule 1420.1 - Emissions Standard for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities, affected two facilities that process greater than 50,000 tons of lead annually. Rule 1420.1 requires the submittal of a compliance schedule and permit applications, installation of control equipment and pressure monitor devices, and additional source testing. Rule 1420.1 also requires additional ambient air monitoring, and recordkeeping to ensure continuous compliance with the proposed emission limits. Finally, operation curtailments are required if the standard limits cannot be met.

The total compliance cost from implementing Rule 1420.1 is estimated to be $1.83 million annually. Of the $1.83 million compliance cost, $1.5 million is the cost of scrubber, RTO, and CEMS. The total annualized cost of pressure monitor devices is estimated to be $6,318. The total cost of the source testing is estimated to be $508,500 for the first year and $268,500 for the second and subsequent years. The amendments are expected to result in an annual average of 29 jobs

forgone in the four-county area from 2014 to 2030. This represents less than 0.0003 percent of the total employment in the four-county region.

The March 7, 2014 amendments to Rule 1420.1 required participation in a multi-metals CEMS demonstration program. Based on information from the CEMS vendor, SCAQMD staff estimated the total cost to rent, install, and maintain the CEMS for the demonstration program to be approximately $206,725 for each facility. Potential additional costs for site requirements to support the multi-metals CEMS are $3,200 per facility.

Rule Amendments without Socioeconomic Impacts

The following rule amendments in 2014 had no significant socioeconomic impacts: Rule 102 - Definition of Terms; Rule 1130 - Graphic Arts; Rule 1155 - PM Control Devices; Rule 2449 - Control of Oxides of Nitrogen Emissions from Off-Road Diesel Vehicles; Rule 1151 - Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations; Rule 1111 - Reduction of NOx Emissions from Natural Gas Fired, Fan-type Central Furnaces; Rule 1325 - Federal PM2.5 New Source Review Program; Rule 2202 – On-Road Motor Vehicle Mitigation Options (including the moratorium); Rule 2202 Implementation Guidelines; Rule 301 – Permitting and Associated Fees; and, Rule 311 - Air Quality Investment Program Fees.

Rule 102 exempted trans 1-chloro-3,3,3-trifluoropropene from the VOC definition of the rule. The U.S. EPA has already exempted the compound from the federal VOC definition because of its negligible photochemical reactivity level. There is no additional compliance cost to users of the exempted compound since its use is strictly voluntary. However, Rule 102 now provides additional flexibility to manufacturers and local facilities by adding an additional exempt solvent; therefore, PAR 102 is not expected to have any adverse socioeconomic impacts.

Rule 1111 delayed the compliance date for condensing (high efficiency) units until April 1, 2015. The amendments also added a mitigation fee-based compliance option to allow up to three years' delay for residential furnace manufacturers that require additional time to produce furnaces that meet the 14 ng/Joule emission limit. Rule 1111 allows affected manufacturers to pay a mitigation fee of $150 to $200 per unit in lieu of complying with the new NOx emission limit. The option to pay a mitigation fee was requested by manufacturers and participation is strictly voluntary. This mitigation fee is equivalent to the additional cost of a new compliant furnace and will provide manufacturers an alternative to producing furnaces that comply with the new emission limit. As such, Rule 1111 does not impose additional costs on the affected manufacturers beyond what was analyzed for the previous Rule 1111 amendment in 2009 and does not have additional adverse socioeconomic impacts.

The amendments to the Rule 1130 codified existing practices at graphic arts operations that are subject to Rule 1130. As such, there will be no additional costs or other socioeconomic impacts anticipated.

The amendments to Rule 1151 made administrative changes to the rule by removing obsolete rule language, and making minor revisions and editorial corrections. The amendments also added new definitions to promote clarity and consistency, and further aligned the transfer efficiency equivalency requirements with the state suggested control measure. Further, the amendments codified existing practices at Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations that are subject to Rule 1151. As such, there will be no additional costs or other socioeconomic impacts.

The amendments to Rules 301, 311, and 2202 (including the moratorium), and the Rule 2202 Implementation Guidelines will affect 1,336 worksites within the SCAQMD jurisdiction. These worksites belong to most major sectors in the local economy. These amendments resulted in a reduction of filing fees associated with one of the rule compliance options. Because employers will continue to be able to choose from different compliance options, there will be no additional costs or other socioeconomic impacts anticipated.

The amendments to Rule 2449 revised the reference from Section 2449.3 to Section 2449.2 of the State Regulation. As the provisions referred to in the amendment are already in effect, they represent no change to existing requirements on affected fleets. The amendments to Rule 2449 were administrative in nature and did not have any socioeconomic impacts.

The amendments to Rule 1155 clarified that certain provisions of Rule 401 – Visible Emissions and the provisions of Rule 404 – Particulate Matter - Concentration are applicable to equipment subject to Rule 1155. The amendments to Rule 1155 were administrative in nature and did not have any socioeconomic impacts.

The amendments to Rule 1325 incorporated U.S. EPA's requirements for PM2.5 into Regulation XIII – New Source Review. The rule mirrors federal requirements and is applicable to major polluting facilities, which are defined by rule as sources with actual emissions, or the potential to emit, 100 tons per year or more of PM2.5 or its precursors. The amendments were shown to not "significantly affect air quality or emissions limitations." (Health and Safety Code §40440.8 (a)) and did not have any socioeconomic impacts.

Regulation III ─ Fees

The amendments to Regulation III consisted of two components. First, the across-the-board 1.6 percent (CPI) increase in fee rates reflected inflationary cost recovery was projected to increase revenue for the FY 2014-2015 year by $1.4 million, relative to the estimated FY 2013-2014 revenue. Nearly all the facilities regulated by the SCAQMD would be affected by the proposed CPI increase. These facilities belong to every sector of the economy.

In addition to the CPI adjustment, a six percent increase in fees for permit processing and annual permit renewal was adopted to address an identified shortfall in these two fee categories. The increase was evenly phased in over fiscal years 2014/15 and 2015/16 and was projected to increase revenue by $1.7 million annually for the two phase-in years.

Special Projects

On October 4, 2013, the Governing Board approved a contract with Abt Associates for the review of SCAQMD socioeconomic assessments. SCAQMD directed the selected contractor to conduct the following tasks: 1) review socioeconomic assessments of other agencies at the federal, state and local levels; 2) review the SCAQMD socioeconomic assessments for its strengths and weaknesses; 3) conduct interviews of stakeholders who are regulated and affected by the SCAQMD rules and policies; and, 4) recommend future actions.

In August 2014, Abt Associates delivered the final report to SCAQMD staff. The Abt Associates report concluded that, after reviewing 63 regulatory impact analyses conducted by SCAQMD, U.S. EPA, and 12 other state or regional agencies/organizations, the SCAQMD's socioeconomic assessments are more comprehensive in both breadth and depth in comparison to those conducted by the majority of other agencies considered in their evaluation effort. The report also concluded

that the SCAQMD uses a sound methodology in analyzing health benefits, compliance costs, and economic impacts.

For reconsideration of, and improvements in, the SCAQMD's current practices of socioeconomic assessments, the Abt Associates report provided a list of recommendations. Their key recommendations concerned various areas. First, the SCAQMD was recommended to enhance documentation of the definition of the baseline and policy scenarios, specifically whether SCAG's Transportation Control Measures (TCMs) and their associated benefits and costs are considered as part of AQMP policy scenario. Second, while the Abt Associates report supported the continued use of REMI for economic impact analysis, it also recommended the SCAQMD to: 1) use other modeling tools and analysis for small industry sectors and small businesses; 2) improve the REMI amenity inputs; and, 3) keep abreast of the U.S. EPA's development of methods for applying benefits in economy-wide models. In addition, the SCAQMD was also recommended to improve uncertainty analysis, expand Economic Justice (EJ) analysis, and institute a systematic process to review and update recent literature in specific areas. Finally, in order to increase transparency of the analyses, the SCAQMD was recommended to: 1) involve to a greater extent the scientific advisory group; 2) increase public outreach; 3) make the peer review process more transparent; and, 4) enhance documentation clarity by redesigning the reporting system to consider different types of audiences.

The SCAQMD staff prepared a summary matrix of Abt Associates' recommendations and staff's corresponding responses, which also include the recommended actions, implementation schedule, and estimated resource impacts. SCAQMD staff presented the package to the STMPR Advisory Group, Home Rule Advisory Group, AQMP Advisory Group, and finally incorporated all stakeholder comments and staff responses in a presentation to the Governing Board on November 7, 2014. SCAQMD is currently in the process of implementing the recommended actions in the Abt Associates report.

PERMITTING & COMPLIANCE

SB 1928 REPORT	
Permit Applications Processed During CY 2014	
Application Type	Count
Permits to Construct Issued	530
Permits to Operate Issued	3,139
Plans	383
Denied	19
Cancelled	428
Change of ownership	1,313
Area Sources & Certification/Registration	3,852
Others (TV/RECLAIM Modification, ERCs)	434
Total	10,098
Permits Not Renewed	818

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
103	Unknown	0	0	0	0	0	0	0	0	0	2
111	WHEAT	0	0	0	0	0	0	0	0	0	1
116	SOYBEANS	2	0	0	0	0	0	0	0	0	0
182	FOOD CROPS GROWN UNDER COVER	1	0	0	0	0	0	0	0	0	0
211	BEEF CATTLE FEEDLOTS	0	0	0	0	0	0	0	0	0	1
241	DAIRY FARMS	0	0	0	0	0	0	0	0	1	0
252	CHICKEN EGGS	0	0	8	0	0	0	0	0	0	0
341	Unknown	0	9	0	0	1	0	0	0	0	0
700	Unknown	0	0	0	0	0	0	0	0	1	0
751	LIVESTOCK SERV, EXC SPECIALIST	0	4	0	0	0	0	0	0	0	0
782	LAWN AND GARDEN SERVICES	0	0	0	0	0	0	0	0	1	0
851	FORESTRY SERVICES	0	1	0	0	0	0	0	0	1	0
1310	Unknown	0	1	0	0	3	0	0	0	0	0
1311	CRUDE PETRO AND NATURAL GAS	11	18	53	0	11	14	3	4	6	36
1381	DRILLING AND OIL AND GAS WELLS	0	0	0	0	0	0	0	0	2	0
1389	OIL/GAS FIELD SERVICES, NEC	1	6	5	0	0	0	1	1	0	0
1422	CRUSHED AND BROKEN LIMESTONE	0	1	0	0	0	0	0	0	0	0
1440	Unknown	0	5	0	0	1	0	0	0	0	0
1442	CONSTRUCTION SAND AND GRAVEL	0	4	0	0	0	0	0	0	1	0
1500	Unknown	0	0	0	0	0	0	1	0	0	0
1522	RESIDENTIAL CONSTRUCTION, NEC	0	1	0	0	0	0	0	0	0	0
1541	INDUSTRIAL BUILDINGS/WAREHOUSE	0	1	0	0	0	0	0	0	0	4
1600	Unknown	1	2	0	0	0	0	1	0	0	0
1611	HIGHWAY & STREET CONSTRUCTION	0	1	0	0	0	0	0	0	0	1
1622	BRIDGE/TUNNEL/ELEVATED HIGHWAY	0	1	0	0	1	0	1	0	0	1
1623	WATER, SEWER, AND UTILITY LINE	0	2	0	0	0	0	1	0	0	4
1629	HEAVY CONSTRUCTION, NEC	0	0	0	0	0	0	1	0	0	0

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
1700	Unknown	0	6	0	0	0	0	1	0	0	0
1711	PLUMB, HEAT, AIR CONDITION	0	0	0	0	0	0	3	0	1	0
1721	PAINT, PAPER HANGING, DECORAT	0	0	0	0	0	0	0	0	5	0
1731	ELECTRICAL WORK	0	0	0	0	0	0	0	0	0	17
1761	ROOFING AND SHEET METAL WORK	0	1	0	0	0	0	0	0	0	12
1771	CONCRETE WORK	0	0	0	0	0	0	0	0	2	0
1780	Unknown	0	0	0	0	0	0	0	0	0	1
1791	STRUCTURAL STEEL ERECTION	0	1	0	0	0	0	0	0	1	0
1794	EXCAVATING AND FOUNDATION WORK	25	23	1	0	3	0	101	2	2	19
1795	WRECKING AND DEMOLITION WORK	0	0	0	0	0	0	1	0	0	0
1799	SPECIAL TRADE CONTRACTORS, NEC	2	22	0	0	5	0	30	0	9	65
2000	Unknown	0	0	0	0	0	0	0	0	0	1
2011	MEAT PACKING PLANTS	0	0	0	0	0	0	0	0	0	1
2024	ICE CREAM AND FROZEN DESSERTS	0	1	0	0	0	0	0	0	0	0
2026	FLUID MILK	0	1	0	0	1	0	0	0	0	0
2033	CANNED FRUITS AND VEGETABLES	0	4	0	0	0	0	0	0	0	1
2034	DEHYDRATED FRUITS/VEGTLB/SOUP	0	2	0	0	0	0	0	0	2	0
2041	FLOUR/OTHER GRAIN MILL PRODUCT	0	6	23	0	0	0	0	0	0	3
2045	BLENDED AND PREPARED FLOUT	0	3	0	0	0	0	0	0	0	0
2047	DOG AND CAT FOOD	2	2	0	0	0	0	0	0	0	0
2051	BREAD, CAKE, & RELATED PROD	3	8	12	0	2	0	0	0	1	2
2052	COOKIES AND CRACKERS	0	1	0	0	0	0	0	0	0	1
2070	Unknown	0	1	0	0	0	0	0	0	0	0
2082	MALT BEVERAGES	0	0	0	0	0	0	0	0	0	2
2087	FLAVORING EXTRACTS/SIRUPS, NEC	0	0	0	0	2	1	0	0	0	0
2092	FRESH OR FROZEN PACKAGED FISH	0	1	0	0	0	0	0	0	0	0
2095	ROASTED COFFEE	2	3	2	0	0	0	0	0	0	0
2096	POTATO CHIPS & SIMILAR SNACKS	0	0	0	0	0	0	0	0	0	4

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
2099	FOOD PREPARATIONS, NEC	1	4	0	0	12	0	1	0	0	3
2253	KNIT OUTERWEAR MILLS	1	0	0	0	0	0	0	0	0	0
2260	Unknown	1	1	0	0	0	0	0	0	0	1
2261	FINISHING PLANTS, COTTON	1	0	0	0	0	0	0	0	0	0
2262	FINISHING PLANTS, SYNTHETICS	2	0	0	0	2	0	0	0	0	0
2269	FINISHING PLANTS, NEC	0	22	0	0	0	0	0	0	0	0
2270	Unknown	0	0	0	0	4	0	0	0	0	0
2272	TUFTED CARPETS AND RUGS	0	2	0	0	0	0	0	0	0	0
2273	CARPETS AND RUGS	0	0	9	0	0	0	0	0	0	0
2281	YARN SPINNING MILLS	1	0	0	0	0	0	0	0	0	0
2295	COATED FABRICS, NOT RUBBERIZED	3	0	0	0	0	0	0	0	0	0
2299	TEXTILE GOODS, NEC	0	0	0	0	0	0	0	0	4	0
2361	CHILDREN'S DRESSES AND BLOUSES	1	6	0	0	1	0	1	0	0	0
2392	HOUSE FURNISHINGS, NEC	0	0	0	0	0	0	0	0	5	0
2399	FABRICATED TEXTILE PROD, NEC	0	0	0	0	0	0	0	0	2	0
2426	HARDWOOD DIMENSION & FLOORING	0	0	0	0	0	0	0	0	3	0
2431	MILLWORK	0	0	1	0	0	0	0	0	15	0
2434	WOOD KITCHEN CABINETS	0	1	0	0	0	0	0	0	0	0
2449	WOOD CONTAINERS, NEC	0	0	0	0	0	0	0	0	1	0
2499	WOOD PRODUCTS, NEC	1	19	1	0	0	0	0	0	2	0
2510	HOUSEHOLD FURNITURE	0	1	0	0	0	0	0	0	0	0
2511	WOOD HOUSEHOLD FURNITURE	1	7	0	0	0	0	0	0	25	0
2512	UPHOLSTERED HOUSEHLD FURNITURE	1	1	0	0	0	0	0	0	1	0
2514	METAL HOUSEHOLD FURNITURE	1	3	0	0	0	0	0	0	1	0
2517	WOOD TV AND RADIO CABINETS	0	0	0	0	0	0	0	0	2	0
2519	HOUSEHOLD FURNITURE, NEC	0	0	0	0	0	0	0	0	1	0
2521	WOOD OFFICE FURNITURE	0	0	0	0	0	0	0	0	6	0
2590	Unknown	0	0	0	0	0	0	0	0	1	0

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
2599	FURNITURE AND FIXTURES, NEC	0	1	0	0	0	0	0	0	1	0
2621	PAPER MILLS	0	3	9	0	0	0	0	2	0	1
2630	Unknown	0	1	0	0	0	0	0	0	0	0
2653	CORRUGATED & SOLID FIBER BOXES	0	7	0	0	0	0	0	1	0	0
2655	FIBER CANS/DRUMS/SIMILAR PROD	0	1	0	0	0	0	0	1	0	0
2656	SANITARY FOOD CONTAINERS	0	1	0	0	0	0	0	0	0	0
2657	FOLDING PAPERBOARD BOXES	1	0	0	0	0	0	0	0	0	1
2672	PAPER COATED & LAMINATED, NEC	6	6	0	0	0	0	1	2	0	0
2674	BAGS:UNCOATED PAPER/MULTIWALL	0	0	0	0	0	0	0	0	2	0
2711	NEWSPAPERS	0	0	0	0	0	0	0	0	4	1
2732	BOOK PRINTING	0	6	0	0	1	0	1	0	0	0
2751	COMMERCIAL PRINT/LETTERPRESS	0	0	3	0	0	0	0	0	0	0
2752	COMMERCIAL PRINT/LITHOGRAPH	6	18	5	0	0	0	0	1	11	0
2753	ENGRAVING AND PLATE PRINTING	0	1	0	0	0	0	0	0	0	0
2759	COMMERCIAL PRINTING, NEC	0	9	0	0	0	0	0	0	10	0
2761	MANIFOLD BUSINESS FORMS	0	1	0	0	0	0	0	0	0	0
2813	INDUSTRIAL GASES	3	0	0	0	2	4	0	2	0	0
2819	INDUSTRIAL INORGANIC CHMLS,NEC	0	3	37	0	1	1	0	0	0	0
2821	PLASTICS MATERIALS AND RESINS	5	11	0	0	0	0	0	1	5	2
2833	MEDICINALS AND BOTANICALS	0	0	0	0	0	0	0	0	0	2
2834	PHARMACEUTICAL PREPARATIONS	0	34	3	0	0	0	0	0	0	5
2836	BIOLOGICAL PRDTS EXC DIAGNOSTC	0	9	0	0	6	1	0	0	0	2
2840	Unknown	0	0	0	0	4	0	0	0	0	0
2841	SOAPS AND OTHER DETERGENTS	2	7	0	0	1	0	0	0	0	0
2844	TOILET PREPARATIONS	0	1	0	0	0	0	0	0	0	1
2850	Unknown	0	12	0	0	1	0	0	0	0	0
2851	PAINTS AND ALLIED PRODUCTS	0	1	0	0	0	0	0	0	1	0
2869	INDUSTRIAL ORGANIC CHMLS, NEC	0	5	0	0	0	0	0	0	0	1

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
2870	Unknown	0	1	0	0	0	0	0	0	0	0
2875	FERTILIZERS, MIXING ONLY	0	1	0	0	0	3	0	0	0	0
2890	Unknown	0	18	0	0	0	0	0	0	0	0
2891	ADHESIVES AND SEALANTS	3	7	0	0	0	0	0	0	0	0
2893	PRINTING INK	5	0	0	0	0	0	0	0	0	0
2899	CHEMICAL PREPARATIONS, NEC	1	0	0	0	1	0	0	0	0	5
2911	PETROLEUM REFINING	26	51	14	0	54	16	66	39	0	8
2950	Unknown	0	6	0	0	15	0	0	0	0	0
2951	PAVING MIXTURES AND BLOCKS	0	2	1	0	0	1	1	0	3	0
2952	ASPHALT FELTS AND COATINGS	0	5	0	0	2	0	0	0	0	1
2992	LUBRICATING OILS AND GREASES	1	0	0	0	0	0	2	2	0	0
2999	PETROLEUM & COAL PRODUCTS, NEC	0	9	0	0	0	0	2	0	0	0
3060	Unknown	0	0	0	0	0	0	0	0	5	0
3061	MECHANICAL RUBBER GOODS	0	11	0	0	0	0	0	0	0	3
3069	FABRICATED RUBBER PRODUCTS,NEC	0	2	0	0	0	0	0	0	0	3
3081	UNSUPPORTED PLSTCS FILM/SHEET	4	2	0	0	3	0	0	0	0	0
3082	UNSUPPORTD PLSTCS PROFL SHAPES	3	1	0	0	0	0	1	0	0	1
3083	LAMINATED PLSTCS PLATE & SHEET	3	2	0	0	0	0	0	0	0	0
3086	PLASTICS FOAM PRODUCTS	1	4	0	0	0	0	0	0	0	1
3087	CUSTOM COMPOUND PRCHSD RESINS	0	2	15	0	0	0	0	1	1	1
3088	PLASTICS PLUMBING FIXTURES	0	0	0	0	0	0	0	0	13	0
3089	PLASTICS PRODUCTS, NEC	14	31	20	0	11	0	2	1	3	1
3161	LUGGAGE	0	0	0	0	1	0	0	0	0	0
3211	FLAT GLASS	0	0	0	0	0	0	0	0	1	0
3221	GLASS CONTAINERS	0	0	0	0	0	0	0	0	0	1
3231	PRODUCTS OF PURCHASED GLASS	0	0	0	0	0	0	0	0	5	0

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
3241	CEMENT, HYDRAULIC	0	1	0	0	0	0	0	1	0	0
3253	CERAMIC WALL AND FLOOR TILE	1	1	0	0	1	0	0	0	0	0
3259	STRUCTURAL CLAY PRODUCTS, NEC	0	0	0	0	2	0	0	0	0	0
3269	POTTERY PRODUCTS, NEC	0	8	6	0	0	0	0	0	0	0
3270	Unknown	0	0	0	0	0	0	0	0	3	0
3272	CONCRETE PRODUCTS, NEC	0	11	12	0	2	0	1	0	10	2
3273	READY-MIXED CONCRETE	0	17	1	0	0	0	0	0	1	0
3275	GYPSUM PRODUCTS	0	4	0	0	0	0	0	1	0	1
3295	MINERALS, GROUND OR TREATED	0	2	0	0	0	0	0	1	0	0
3312	BLAST FURNACES AND STEEL MILLS	4	5	0	0	1	0	1	3	0	1
3315	STEEL WIRE & RELATED PRODUCTS	0	5	0	0	0	0	0	2	0	0
3321	GRAY IRON FOUNDRIES	0	0	0	0	0	0	1	0	0	0
3324	STEEL INVESTMENT FOUNDRIES	0	0	0	0	0	0	0	0	0	1
3325	STEEL FOUNDRIES, NEC	0	2	0	0	0	0	0	0	0	0
3339	PRIMARY NONFERROUS METALS, NEC	0	1	0	0	0	0	0	0	0	0
3341	SECONDARY NONFERROUS METALS	27	5	0	0	3	0	2	3	0	0
3354	ALUMINUM EXTRUDED PRODUCTS	3	0	0	0	0	1	0	0	0	0
3363	ALUMINUM DIE-CASTINGS	0	0	0	0	0	0	0	0	0	1
3365	ALUMINUM FOUNDRIES	0	1	0	0	0	0	0	0	0	1
3366	COPPER FOUNDRIES	0	0	0	0	0	6	0	0	0	0
3369	NONFERROUS FOUNDRIES, NEC	0	1	0	0	0	0	0	0	0	2
3398	METAL HEAT TREATING	0	4	0	0	0	0	0	0	0	0
3399	PRIMARY METAL PRODUCTS, NEC	0	3	0	0	1	0	0	0	0	0
3400	Unknown	0	0	0	0	0	0	0	0	0	1
3411	METAL CANS	0	1	0	0	0	31	0	0	4	4
3412	METAL BARRELS, DRUMS, & PAILS	1	8	0	0	0	0	2	0	0	0
3429	HARDWARE, NEC	0	0	0	0	0	0	0	0	0	1
3432	PLUMBING FIXTR FITTINGS/TRIM	1	4	0	0	0	0	0	0	0	0

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
3441	FABRICATED STRUCTURAL METAL	2	0	0	0	0	0	0	0	0	0
3442	METAL DOORS, SASH, AND TRIM	0	1	0	0	0	0	0	0	0	0
3443	FABRICATE PLATE WK-BOILER SHOP	0	5	0	0	0	0	0	0	0	0
3444	SHEET METALWORK	5	0	2	0	0	0	0	0	0	0
3446	ARCHITECTURAL METAL WORK	1	1	0	0	0	0	0	0	2	0
3448	PREFABRICATED METAL BUILDINGS	0	0	0	0	0	0	0	0	4	0
3449	MISCELLANEOUS METAL WORK	1	1	1	0	1	0	0	0	1	2
3451	SCREW MACHINE PRODUCTS	2	0	0	0	0	0	0	0	0	0
3452	BOLTS, NUTS, RIVETS, & WASHERS	4	13	0	0	2	0	0	0	0	2
3462	IRON AND STEEL FORGINGS	3	6	0	0	0	0	0	2	0	0
3463	NONFERROUS FORGINGS	0	4	0	0	2	0	1	1	0	0
3465	AUTOMOTIVE STAMPINGS	0	1	0	0	0	0	0	0	0	0
3469	METAL STAMPINGS, NEC	1	0	0	0	0	0	0	0	0	0
3471	PLATING AND POLISHING	9	23	4	0	3	0	0	0	13	11
3479	METAL COATING/ALLIED SERVICES	14	6	4	0	2	0	0	1	12	1
3489	ORDNANCE AND ACCESSORIES, NEC	0	3	0	0	0	0	0	0	0	1
3490	Unknown	0	2	0	0	0	0	0	0	0	0
3493	STEEL SPRINGS, EXC WIRE	0	1	0	0	0	0	0	0	0	0
3499	FABRICATED METAL PRODUCTS, NEC	10	2	0	0	1	0	0	0	1	1
3520	Unknown	0	1	0	0	0	0	0	0	0	0
3531	CONSTRUCTION MACHINERY	0	0	0	0	0	0	0	0	1	0
3541	MACHINE TOOLS METAL CUT TYPES	0	1	0	0	0	0	0	0	0	0
3543	INDUSTRIAL PATTERNS	0	0	0	0	0	0	0	0	2	0
3555	PRINTING TRADES MACHINERY	0	0	0	0	0	0	0	0	0	1
3559	SPECIAL INDUSTRY MACHINERY,NEC	0	1	0	0	0	0	0	0	0	0
3561	PUMPS AND PUMPING EQUIPMENT	0	2	0	0	0	0	0	0	2	0
3562	BALL AND ROLLER BEARINGS	0	3	0	0	1	0	0	0	0	1
3564	BLOWERS AND FANS	1	0	0	0	0	0	0	0	0	0

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
3565	PACKAGING MACHINERY	0	0	0	0	0	0	0	0	7	0
3569	GENERAL INDSTRL MACHINERY, NEC	0	0	0	0	0	0	0	0	3	0
3579	OFFICE MACHINES, NEC	0	1	0	0	0	0	0	0	0	0
3580	Unknown	1	0	0	0	0	0	0	0	0	0
3582	COMMERCIAL LAUNDRY EQUIPMENT	0	0	1	0	0	0	0	0	0	0
3585	REFRIGERATION & HEATING EQPMT	2	1	0	0	0	0	0	0	0	0
3589	SERVICE INDUSTRY MACHINERY,NEC	0	1	0	0	0	0	0	0	0	0
3599	INDUSTRIAL MACHINERY, NEC	0	2	0	0	1	0	0	0	0	1
3632	HOUSEHOLD REFRIG AND FREEZERS	0	2	0	0	0	0	0	0	0	0
3643	CURRENT-CARRING WIRING DEVICES	2	2	0	0	0	0	0	0	0	0
3646	COMMERCIAL LIGHTING FIXTURES	1	0	0	0	0	0	0	0	0	0
3651	RADIO AND TV RECEIVING SETS	0	0	1	0	0	0	0	0	1	1
3660	Unknown	0	0	0	0	0	0	0	0	0	2
3661	TELEPHONE/TELEGRAPH APPARATUS	0	0	0	0	0	0	0	0	0	2
3663	RADIO/TV COMMUNICATIONS EQPMT	0	2	0	0	0	0	0	0	0	4
3669	COMMUNICATIONS EQUIPMENT, NEC	0	1	0	0	0	0	0	0	0	0
3670	Unknown	0	4	0	0	0	0	0	0	0	1
3672	PRINTED CIRCUIT BOARDS	0	4	4	0	1	0	0	0	0	0
3674	SEMICONDUCTORS/RELATED DEVICES	0	14	1	0	1	0	0	0	0	3
3677	ELECTRONIC COILS/TRANSFORMERS	0	0	0	0	0	0	0	0	3	0
3678	ELECTRONIC CONNECTORS	0	0	0	0	0	0	0	0	0	1
3679	ELECTRONIC COMPONENTS, NEC	10	3	0	0	5	0	0	3	0	4
3690	Unknown	0	2	0	0	0	0	2	0	0	0
3691	STORAGE BATTERIES	8	0	0	0	1	0	0	0	0	0
3694	ENGINE ELECTRICAL EQUIPMENT	0	3	0	0	0	0	0	0	0	0
3699	ELECTRICAL EQUIP/SUPPLIES, NEC	0	0	0	0	0	0	0	0	1	0
3700	Unknown	0	1	0	0	0	0	0	0	0	0

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
3711	MOTOR VEHICLES AND CAR BODIES	0	4	0	0	0	0	0	0	0	0
3713	TRUCK AND BUS BODIES	0	0	0	0	0	0	0	0	0	1
3714	MOTOR VEHICLE PARTS/ACCESORIES	0	4	0	0	0	0	0	1	16	0
3721	AIRCRAFT	0	7	36	0	3	2	1	1	0	11
3723	Unknown	0	4	0	0	0	0	0	0	0	0
3724	AIRCRAFT ENGINES/ENGINE PARTS	0	1	0	0	0	0	0	0	0	0
3728	AIRCRAFT PARTS/EQUIPMENT, NEC	12	11	0	0	1	0	0	2	0	7
3732	BOAT BUILDING AND REPAIRING	0	0	0	0	0	2	0	0	0	0
3743	RAILROAD EQUIPMENT	0	0	0	0	0	0	1	0	0	0
3760	Unknown	0	1	0	0	0	1	0	0	0	2
3761	GUIDED MISSILES AND SPACE VEH	0	1	17	0	0	0	0	0	0	5
3764	SPACE PROPULSION UNITS & PARTS	0	6	0	0	6	0	0	2	0	3
3769	SPACE VEHICLE EQUIPMENT, NEC	0	1	0	0	0	0	0	0	0	0
3799	TRANSPORTATION EQUIPMENT, NEC	2	2	0	0	0	0	0	0	0	2
3812	SEARCH & NAVIGATION EQUIPMENT	0	0	0	0	1	0	0	0	0	2
3822	ENVIRONMENTAL CONTROLS	0	0	0	0	0	0	0	0	1	0
3823	PROCESS CONTROL INSTRUMENTS	1	0	0	0	2	0	0	1	0	1
3825	INSTRU TO MEASURE ELECTRICITY	0	0	1	0	0	0	0	0	0	0
3829	MEASURING/CONTROLLING DVCS,NEC	0	0	0	0	0	0	0	0	0	1
3840	Unknown	0	1	0	0	0	0	0	0	0	0
3841	SURGICAL & MEDICAL INSTRUMENTS	0	0	0	0	0	0	0	0	0	1
3845	ELECTROMEDICAL EQUIPMENT	0	0	0	0	0	0	0	0	0	1
3900	Unknown	0	12	0	0	2	0	0	0	0	2
3931	MUSICAL INSTRUMENTS	0	0	0	0	0	0	0	0	0	1
3940	Unknown	0	0	0	0	0	0	0	0	0	1
3993	SIGNS & ADVERTISING DISPLAYS	5	2	1	0	0	0	0	0	0	0
3996	HARD SURFACE FLOOR COVERINGS	0	3	0	0	0	0	0	2	0	2

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
3999	MANUFACTURING INDUSTRIES, NEC	0	0	2	0	0	0	0	0	2	0
4011	RAILROAD, LINE-HAUL OPERATING	0	1	0	0	1	0	1	0	0	1
4100	Unknown	1	2	0	0	0	0	0	0	0	1
4111	LOCAL & SUBURBAN TRANSIT	1	0	0	0	0	0	0	0	0	0
4131	INTERCITY HIGHWAY TRANS	0	1	0	0	0	0	0	0	0	0
4200	Unknown	0	0	0	0	1	0	1	0	0	1
4212	LOCAL TRUCKING,WITHOUT STORAGE	0	0	1	0	0	0	1	0	0	0
4213	TRUCKING, EXCEPT LOCAL	0	3	0	0	1	0	0	0	0	0
4214	LOCAL TRUCKING AND STORAGE	0	1	0	0	0	0	0	0	0	0
4222	REFRIGERATED WAREHOUSING	0	0	1	0	0	0	0	0	0	0
4225	GEN WAREHOUSINGE & STORAGE	0	0	0	0	0	0	0	0	0	1
4226	SPECIAL WAREHOUSING/STRGE ,NEC	0	11	0	0	12	1	4	2	0	2
4231	TRUCKING TERMINAL FACILITIES	0	0	0	0	0	0	0	0	0	1
4311	U.S. POSTAL SERVICE	0	0	0	0	0	0	0	0	0	13
4491	MARINE CARGO HANDLING	0	2	0	0	0	29	1	0	0	0
4493	MARINAS	0	2	1	0	0	0	0	0	0	0
4510	Unknown	0	3	0	0	1	0	0	0	0	0
4513	AIR COURIER SERVICES	0	4	0	0	0	0	0	0	0	0
4580	Unknown	0	1	0	0	0	0	0	0	0	0
4581	AIRPORTS/FLYING FIELDS/SVCS	2	13	1	0	4	0	0	6	0	9
4612	CRUDE PETROLEUM PIPE LINES	0	0	0	0	0	0	1	0	0	0
4613	REFINED PETROLEUM PIPE LINES	0	1	2	0	0	0	0	0	0	0
4789	TRANSPORTATION SERVICES, NEC	0	1	0	0	0	0	0	0	0	0
4810	Unknown	0	1	0	0	0	0	0	0	0	28
4811	TELEPHONE COMMUNICATION	0	0	1	0	0	0	0	0	0	8
4812	RADIOTELEPHONE COMMUNICATIONS	0	3	0	0	0	0	2	0	0	4
4813	TELEPHONE COMMS, EXC RADIO	0	1	1	0	0	0	0	0	0	208

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
4830	Unknown	0	1	0	0	0	0	0	0	0	3
4832	RADIO BROADCASTING STATIONS	0	0	0	0	0	0	0	0	1	0
4841	CABLE & OTHER PAY TV SERVICES	0	0	1	0	0	0	0	0	0	0
4890	Unknown	0	1	0	0	0	0	0	0	0	0
4911	ELECTRIC SERVICES	19	73	7	0	35	22	5	17	0	39
4922	NATURAL GAS TRANSMISSION	0	2	0	0	0	0	0	1	0	3
4923	GAS TRANSMISSION/DISTRIBUTION	1	1	0	0	1	0	0	1	0	11
4924	NATURAL GAS DISTRIBUTION	0	1	0	0	0	0	0	0	0	0
4925	GAS PRODUCTION AND/OR DISTRIB	0	4	0	0	0	0	0	0	0	1
4931	ELECTRIC & OTHER SERVICES COMB	0	1	1	0	0	0	1	0	1	1
4932	GAS & OTHER SERVICES COMBINED	0	0	0	0	0	32	0	0	0	0
4939	COMBINATION UTILITY SERV, NEC	1	2	0	0	0	0	0	1	0	0
4940	Unknown	0	5	0	0	1	0	0	0	0	0
4941	WATER SUPPLY	0	34	0	0	1	0	5	0	0	25
4950	Unknown	0	1	0	0	0	0	0	0	0	1
4952	SEWERAGE SYSTEMS	26	17	0	0	6	1	8	0	0	7
4953	REFUSE SYSTEMS	0	42	5	0	2	3	9	1	3	2
4959	SANITARY SERVICES, NEC	1	3	0	0	3	0	0	0	0	0
4961	STEAM SUPPLY	0	3	0	0	3	0	1	1	0	2
4985	Unknown	0	0	0	0	0	0	0	0	0	1
5000	Unknown	0	0	0	0	0	0	0	0	0	2
5012	AUTO & OTHER MOTOR VEHICLES	0	3	0	0	0	0	0	0	0	1
5014	TIRES AND TUBES	0	0	1	0	0	0	0	0	0	0
5015	MOTOR VEHICLE PARTS, USED	0	1	0	0	0	0	0	0	0	0
5030	Unknown	0	1	0	0	0	0	0	0	0	0
5039	CONSTRUCTION MATERIALS, NEC	0	1	0	0	0	0	0	0	4	0
5043	PHOTO EQUIPMENT & SUPPLIES	0	0	0	0	0	0	0	0	0	1
5045	COMPUTERS, PERIPHERALS & SFTWR	0	1	0	0	0	0	0	0	0	3

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
5050	Unknown	0	0	0	0	0	0	0	0	1	0
5065	ELECTRONIC PARTS AND EQUIPMENT	0	0	0	0	0	0	0	0	0	1
5085	INDUSTRIAL SUPPLIES	0	8	7	0	0	0	1	0	0	0
5093	SCRAP & WASTE MATERIALS	0	4	0	0	0	0	0	0	0	0
5099	DURABLE GOODS, NEC	0	1	0	0	0	0	0	0	0	0
5100	Unknown	0	0	0	0	0	0	0	0	0	1
5131	PIECE GOODS & NOTIONS	0	0	0	0	0	0	0	0	0	1
5140	Unknown	0	1	0	0	0	0	0	0	0	0
5141	GROCERIES, GENERAL LINE	0	0	0	0	0	0	0	0	0	8
5142	FROZEN FOODS	1	0	0	0	0	0	0	0	0	0
5148	FRESH FRUITS AND VEGETABLES	0	0	0	0	0	0	0	0	0	1
5149	GROCERIES/RELATED PRODUCTS,NEC	0	0	0	0	0	0	0	0	0	58
5169	CHEMICALS & ALLIED PRDCTS, NEC	0	24	2	0	0	0	0	0	0	1
5171	PETRO BULK STATIONS/TERMINALS	2	13	105	0	10	1	11	5	0	0
5181	BEER AND ALE	0	0	0	0	0	0	0	0	1	0
5199	NONDURABLE GOODS, NEC	0	1	0	0	0	0	0	0	0	0
5200	Unknown	0	1	0	0	0	0	0	0	0	0
5211	LUMBER & OTHER BLDG MATERIALS	0	0	1	0	0	0	0	0	0	0
5251	HARDWARE STORES	0	1	0	0	0	0	0	0	0	0
5264	Unknown	0	0	0	0	0	0	0	0	1	0
5300	Unknown	0	0	0	0	0	0	0	0	0	1
5311	DEPARTMENT STORES	0	0	1	0	0	0	1	0	0	15
5399	MISC GNRL MERCHANDISE STORES	0	1	0	0	0	0	0	0	0	0
5400	Unknown	0	0	0	0	0	0	0	0	1	18
5411	GROCERY STORES	0	0	1	0	1	0	0	0	0	268
5441	CANDY, NUTS, & CONF STORES	0	1	0	0	0	0	0	0	0	0
5500	Unknown	0	2	0	0	0	0	0	0	0	0
5510	Unknown	0	1	0	0	0	0	0	0	0	0

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
5511	NEW AND USED CAR DEALERS	2	8	3	0	0	0	0	0	1	10
5531	AUTO & HOME SUPPLY STORES	0	2	0	0	0	0	0	0	0	0
5540	Unknown	0	2	0	0	0	0	0	0	1	0
5541	GASOLINE SERVICE STATIONS	1	275	205	0	2	0	0	0	11	2
5550	Unknown	0	0	0	0	0	0	0	0	1	0
5599	AUTOMOTIVE DEALERS, NEC	0	1	0	0	0	0	0	0	0	0
5699	MISC APPAREL & ACCESSORIES	0	1	0	0	0	0	0	0	0	0
5800	Unknown	0	1	0	0	0	0	0	0	2	0
5812	EATING PLACES	0	3	3	0	0	0	0	0	17	6
5900	Unknown	0	0	0	0	0	0	1	0	0	0
5912	DRUG STORES/PROPRIETARY STORES	0	3	0	0	0	0	0	0	0	0
5932	USED MERCHANDISE STORES	0	0	0	0	0	0	0	0	1	0
5944	JEWELRY STORES	0	0	0	0	0	0	0	0	1	0
5961	MAIL ORDER HOUSES	0	0	0	0	0	0	0	0	0	1
5984	LIQUEFIED PETROLEUM GAS DEALER	0	1	0	0	0	0	0	0	0	0
6000	Unknown	0	0	0	0	0	0	0	0	0	1
6021	NATIONAL COMMERCIAL BANKS	0	1	0	0	0	0	0	0	0	4
6035	FEDERAL SAVINGS INSTITUTIONS	0	0	3	0	0	0	0	0	0	2
6099	FUNCTIONS RELD TO DEPOSIT BKNG	0	0	0	0	0	0	0	0	0	1
6162	MORTGAGE BANKERS & CORRESPOND	0	0	1	0	0	0	0	0	0	0
6311	LIFE INSURANCE	0	0	0	0	0	0	0	0	0	1
6321	ACCIDENT AND HEALTH INSURANCE	0	1	0	0	0	0	0	0	0	1
6324	HOSPITAL & MEDICAL SERVICE PLA	0	0	1	0	0	0	0	0	0	0
6331	FIRE/MARINE/CASUALTY INSURANCE	0	0	3	0	0	0	0	0	0	5
6371	PENSION/HEALTH/WELFARE FUNDS	0	1	0	0	0	0	0	0	0	0
6399	INSURANCE CARRIERS, NEC	0	1	0	0	0	0	0	0	0	0
6411	INSURANCE AGENTS/BROKERS/SVCS	0	0	0	0	0	0	0	0	0	1

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
6500	Unknown	0	0	0	0	0	0	0	0	0	2
6512	NONRESIDENTIAL BLDG OPERATORS	0	1	3	0	0	0	2	0	8	32
6513	APARTMENT BLDG OPERATORS	0	0	0	0	0	0	0	0	0	3
6514	DWELLING OPERATORS, EXC APTS	0	0	0	0	0	0	0	0	0	1
6515	MOBILE HOME SITE OPERATORS	0	1	0	0	0	0	0	0	0	0
6519	REAL PROPERTY LESSORS, NEC	0	0	0	0	0	0	0	0	0	1
6531	REAL ESTATE AGENTS/MANAGERS	0	2	18	0	0	0	0	1	0	9
6541	TITLE ABSTRACT OFFICES	0	0	0	0	1	0	0	0	0	0
6552	SUBDIVIDERS & DEVELOPERS, NEC	0	0	17	0	0	0	0	0	0	28
6700	Unknown	0	0	0	0	0	0	0	0	1	0
6719	HOLDING COMPANIES, NEC	0	0	1	0	0	0	0	0	2	1
6722	MANAGEMENT INVESTMENT/OPEN-END	0	0	1	0	0	0	0	0	0	0
6733	TRUSTS, NEC	0	0	0	0	0	0	0	0	0	1
7000	Unknown	0	1	0	0	0	0	0	0	0	3
7011	HOTELS, MOTELS & TOURIST COURT	0	5	6	0	0	0	0	0	2	59
7032	SPORTING & RECREATIONAL CAMPS	0	1	0	0	0	0	0	0	0	0
7211	POWER LAUNDRIES, FAMILY & COMM	0	1	0	0	0	0	0	0	0	0
7212	GARMENT PRESS/CLEANERS' AGENTS	0	0	0	0	7	0	0	0	0	5
7213	LINEN SUPPLY	0	0	0	0	0	0	0	0	2	0
7216	DRY CLEANING PLANTS, EXC RUG	0	61	35	0	4	0	0	0	33	2
7218	INDUSTRIAL LAUNDRERERS	0	2	1	0	1	0	1	0	0	0
7219	LAUNDRY AND GARMENT SVCS, NEC	0	0	0	0	0	0	0	0	1	0
7260	Unknown	0	1	0	0	0	0	0	0	0	1
7261	FUNERAL SERVICE & CREMATORIES	1	11	2	0	1	0	1	0	0	3
7290	Unknown	0	0	0	0	0	0	0	0	1	0
7300	Unknown	0	0	0	0	0	0	0	0	0	1
7311	ADVERTISING AGENCIES	0	1	0	0	0	0	0	0	2	0

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
7323	CREDIT REPORTING SERVICES	0	0	1	0	0	0	0	0	0	0
7340	Unknown	0	0	0	0	0	0	0	0	0	1
7349	BUILDING MAINTENANCE SVCS, NEC	0	3	0	0	0	0	0	0	0	1
7353	HEAVY CONSTRUCTION EQPMT RENTL	0	2	0	0	0	0	0	0	0	2
7359	EQUIPMENT RENTAL & LEASING,NEC	0	8	0	0	0	0	1	0	0	2
7371	COMPUTER PROGRAMMING SERVICES	0	0	0	0	0	0	0	0	1	0
7374	DATA PROCESSING & PREPARATION	0	0	0	0	0	0	1	0	0	1
7376	COMPUTER FACILITIES MANAGEMENT	0	0	2	0	0	0	1	0	0	1
7379	COMPUTER RELATED SERVICES, NEC	0	0	0	0	0	0	0	0	2	0
7380	Unknown	0	4	0	0	0	0	1	0	0	0
7389	BUSINESS SERVICES, NEC	0	10	0	0	0	0	0	0	1	7
7500	Unknown	0	2	0	0	0	0	0	0	0	1
7512	PASSENGER CAR RENTAL & LEASING	0	0	0	0	0	0	0	0	1	0
7513	TRUCK RENTAL & LEASING	0	1	0	0	0	0	0	0	0	1
7514	PASSENGER CAR RENTAL	0	2	0	0	0	0	0	0	0	0
7523	PARKING LOTS	0	0	0	0	0	0	0	0	1	0
7530	Unknown	0	2	0	0	0	0	0	0	0	1
7531	TOP & BODY REPAIR SHOPS	3	7	2	0	0	0	0	0	1	0
7532	TOP & BODY REPAIR/PAINT SHOPS	21	68	111	0	10	0	0	0	63	0
7535	PAINT SHOPS	0	3	3	0	0	0	0	0	4	0
7537	AUTO TRANSMISSION REPAIR SHOPS	1	0	0	0	0	0	0	0	0	0
7538	GENERAL AUTO REPAIR SHOPS	6	27	43	0	0	0	2	0	13	10
7539	AUTO REPAIR SHOPS, NEC	1	4	5	0	0	0	0	0	9	0
7540	Unknown	1	1	0	0	0	0	0	0	0	0
7542	CAR WASHES	0	1	0	0	0	0	0	0	0	1
7549	AUTOMOTIVE SERVICES, NEC	4	3	2	0	0	0	0	0	1	0
7641	REUPHOLSTERY/FURNITURE REPAIR	0	0	1	0	0	0	0	0	1	1

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
7694	ARMATURE REWINDING SHOPS	1	0	0	0	0	0	0	0	0	0
7800	Unknown	0	4	0	0	0	0	0	0	0	3
7812	MOTION PICTURE & VIDEO PRDTN	8	0	6	0	0	0	2	0	0	15
7819	SERV ALLIED TO MOTION PICTURES	0	1	1	0	2	0	0	0	13	1
7900	Unknown	0	3	0	0	0	0	0	0	0	0
7948	RACING INC TRACK OPERATION	0	0	0	0	0	0	0	0	8	0
7992	PUBLIC GOLF COURSES	0	15	1	0	0	0	0	0	0	0
7996	AMUSEMENT PARKS	0	3	0	0	0	0	0	0	0	12
7997	MEMBERSHIP SPORTS/REC CLUBS	0	46	2	0	0	0	0	0	0	3
7999	AMUSEMENT AND RECREATION, NEC	0	10	0	0	0	0	0	0	1	5
8000	Unknown	0	1	0	0	0	0	0	0	0	1
8011	OFFICE/CLINICS OF MDCL DOCTORS	0	18	0	0	0	0	0	0	1	10
8059	NURSING AND PERSONAL CARE, NEC	0	0	1	0	0	0	0	0	0	2
8060	Unknown	0	22	0	0	7	0	2	0	0	19
8062	GENERAL MED/SURGICAL HOSPITALS	0	12	0	0	5	0	4	0	3	25
8070	Unknown	0	1	0	0	0	0	0	0	0	3
8071	MEDICAL LABORATORIES	0	0	0	0	0	0	0	0	2	2
8099	HEALTH AND ALLIED SERVICES,NEC	0	0	0	0	0	0	0	0	0	1
8210	Unknown	0	1	0	0	0	0	0	0	0	5
8211	ELEMENTARY & SECONDARY SCHOOLS	0	13	0	0	2	0	0	0	3	124
8220	Unknown	0	5	0	0	1	0	0	0	0	37
8221	COLLEGES & UNIVERSITIES, NEC	1	7	0	0	3	0	0	0	0	27
8222	JUNIOR COLLEGES	0	6	0	0	0	0	0	0	0	6
8231	LIBRARIES & INFORMATION CENTER	0	1	0	0	0	0	0	0	0	9
8240	Unknown	0	0	0	0	0	0	0	0	0	1
8290	Unknown	0	1	0	0	0	0	0	0	0	2
8299	SCHOOLS/EDUCATIONAL SVCS,NEC	0	1	0	0	0	0	0	0	0	0
8300	Unknown	0	0	0	0	0	0	0	0	0	1

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
8322	INDIVIDUAL AND FAMILY SERVICES	0	1	0	0	0	0	0	0	0	1
8331	JOB TRAINING & RELATED SERVICE	0	0	0	0	0	0	0	0	0	2
8361	RESIDENTIAL CARE	0	0	0	0	0	0	0	0	0	1
8399	SOCIAL SERVICES, NEC	0	0	0	0	0	0	0	0	0	1
8400	Unknown	0	1	0	0	0	0	1	0	0	1
8412	MUSEUMS AND ART GALLERIES	0	0	0	0	0	0	0	0	0	1
8600	Unknown	0	0	0	0	0	0	0	0	0	5
8641	CIVIC & SOCIAL ASSOCIATIONS	0	4	0	0	0	0	0	0	0	2
8699	MEMBERSHIP ORGANIZATIONS, NEC	0	0	0	0	0	0	0	0	0	2
8700	Unknown	0	1	0	0	0	0	2	0	1	2
8710	Unknown	0	0	0	0	0	0	1	0	0	0
8711	ENGINEERING SERVICES	2	6	0	0	1	1	3	0	1	2
8721	ACCOUNTING/AUDITING/BOOKEEPIN G	0	0	1	0	0	0	0	0	0	1
8731	COMMERCIAL PHYSICAL RESEARCH	1	16	0	0	0	0	1	0	0	3
8732	COMMERCIAL NONPHYSICL RESEARCH	0	1	0	0	0	0	0	0	0	0
8742	MANAGEMENT CONSULTING SERVICES	0	2	3	0	0	0	1	0	0	12
8999	SERVICES, NEC	0	1	0	0	0	0	0	0	0	0
9100	Unknown	0	2	0	0	0	0	0	0	0	2
9111	EXECUTIVE OFFICES	0	0	0	0	0	0	0	0	0	2
9131	EXECUTIVE & LEGISLATIVE COMB	0	1	0	0	0	0	0	0	0	0
9199	GENERAL GOVERNMENT, NEC	3	20	3	0	4	0	1	0	2	46
9200	Unknown	0	0	0	0	0	0	0	0	0	2
9211	COURTS	0	1	4	0	1	0	0	0	0	19
9221	PUBLIC PROTECTION	0	12	0	0	1	0	0	0	0	9
9223	CORRECTIONAL INSTITUTIONS	0	7	0	0	1	0	0	0	2	3
9224	FIRE PROTECTION	0	16	0	0	0	0	0	0	0	2
9411	ADMIN. OF EDUCATIONAL PROGRAMS	0	0	0	0	0	0	0	0	0	1

SIC Code	SIC Code Description	Permit to Construct	Permit to Operate	Change of Operator	Denied	Cancelled	ERC	Plans	TV/RECLAIM Modification	Not Renewed	Area Source
9431	ADMIN OF PUBLIC HEALTH PROGRAM	0	0	0	0	0	0	0	0	0	1
9441	ADMIN OF SOCIAL/MANPOWER PROG	0	1	0	0	0	0	0	0	0	1
9451	ADMIN OF VETERN' AFFAIRS	0	0	0	0	0	0	0	0	0	1
9511	AIR WATER & SOLID WASTE MANAG	0	18	0	0	1	0	2	0	0	2
9512	LAND MINERAL WILDLIFE CONSERV	0	3	0	0	0	0	0	0	0	0
9532	URBAN & COMMUNITY DEVELOPMENT	0	1	0	0	0	0	0	0	0	0
9611	ADMIN OF GEN ECONOMIC PROGRAMS	0	3	0	0	0	0	0	0	0	0
9621	REG, ADMIN OF TRANSPORTATION	1	20	0	0	0	0	0	0	0	0
9631	REG, ADMIN OF UTILITIES	0	7	0	0	0	0	3	0	3	5
9641	REG OF AGRICULTURAL MARKETING	0	0	0	0	0	0	0	0	0	1
9660	Unknown	0	0	0	0	0	0	0	0	0	1
9711	NATIONAL SECURITY	0	12	0	0	0	0	0	0	0	3
9900	Unknown	99	987	294	12	73	137	44	0	263	1923
9999	Not Classified	35	212	68	1	19	0	17	0	57	187
Grand Total		**530**	**3139**	**1313**	**19**	**428**	**311**	**383**	**123**	**818**	**3852**

Annualized Publication of Emission Reduction Credit (ERC) And Short Term Emission Reduction Credit (STERC) Transactions for Fiscal Year 2013-14[4] (California Health and Safety Code Section 40452)

Pursuant to paragraph (c) of section 40452 of the California Health and Safety Code, this report summarizes data on emission offset transactions and applications, by pollutant, during the previous fiscal year. Note that during Fiscal Year 2013-14, no applications were denied for a permit for a new source for the reason of failure to provide the required emission offsets.

Table 1 summarizes privately held Emission Reduction Credit (ERC) and Short Term Emission Reduction Credit (STERC) transactions for Fiscal Year 2013-14, including totals, by pollutant, of the number of emission offset transactions and the quantity of emission offsets transferred in units of pounds per day and tons per year. Table 2 summarizes ERC banking applications processed during Fiscal Year 2013-14, including the number of newly generated STERCs by pollutant in units of pounds per day and tons per year.

Tables 3 and 4 provide details on the amount of each emission offset transaction and processed ERC banking application respectively.

Table 1: Emission Offset Transactions – Fiscal Year 2013-14

Criteria Pollutant	Number of Emission Offset Transfer Transactions[5]				Quantity of Emission Offsets Transferred[6] (lb/day)				Annualized Quantity of Emission Offsets Transferred[3] (ton/year)			
	ERC	STERC[7]	STERC[8]	TOTAL	ERC	STERC[4]	STERC[5]	TOTAL	ERC	STERC[4]	STERC[5]	TOTAL
ROG	45	6	6	57	412	201	244	857	75.2	36.7	44.6	156.5
NOx	25	0	0	25	281	0	0	281	51.2	0	0	51.2
SOx	2	0	0	2	49	0	0	49	8.9	0	0	8.9
CO	0	2	0	2	0	88	0	88	0	16.0	0	16.0
PM10	15	19	0	34	120	72	0	192	21.7	12.8	0	34.5

Table 2: Emission Offset Applications – Fiscal Year 2013-14

Criteria Pollutant	Number of Banking Applications Resulting in the Issuance of New STERCs[9]	Quantity of Emission Reductions Achieved (STERCs)[10] (lb/day)	Annualized Quantity of Emission Reductions Achieved[7] (ton/year)
ROG	14	311	56.8
NOX	0	0	0
SOX	0	0	0
CO	0	0	0
PM10	0	0	0

Table 3: Emission Offset Transaction Summary – Fiscal Year 2013-14
Sorted by Pollutant and Amount

[4] This report does not include RECLAIM Trading Credit (RTC) transactions.
[5] Includes all emission offset certificates that transferred ownership.
[6] Includes the total amount of emission offsets transferred.
[7] STERC transfer transactions including the long term emission offset, those that have an ending year of 9999.
[8] STERC transfer transactions not including the long term emission offset in which the emission offset with the greatest year is treated like a long term emission offset.
[9] Includes all emission offset applications resulting in the generation of new certificates.
[10] Includes the total amount of emission offsets generated.

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-001	ROG	1	0.2	ERC	N/A	N/A
SC1314-002	ROG	1	0.2	ERC	N/A	N/A
SC1314-003	ROG	1	0.2	ERC	N/A	N/A
SC1314-004	ROG	1	0.2	ERC	N/A	N/A
SC1314-005	ROG	1	0.2	ERC	N/A	N/A
SC1314-006	ROG	1	0.2	ERC	N/A	N/A
SC1314-007	ROG	1	0.2	ERC	N/A	N/A
SC1314-008	ROG	2	0.4	ERC	N/A	N/A
SC1314-009	ROG	2	0.4	ERC	N/A	N/A
SC1314-010	ROG	2	0.4	ERC	N/A	N/A
SC1314-011	ROG	2	0.4	ERC	N/A	N/A
SC1314-012	ROG	2	0.4	ERC	N/A	N/A
SC1314-013	ROG	3	0.5	ERC	N/A	N/A
SC1314-014	ROG	3	0.5	ERC	N/A	N/A
SC1314-015	ROG	3	0.5	ERC	N/A	N/A
SC1314-016	ROG	3	0.5	ERC	N/A	N/A
SC1314-017	ROG	0	0	STERC	2013	2013
SC1314-018	ROG	0	0	STERC	2014	2014
SC1314-019	ROG	0	0	STERC	2015	2015
SC1314-020	ROG	0	0	STERC	2016	2016
SC1314-021	ROG	0	0	STERC	2017	2017
SC1314-022	ROG	0	0	STERC	2018	2018
SC1314-023	ROG	4	0.7	STERC	2019	9999
SC1314-024	ROG	4	0.7	ERC	N/A	N/A
SC1314-025	ROG	4	0.7	ERC	N/A	N/A
SC1314-026	ROG	4	0.7	ERC	N/A	N/A
SC1314-027	ROG	4	0.7	ERC	N/A	N/A
SC1314-028	ROG	0	0	STERC	2013	2013
SC1314-029	ROG	0	0	STERC	2014	2014
SC1314-030	ROG	0	0	STERC	2015	2015
SC1314-031	ROG	0	0	STERC	2016	2016
SC1314-032	ROG	0	0	STERC	2017	2017
SC1314-033	ROG	0	0	STERC	2018	2018
SC1314-034	ROG	4	0.7	STERC	2019	9999
SC1314-035	ROG	4	0.7	ERC	N/A	N/A
SC1314-036	ROG	5	0.9	ERC	N/A	N/A
SC1314-037	ROG	5	0.9	ERC	N/A	N/A
SC1314-038	ROG	5	0.9	STERC	2014	9999
SC1314-039	ROG	5	0.9	ERC	N/A	N/A
SC1314-040	ROG	8	1.5	ERC	N/A	N/A
SC1314-041	ROG	9	1.6	ERC	N/A	N/A
SC1314-042	ROG	9	1.6	ERC	N/A	N/A
SC1314-043	ROG	9	1.6	ERC	N/A	N/A
SC1314-044	ROG	9	1.6	ERC	N/A	N/A
SC1314-045	ROG	11	2	ERC	N/A	N/A
SC1314-046	ROG	0	0	STERC	2013	2013

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-047	ROG	0	0	STERC	2014	2014
SC1314-048	ROG	12	2.2	STERC	2015	9999
SC1314-049	ROG	12	2.2	ERC	N/A	N/A
SC1314-050	ROG	12	2.2	ERC	N/A	N/A
SC1314-051	ROG	12	2.2	ERC	N/A	N/A
SC1314-052	ROG	13	2.4	ERC	N/A	N/A
SC1314-053	ROG	13	2.4	ERC	N/A	N/A
SC1314-054	ROG	13	2.4	ERC	N/A	N/A
SC1314-055	ROG	13	2.4	STERC	2013	2013
SC1314-056	ROG	15	2.7	STERC	2014	2014
SC1314-057	ROG	15	2.7	ERC	N/A	N/A
SC1314-058	ROG	16	2.9	ERC	N/A	N/A
SC1314-059	ROG	18	3.3	STERC	2013	2013
SC1314-060	ROG	18	3.3	STERC	2014	2014
SC1314-061	ROG	19	3.5	ERC	N/A	N/A
SC1314-062	ROG	20	3.7	ERC	N/A	N/A
SC1314-063	ROG	22	4	ERC	N/A	N/A
SC1314-064	ROG	24	4.4	ERC	N/A	N/A
SC1314-065	ROG	30	5.5	ERC	N/A	N/A
SC1314-066	ROG	36	6.6	ERC	N/A	N/A
SC1314-067	ROG	36	6.6	ERC	N/A	N/A
SC1314-068	ROG	82	15	STERC	2014	2014
SC1314-069	ROG	0	0	STERC	2013	2013
SC1314-070	ROG	88	16.1	STERC	2014	9999
SC1314-071	ROG	0	0	STERC	2013	2013
SC1314-072	ROG	88	16.1	STERC	2014	9999
SC1314-073	ROG	98	17.9	STERC	2014	2014
Total		**857**	**156.5**	**N/A**		

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-074	NOX	1	0.2	ERC	N/A	N/A
SC1314-075	NOX	1	0.2	ERC	N/A	N/A
SC1314-076	NOX	1	0.2	ERC	N/A	N/A
SC1314-077	NOX	2	0.4	ERC	N/A	N/A
SC1314-078	NOX	2	0.4	ERC	N/A	N/A
SC1314-079	NOX	2	0.4	ERC	N/A	N/A
SC1314-080	NOX	2	0.4	ERC	N/A	N/A
SC1314-081	NOX	3	0.5	ERC	N/A	N/A
SC1314-082	NOX	4	0.7	ERC	N/A	N/A
SC1314-083	NOX	4	0.7	ERC	N/A	N/A
SC1314-084	NOX	4	0.7	ERC	N/A	N/A
SC1314-085	NOX	4	0.7	ERC	N/A	N/A
SC1314-086	NOX	4	0.7	ERC	N/A	N/A

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-087	NOX	6	1.1	ERC	N/A	N/A
SC1314-088	NOX	6	1.1	ERC	N/A	N/A
SC1314-089	NOX	7	1.3	ERC	N/A	N/A
SC1314-090	NOX	9	1.6	ERC	N/A	N/A
SC1314-091	NOX	10	1.8	ERC	N/A	N/A
SC1314-092	NOX	15	2.7	ERC	N/A	N/A
SC1314-093	NOX	21	3.8	ERC	N/A	N/A
SC1314-094	NOX	23	4.2	ERC	N/A	N/A
SC1314-095	NOX	23	4.2	ERC	N/A	N/A
SC1314-096	NOX	27	4.9	ERC	N/A	N/A
SC1314-097	NOX	30	5.5	ERC	N/A	N/A
SC1314-098	NOX	70	12.8	ERC	N/A	N/A
Total		**281**	**51.2**	**N/A**		

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-099	SOX	4	0.7	ERC	N/A	N/A
SC1314-100	SOX	45	8.2	ERC	N/A	N/A
Total		**49**	**8.9**	**N/A**		

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-101	CO	0	0	STERC	2014	2014
SC1314-102	CO	0	0	STERC	2015	2015
SC1314-103	CO	0	0	STERC	2016	2016
SC1314-104	CO	32	5.8	STERC	2017	9999
SC1314-105	CO	0	0	STERC	2013	2013
SC1314-106	CO	0	0	STERC	2014	2014
SC1314-107	CO	56	10.2	STERC	2015	9999
Total		**88**	**16.0**	**N/A**		

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-108	PM10	0	0	STERC	2013	2013
SC1314-109	PM10	0	0	STERC	2014	2014
SC1314-110	PM10	0	0	STERC	2015	2015
SC1314-111	PM10	0	0	STERC	2016	2016
SC1314-112	PM10	0	0	STERC	2017	2017
SC1314-113	PM10	1	0.2	STERC	2018	9999
SC1314-114	PM10	0	0	STERC	2013	2013
SC1314-115	PM10	0	0	STERC	2014	2014

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-116	PM10	0	0	STERC	2015	2015
SC1314-117	PM10	0	0	STERC	2016	2016
SC1314-118	PM10	0	0	STERC	2017	2017
SC1314-119	PM10	1	0.2	STERC	2018	9999
SC1314-120	PM10	1	0.2	ERC	N/A	N/A
SC1314-121	PM10	1	0.2	ERC	N/A	N/A
SC1314-122	PM10	2	0.4	ERC	N/A	N/A
SC1314-123	PM10	0	0	STERC	2014	2014
SC1314-124	PM10	0	0	STERC	2015	2015
SC1314-125	PM10	0	0	STERC	2016	2016
SC1314-126	PM10	0	0	STERC	2017	2017
SC1314-127	PM10	0	0	STERC	2018	2018
SC1314-128	PM10	2	0.4	STERC	2019	9999
SC1314-129	PM10	3	0.5	ERC	N/A	N/A
SC1314-130	PM10	3	0.5	ERC	N/A	N/A
SC1314-131	PM10	0	0	STERC	2014	2014
SC1314-132	PM10	0	0	STERC	2015	2015
SC1314-133	PM10	0	0	STERC	2016	2016
SC1314-134	PM10	0	0	STERC	2017	2017
SC1314-135	PM10	0	0	STERC	2018	2018
SC1314-136	PM10	3	0.5	STERC	2019	9999
SC1314-137	PM10	0	0	STERC	2014	2014
SC1314-138	PM10	0	0	STERC	2015	2015
SC1314-139	PM10	0	0	STERC	2016	2016
SC1314-140	PM10	0	0	STERC	2017	2017
SC1314-141	PM10	3	0.5	STERC	2018	9999
SC1314-142	PM10	0	0	STERC	2014	2014
SC1314-143	PM10	0	0	STERC	2015	2015
SC1314-144	PM10	0	0	STERC	2016	2016
SC1314-145	PM10	0	0	STERC	2017	2017
SC1314-146	PM10	0	0	STERC	2018	2018
SC1314-147	PM10	3	0.5	STERC	2019	9999
SC1314-148	PM10	0	0	STERC	2014	2014
SC1314-149	PM10	0	0	STERC	2015	2015
SC1314-150	PM10	0	0	STERC	2016	2016
SC1314-151	PM10	0	0	STERC	2017	2017
SC1314-152	PM10	3	0.5	STERC	2018	9999
SC1314-153	PM10	3	0.5	ERC	N/A	N/A
SC1314-154	PM10	0	0	STERC	2014	2014
SC1314-155	PM10	0	0	STERC	2015	2015
SC1314-156	PM10	0	0	STERC	2016	2016
SC1314-157	PM10	0	0	STERC	2017	2017
SC1314-158	PM10	0	0	STERC	2018	2018
SC1314-159	PM10	4	0.7	STERC	2019	9999
SC1314-160	PM10	0	0	STERC	2014	2014
SC1314-161	PM10	0	0	STERC	2015	2015

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-162	PM10	0	0	STERC	2016	2016
SC1314-163	PM10	0	0	STERC	2017	2017
SC1314-164	PM10	0	0	STERC	2018	2018
SC1314-165	PM10	4	0.7	STERC	2019	9999
SC1314-166	PM10	0	0	STERC	2014	2014
SC1314-167	PM10	0	0	STERC	2015	2015
SC1314-168	PM10	0	0	STERC	2016	2016
SC1314-169	PM10	0	0	STERC	2017	2017
SC1314-170	PM10	0	0	STERC	2018	2018
SC1314-171	PM10	4	0.7	STERC	2019	9999
SC1314-172	PM10	0	0	STERC	2014	2014
SC1314-173	PM10	0	0	STERC	2015	2015
SC1314-174	PM10	0	0	STERC	2016	2016
SC1314-175	PM10	0	0	STERC	2017	2017
SC1314-176	PM10	0	0	STERC	2018	2018
SC1314-177	PM10	4	0.7	STERC	2019	9999
SC1314-178	PM10	0	0	STERC	2014	2014
SC1314-179	PM10	0	0	STERC	2015	2015
SC1314-180	PM10	0	0	STERC	2016	2016
SC1314-181	PM10	0	0	STERC	2017	2017
SC1314-182	PM10	0	0	STERC	2018	2018
SC1314-183	PM10	4	0.7	STERC	2019	9999
SC1314-184	PM10	0	0	STERC	2014	2014
SC1314-185	PM10	0	0	STERC	2015	2015
SC1314-186	PM10	0	0	STERC	2016	2016
SC1314-187	PM10	0	0	STERC	2017	2017
SC1314-188	PM10	0	0	STERC	2018	2018
SC1314-189	PM10	4	0.7	STERC	2019	9999
SC1314-190	PM10	0	0	STERC	2014	2014
SC1314-191	PM10	0	0	STERC	2015	2015
SC1314-192	PM10	0	0	STERC	2016	2016
SC1314-193	PM10	0	0	STERC	2017	2017
SC1314-194	PM10	0	0	STERC	2018	2018
SC1314-195	PM10	4	0.7	STERC	2019	9999
SC1314-196	PM10	0	0	STERC	2014	2014
SC1314-197	PM10	0	0	STERC	2015	2015
SC1314-198	PM10	0	0	STERC	2016	2016
SC1314-199	PM10	0	0	STERC	2017	2017
SC1314-200	PM10	0	0	STERC	2018	2018
SC1314-201	PM10	4	0.7	STERC	2019	9999
SC1314-202	PM10	4	0.7	ERC	N/A	N/A
SC1314-203	PM10	0	0	STERC	2013	2013
SC1314-204	PM10	0	0	STERC	2014	2014
SC1314-205	PM10	0	0	STERC	2015	2015
SC1314-206	PM10	0	0	STERC	2016	2016
SC1314-207	PM10	0	0	STERC	2017	2017

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-208	PM10	0	0	STERC	2018	2018
SC1314-209	PM10	5	0.9	STERC	2019	9999
SC1314-210	PM10	0	0	STERC	2013	2013
SC1314-211	PM10	0	0	STERC	2014	2014
SC1314-212	PM10	0	0	STERC	2015	2015
SC1314-213	PM10	0	0	STERC	2016	2016
SC1314-214	PM10	0	0	STERC	2017	2017
SC1314-215	PM10	0	0	STERC	2018	2018
SC1314-216	PM10	5	0.9	STERC	2019	9999
SC1314-217	PM10	5	0.9	ERC	N/A	N/A
SC1314-218	PM10	5	0.9	ERC	N/A	N/A
SC1314-219	PM10	0	0	STERC	2013	2013
SC1314-220	PM10	0	0	STERC	2014	2014
SC1314-221	PM10	0	0	STERC	2015	2015
SC1314-222	PM10	0	0	STERC	2016	2016
SC1314-223	PM10	0	0	STERC	2017	2017
SC1314-224	PM10	7	1.3	STERC	2018	9999
SC1314-225	PM10	0	0	STERC	2013	2013
SC1314-226	PM10	0	0	STERC	2014	2014
SC1314-227	PM10	0	0	STERC	2015	2015
SC1314-228	PM10	0	0	STERC	2016	2016
SC1314-229	PM10	0	0	STERC	2017	2017
SC1314-230	PM10	7	1.3	STERC	2018	9999
SC1314-231	PM10	10	1.8	ERC	N/A	N/A
SC1314-232	PM10	10	1.8	ERC	N/A	N/A
SC1314-233	PM10	10	1.8	ERC	N/A	N/A
SC1314-234	PM10	11	2	ERC	N/A	N/A
SC1314-235	PM10	21	3.8	ERC	N/A	N/A
SC1314-236	PM10	31	5.7	ERC	N/A	N/A
Total		**192**	**34.5**	**N/A**		

Table 4: Emission Offset Application Summary – Fiscal Year 2013-14
Sorted by Pollutant and Amount

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-237	ROG	0	0	STERC	2014	2014
SC1314-238	ROG	0	0	STERC	2015	2015
SC1314-239	ROG	0	0	STERC	2016	2016
SC1314-240	ROG	0	0	STERC	2017	2017
SC1314-241	ROG	0	0	STERC	2018	2018
SC1314-238	ROG	0	0	STERC	2019	2019
SC1314-242	ROG	0	0	STERC	2020	2020
SC1314-243	ROG	2	0.4	STERC	2021	9999
SC1314-244	ROG	0	0	STERC	2014	2014
SC1314-245	ROG	0	0	STERC	2015	2015

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-239	ROG	0	0	STERC	2016	2016
SC1314-246	ROG	0	0	STERC	2017	2017
SC1314-247	ROG	0	0	STERC	2018	2018
SC1314-248	ROG	0	0	STERC	2019	2019
SC1314-249	ROG	0	0	STERC	2020	2020
SC1314-240	ROG	3	0.5	STERC	2021	9999
SC1314-250	ROG	0	0	STERC	2014	2014
SC1314-251	ROG	0	0	STERC	2015	2015
SC1314-252	ROG	0	0	STERC	2016	2016
SC1314-253	ROG	0	0	STERC	2017	2017
SC1314-241	ROG	0	0	STERC	2018	2018
SC1314-254	ROG	0	0	STERC	2019	2019
SC1314-255	ROG	0	0	STERC	2020	2020
SC1314-256	ROG	3	0.5	STERC	2021	9999
SC1314-257	ROG	0	0	STERC	2014	2014
SC1314-242	ROG	0	0	STERC	2015	2015
SC1314-258	ROG	0	0	STERC	2016	2016
SC1314-259	ROG	0	0	STERC	2017	2017
SC1314-260	ROG	0	0	STERC	2018	2018
SC1314-261	ROG	0	0	STERC	2019	2019
SC1314-243	ROG	0	0	STERC	2020	2020
SC1314-262	ROG	4	0.7	STERC	2021	9999
SC1314-263	ROG	0	0	STERC	2014	2014
SC1314-264	ROG	0	0	STERC	2015	2015
SC1314-265	ROG	0	0	STERC	2016	2016
SC1314-244	ROG	0	0	STERC	2017	2017
SC1314-266	ROG	0	0	STERC	2018	2018
SC1314-267	ROG	0	0	STERC	2019	2019
SC1314-268	ROG	0	0	STERC	2020	2020
SC1314-269	ROG	4	0.7	STERC	2021	9999
SC1314-245	ROG	0	0	STERC	2014	2014
SC1314-270	ROG	0	0	STERC	2015	2015
SC1314-271	ROG	0	0	STERC	2016	2016
SC1314-272	ROG	0	0	STERC	2017	2017
SC1314-273	ROG	0	0	STERC	2018	2018
SC1314-246	ROG	0	0	STERC	2019	2019
SC1314-274	ROG	0	0	STERC	2020	2020
SC1314-275	ROG	5	0.9	STERC	2021	9999
SC1314-276	ROG	0	0	STERC	2014	2014
SC1314-277	ROG	0	0	STERC	2015	2015
SC1314-247	ROG	0	0	STERC	2016	2016
SC1314-278	ROG	0	0	STERC	2017	2017
SC1314-279	ROG	0	0	STERC	2018	2018
SC1314-280	ROG	0	0	STERC	2019	2019
SC1314-281	ROG	0	0	STERC	2020	2020
SC1314-248	ROG	7	1.3	STERC	2021	9999

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-282	ROG	0	0	STERC	2014	2014
SC1314-283	ROG	0	0	STERC	2015	2015
SC1314-284	ROG	0	0	STERC	2016	2016
SC1314-285	ROG	0	0	STERC	2017	2017
SC1314-249	ROG	0	0	STERC	2018	2018
SC1314-286	ROG	0	0	STERC	2019	2019
SC1314-287	ROG	0	0	STERC	2020	2020
SC1314-288	ROG	8	1.5	STERC	2021	9999
SC1314-289	ROG	0	0	STERC	2014	2014
SC1314-250	ROG	0	0	STERC	2015	2015
SC1314-290	ROG	0	0	STERC	2016	2016
SC1314-291	ROG	0	0	STERC	2017	2017
SC1314-292	ROG	0	0	STERC	2018	2018
SC1314-293	ROG	0	0	STERC	2019	2019
SC1314-251	ROG	0	0	STERC	2020	2020
SC1314-294	ROG	15	2.7	STERC	2021	9999
SC1314-295	ROG	0	0	STERC	2014	2014
SC1314-296	ROG	0	0	STERC	2015	2015
SC1314-297	ROG	0	0	STERC	2016	2016
SC1314-252	ROG	0	0	STERC	2017	2017
SC1314-298	ROG	0	0	STERC	2018	2018
SC1314-299	ROG	0	0	STERC	2019	2019
SC1314-300	ROG	0	0	STERC	2020	2020
SC1314-301	ROG	21	3.8	STERC	2021	9999
SC1314-253	ROG	0	0	STERC	2014	2014
SC1314-302	ROG	0	0	STERC	2015	2015
SC1314-303	ROG	0	0	STERC	2016	2016
SC1314-304	ROG	0	0	STERC	2017	2017
SC1314-305	ROG	0	0	STERC	2018	2018
SC1314-254	ROG	0	0	STERC	2019	2019
SC1314-306	ROG	0	0	STERC	2020	2020
SC1314-307	ROG	25	4.6	STERC	2021	9999
SC1314-308	ROG	0	0	STERC	2014	2014
SC1314-309	ROG	0	0	STERC	2015	2015
SC1314-255	ROG	0	0	STERC	2016	2016
SC1314-310	ROG	0	0	STERC	2017	2017
SC1314-311	ROG	0	0	STERC	2018	2018
SC1314-312	ROG	0	0	STERC	2019	2019
SC1314-313	ROG	0	0	STERC	2020	2020
SC1314-256	ROG	57	10.4	STERC	2021	9999
SC1314-314	ROG	0	0	STERC	2014	2014
SC1314-315	ROG	0	0	STERC	2015	2015
SC1314-316	ROG	0	0	STERC	2016	2016
SC1314-317	ROG	0	0	STERC	2017	2017
SC1314-257	ROG	0	0	STERC	2018	2018
SC1314-318	ROG	0	0	STERC	2019	2019

SCAQMD NO.	POLLUTANT	AMOUNT (LB/DAY)	AMOUNT (TON/YR)	TYPE	START YEAR	END YEAR
SC1314-319	ROG	0	0	STERC	2020	2020
SC1314-320	ROG	72	13.1	STERC	2021	9999
SC1314-321	ROG	0	0	STERC	2014	2014
SC1314-258	ROG	0	0	STERC	2015	2015
SC1314-322	ROG	0	0	STERC	2016	2016
SC1314-323	ROG	0	0	STERC	2017	2017
SC1314-324	ROG	0	0	STERC	2018	2018
SC1314-325	ROG	0	0	STERC	2019	2019
SC1314-259	ROG	0	0	STERC	2020	2020
SC1314-326	ROG	85	15.5	STERC	2021	9999
Total		**311**	**56.6**	**N/A**		

CHAPTER II
BUDGET AND FORECAST

[For information on this chapter, please see the SCAQMD's FY 2015-16 Draft Budget and Work Program]

DRAFT BUDGET & DRAFT WORK PROGRAM

South Coast Air Quality Management District

FISCAL YEAR 2015 - 2016

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

DRAFT BUDGET & DRAFT WORK PROGRAM

FISCAL YEAR 2015-2016

Prepared by Finance
Michael B. O'Kelly, Chief Financial Officer

SOUTH COAST
AIR QUALITY MANAGEMENT DISTRICT

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

TABLE OF CONTENTS

TABLE OF CONTENTS

Page No.

TABLE OF CONTENTS

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

GOVERNING BOARD

WILLIAM A. BURKE, Ed.D
Chairman
Speaker of the Assembly Appointee

MICHAEL D. ANTONOVICH
County of Los Angeles Representative

JOHN J. BENOIT
County of Riverside Representative

MICHAEL A. CACCIOTTI
County of Los Angeles
Cities Representative
Eastern Region

JUDY MITCHELL
County of Los Angeles
Cities Representative
Western Region

DR. CLARK E. PARKER, SR.
Senate Rules Committee Appointee

JANICE RUTHERFORD
County of San Bernardino Representative

DENNIS YATES
Vice Chair
County of San Bernardino
Cities Representative

BEN BENOIT
County of Riverside
Cities Representative

JOE BUSCAINO
City of Los Angeles Representative

JOSEPH K. LYOU, Ph.D.
Governor's Appointee

SHAWN NELSON
County of Orange Representative

MIGUEL A. PULIDO
County of Orange
Cities Representative

BARRY R. WALLERSTEIN, D.Env.
Executive Officer

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

March 31, 2015

South Coast Air Quality Management District Board and Stakeholders

Transmittal of the Executive Officer's
Draft Fiscal Year 2015-16 Budget and Work Program

This document represents South Coast Air Quality Management District's (SCAQMD) General Fund Draft Budget and Work Program for FY 2015-16. The budget was developed based on SCAQMD's commitment to protect public health from air pollution with effective and efficient air quality improvement programs that develop solutions for the future in collaboration with stakeholders and partners. The following goals directed the prioritization of projects and resources for the FY 2015-16 Budget: Ensure expeditious progress toward meeting clean air standards and protecting public health; Enhance public education and ensure equitable treatment for all communities; and Operate efficiently and in a manner sensitive to public agencies, businesses, the public and SCAQMD staff.

The budget for FY 2015-16 proposes expenditures of $137 million and revenues of $135 million, using prior year revenues to supplement FY 2015-16 estimated revenues. The proposed level of expenditures, up 4% from the FY 2014-15 adopted budget, includes increased costs for retirement, salaries, and contractual needs and a staffing level of 803 funded positions with continued emphasis on streamlining operations. Staffing is up three positions from the FY 2014-15 amended budget due to new positions for the Air Quality Sensor Performance Evaluation Center (AQ-SPEC), a new internship program for transitional foster youth, and the Engineering and Compliance Office. The work program areas of permitting and compliance command the largest share of the FY 2015-16 proposed budget at 47%, demonstrating SCAQMD's commitment to protect the public's health and work in collaboration with our stakeholders to issue permits as expeditiously as practicable.

Over the last decade, SCAQMD has taken several measures to enhance the District's financial stability, including issuing pension obligation bonds, reducing the District's

pickup of the employees' share of retirement costs, reducing and eliminating the earnable compensation calculation for new employees, deleting or unfunding select vacant positions, increasing the vacancy rate, and early pay-off of the Diamond Bar Headquarters. Comparing the proposed FY 2015-16 budget to the FY 1991-92 adopted budget, when legislation went into effect limiting the agency's fee authority, SCAQMD has successfully reduced staffing by 31% with a modest annual average increase in expenditures of 0.9%. Adjusting for inflation, the FY 2015-16 expenditure proposal is 30% less than the 1991-92 adopted budget.

The FY 2015-16 proposed revenue budget of $135 million, up from 2% from the FY 2014-15 adopted budget, includes a CPI fee adjustment of 1.4% plus the second year phase-in of the additional 3% for Annual Operating Permit Renewal and Permit Processing Fees approved by the Governing Board in June 2014 in order to better align program costs with revenues. At $86 million or 64% of the proposed revenue budget, stationary source revenues account for the largest source of revenue.

The public and the business community have multiple opportunities to participate in the budget development process. These include meetings of the Budget Advisory Committee which is made up of representatives from the business and environmental communities, a public workshop to discuss the proposed budget and work program, and two meetings of the Governing Board. The public workshop and Governing Board meetings are noticed to the public through direct mail to permitted facilities, print media, and through the SCAQMD website.

In summary, I am proposing a budget for FY 2015-16 that allows our programs to operate efficiently and in a manner sensitive to businesses and the public, yet addresses the need for streamlining our operations while providing a continuum of emissions reductions and health benefit improvements. The Draft Fiscal Year 2015-16 Budget and Work Program serves to ensure the strength and stability of the District as we make progress toward attaining the federal and state clean air mandates.

Respectfully,

Barry R. Wallerstein, D.Env.
Executive Officer

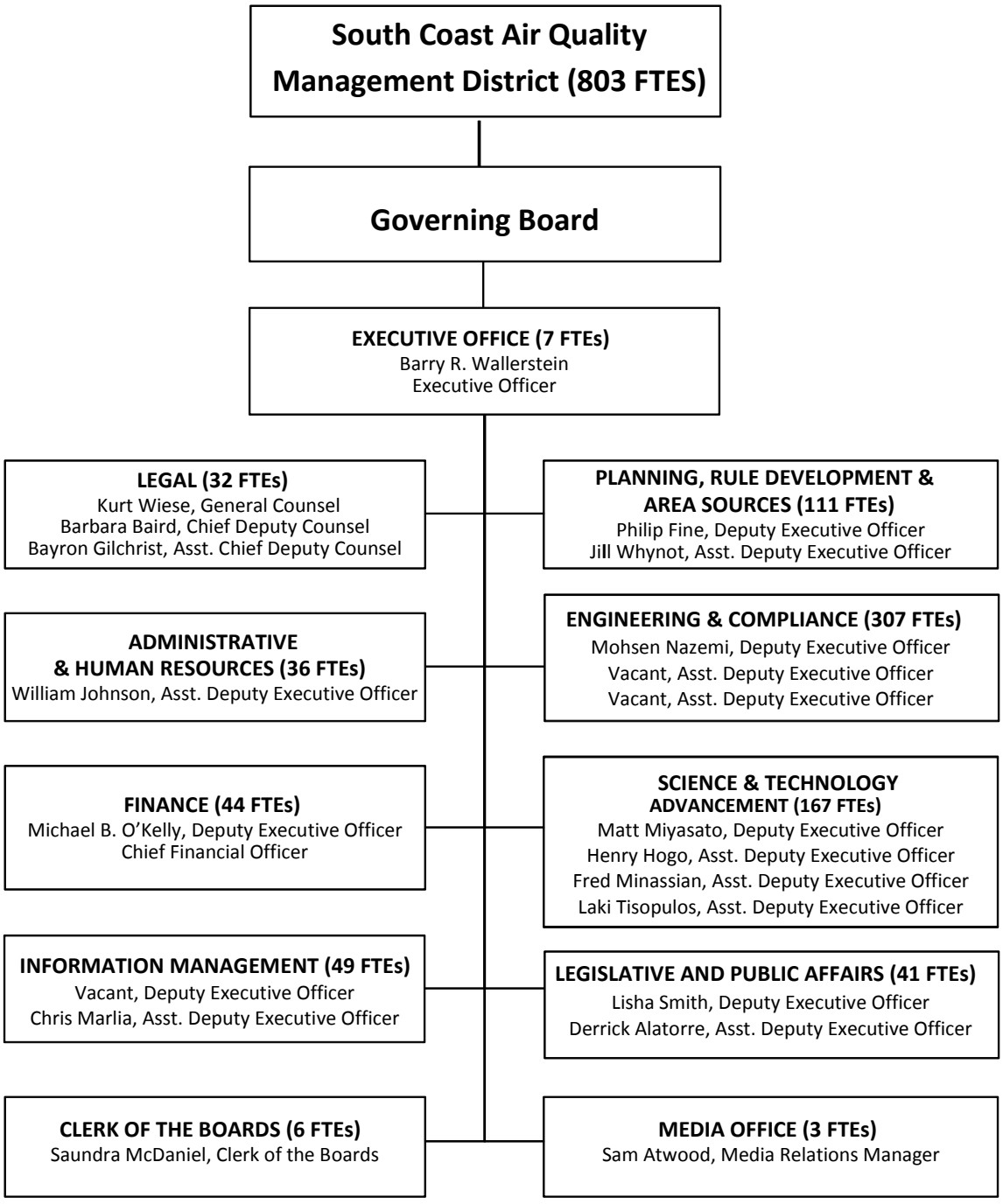
BRW:MBO

The Government Finance Officers Association of the United States and Canada (GFOA) presented a Distinguished Budget Presentation Award to the South Coast Air Quality Management District for its Annual Budget beginning July 1, 2014. In order to receive this award, a governmental unit must publish a budget document that meets program criteria as a policy document, operations guide, financial plan and communications device.

This award is valid for a period of one year only. We believe our current budget continues to conform to program requirements, and we are submitting it to GFOA to determine its eligibility for another award.

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT


South Coast Air Quality Management District (803 FTES)
Governing Board
EXECUTIVE OFFICE (7 FTEs)
Barry R. Wallerstein
Executive Officer
LEGAL (32 FTEs)
Kurt Wiese, General Counsel
Barbara Baird, Chief Deputy Counsel
Bayron Gilchrist, Asst. Chief Deputy Counsel
ADMINISTRATIVE & HUMAN RESOURCES (36 FTEs)
William Johnson, Asst. Deputy Executive Officer
FINANCE (44 FTEs)
Michael B. O'Kelly, Deputy Executive Officer
Chief Financial Officer
INFORMATION MANAGEMENT (49 FTEs)
Vacant, Deputy Executive Officer
Chris Marlia, Asst. Deputy Executive Officer
CLERK OF THE BOARDS (6 FTEs)
Saundra McDaniel, Clerk of the Boards
PLANNING, RULE DEVELOPMENT & AREA SOURCES (111 FTEs)
Philip Fine, Deputy Executive Officer
Jill Whynot, Asst. Deputy Executive Officer
ENGINEERING & COMPLIANCE (307 FTEs)
Mohsen Nazemi, Deputy Executive Officer
Vacant, Asst. Deputy Executive Officer
Vacant, Asst. Deputy Executive Officer
SCIENCE & TECHNOLOGY ADVANCEMENT (167 FTEs)
Matt Miyasato, Deputy Executive Officer
Henry Hogo, Asst. Deputy Executive Officer
Fred Minassian, Asst. Deputy Executive Officer
Laki Tisopulos, Asst. Deputy Executive Officer
LEGISLATIVE AND PUBLIC AFFAIRS (41 FTEs)
Lisha Smith, Deputy Executive Officer
Derrick Alatorre, Asst. Deputy Executive Officer
MEDIA OFFICE (3 FTEs)
Sam Atwood, Media Relations Manager

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

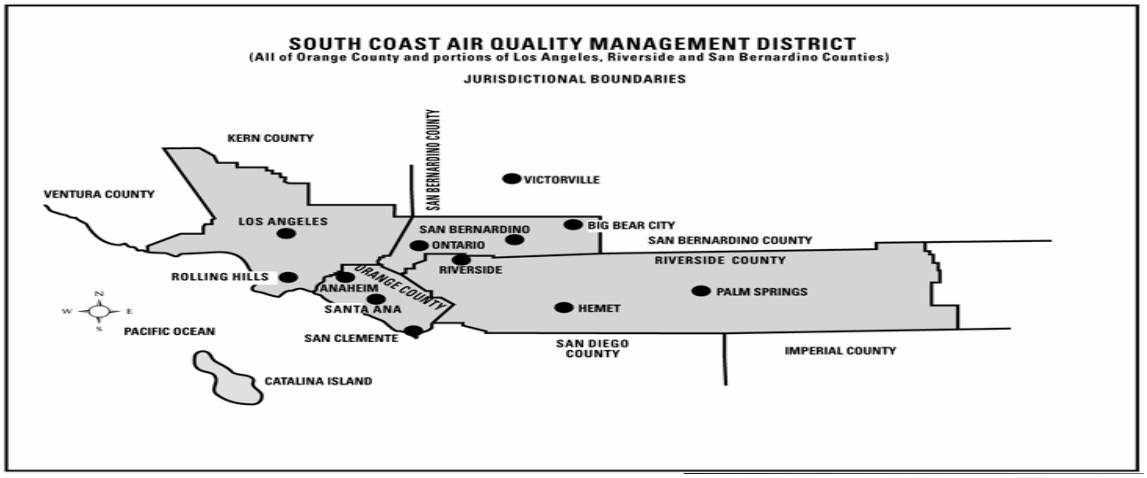
SUMMARY

Preface

This document represents the proposed FY 2015-16 Draft Budget and Work Program of the South Coast Air Quality Management District (SCAQMD). The proposed budget is available for public review and comment during the month of April. Two workshops are scheduled on April 10, 2015 to discuss the budget, one for the public and one for the Governing Board. A final Draft Budget and Work Program, which may include changes based on input from the public and Board, will be presented for adoption at a public hearing on May 1, 2015.

Introduction

The South Coast Air Quality Management District (SCAQMD) began operation on February 1, 1977 as a regional governmental agency established by the California Legislature pursuant to the Lewis Air Quality Management Act. The SCAQMD encompasses all of Orange County and parts of Los Angeles, San Bernardino and Riverside Counties. It succeeded the Southern California Air Pollution Control District (APCD) and its predecessor four county APCDs, of which the Los Angeles County APCD was the oldest in the nation, having been formed in 1947. The SCAQMD Governing Board is composed of 13 members, including four members appointed by the Boards of Supervisors of the four counties in SCAQMD's jurisdiction, six members appointed by cities in the SCAQMD's jurisdiction and three members appointed by the Governor, the Speaker of the State Assembly and the Rules Committee of the State Senate, respectively. The members appointed by the Boards of Supervisors and cities consist of one member of the Board of Supervisors of Los Angeles, Orange, Riverside, and San Bernardino Counties, respectively, and a mayor or member of the city council of a city within Orange, Riverside, and San Bernardino Counties. Los Angeles County cities have three representatives, one each from the western and eastern portions and one member representing the City of Los Angeles.

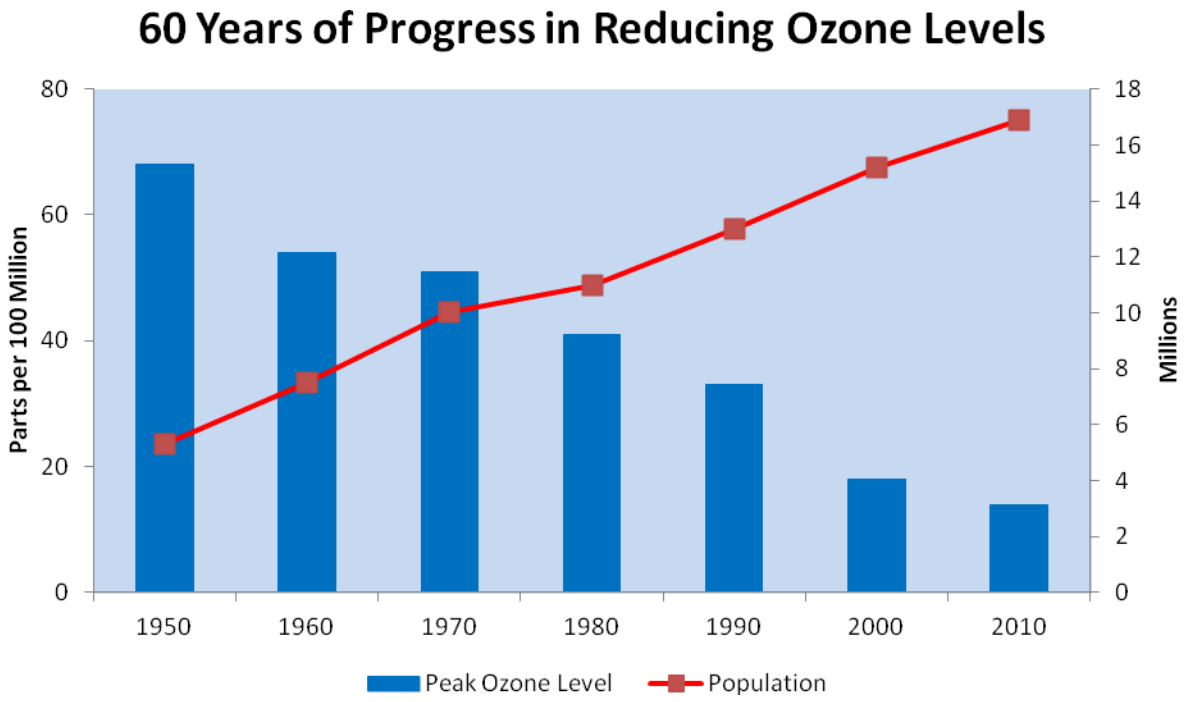


Air Quality History

The South Coast Air Basin has suffered unhealthful air since its rapid population growth and industrialization during World War II. While air quality has improved, the residents of the Basin still breathe some of the most polluted air in the nation.

The 66-year history of the region's air pollution control efforts is, in many ways, one of the world's key environmental success stories. Peak ozone levels have been cut by almost three-fourths since air monitoring began in the 1950s. Population exposure was cut in half during the 1980s alone.

Since the late 1940s when the war on smog began, the region's population has more than tripled from 4.8 million to over 16.5 million; the number of motor vehicles has increased over five-fold from 2.3 million to over 12.6 million; and the area has grown into one of the most prosperous regions of the world. This phenomenal economic growth illustrates that pollution control and strong economic growth can coincide.



Mission

The SCAQMD believes all residents have a right to live and work in an environment of clean air and is committed to undertaking all necessary steps to protect public health from air pollution, with sensitivity to the impacts of its actions on the community and businesses. This mission is

pursued through a comprehensive program of planning, regulation, education, enforcement, compliance incentives, technical innovation and promoting public understanding of air quality issues. The SCAQMD has implemented a policy of working with regulated businesses to ensure their participation in making the rules which will impact them. This cooperative approach has resulted in greater business support for air that is more healthful to breathe.

To carry out its mission the SCAQMD develops a set of Goals and Priority Objectives which are evaluated and revised annually and presented at a public hearing. The following Goals have been established for FY 2015-16:

I. Ensure expeditious progress toward meeting clean air standards and protecting public health.
II. Enhance public education and ensure equitable treatment for all communities.
III. Operate efficiently and in a manner sensitive to public agencies, businesses, the public and SCAQMD staff.

These goals are the foundation for the SCAQMD's Work Program. Each goal is supported by multiple activities, which target specific areas of program performance. A public hearing to receive input on the Goals and Priority Objectives for FY 2015-16 will be held on April 3, 2015.

Air Quality

Overview

The four-county Southern California region, designated for air quality purposes as the South Coast Air Basin, has some of the highest air pollution levels in the United States. The federal government has designated seven pollutants that are pervasive enough across the nation to warrant national health standards. Called "criteria pollutants," these are: ozone (O_3); nitrogen dioxide (NO_2); particulates (PM_{10}); fine particulates ($PM_{2.5}$); carbon monoxide (CO); lead (Pb); and sulfur dioxide (SO_2).

In addition, the State of California through the California Air Resources Board (CARB) sets ambient air quality standards for these same pollutants. California's standards are in some cases tighter than the U.S. Environmental Protection Agency's (EPA) standards, reflecting the conclusion on CARB's part that some of the federal standards are not adequate to protect public health in this region. Toxic compounds also are a potential problem. More toxic pollution is emitted into the air in the South Coast Basin than in any other region in California. The Basin's large number of vehicles and small sources, including small businesses and households using ozone-forming consumer products and paints, compounds the problem.

Air Quality Trends

Ozone levels have fallen by about three-quarters since peaks in the mid-1950s. Nitrogen dioxide, sulfur dioxide, and carbon monoxide levels have gone down from nonattainment to full

attainment of federal health standards. In November 2008, U.S. EPA revised the lead standard from a 1.5 $\mu g/m^3$ quarterly average to a 0.15 $\mu g/m^3$ rolling 3-month average and added new near-source monitoring requirements. The Los Angeles County portion of the Basin has since been designated non-attainment for lead due to monitored concentrations near one facility. However, the most recent 2013 data shows that the Basin meets the current lead standard. U.S. EPA revised the 8-hour ozone standard, effective May 2008, from concentrations exceeding 0.08 ppm to concentrations exceeding 0.075 ppm. In 2013, the current federal 8-hour ozone standard was exceeded on 94 days, the second lowest number of exceedance days ever recorded, based on preliminary 2014 data. The federal ozone standard was exceeded on 88 days in 2013 and 111 days in 2012. The maximum observed ozone levels show some year-to-year variability, but have generally been decreasing over the years. The highest 8-hour ozone level in the 2014 preliminary data was 0.114 ppm, compared to 0.122 ppm and 0.112 ppm in 2013 and 2012 respectively.

In 2007, U.S. EPA formally re-designated the Basin from nonattainment to full attainment of the federal health standard for carbon monoxide. Basin-wide maximum levels of carbon monoxide have been consistently measured at more than 30% below the federal standard since 2004. In 2010, U.S. EPA established a new NO_2 1-hour standard at a level of 100 ppb (0.100ppm) and SO_2 1-hour standard at a level of 75 ppb (0.075 ppm). In 2014, one site exceeded the 1-hour NO_2 standard on one day in the preliminary data; however, this does not jeopardize our attainment status. That is determined by the NO_2 design value which is the 98^{th} percentile value averaged over three years.

In 2006, U.S. EPA rescinded the annual federal standard for PM_{10} but retained the 24-hour standard. Ambient levels of PM_{10} in the Basin meet the federal 24-hour PM_{10} standard. U.S. EPA has re-designated the Basin as in attainment of the health based standard for PM_{10}. $PM_{2.5}$ levels have decreased dramatically in the Basin since the beginning of the decade; however, design value concentrations are still slightly above the federal annual and 24-hour standards at one monitoring station. While our air quality continues to improve, the South Coast Air Basin remains one of the most unhealthful areas in the nation in terms of air quality.

Mandates

The SCAQMD is governed and directed by several state laws and a comprehensive federal law which provide the regulatory framework for air quality management in this Basin. These laws require the SCAQMD to take prescribed steps to improve air quality.

Generally speaking, SCAQMD is responsible for stationary sources such as factories and businesses. CARB and U.S. EPA are primarily responsible for motor vehicles. The SCAQMD and CARB share responsibilities with respect to area sources. The SCAQMD and Southern California Association of Governments (SCAG) share some responsibilities with CARB regarding some aspects of mobile source emissions related to transportation and land use. Control of emissions from sources such as airports, harbors, and trains is shared by the U.S. EPA, CARB and the SCAQMD. Without adequate efforts by CARB and U.S. EPA to control emission sources under their sole authority, it is impossible for the region to reach federal clean air standards.

Under state law, the SCAQMD must periodically develop and submit to the state an Air Quality Management Plan (AQMP) demonstrating how the region will achieve state and federal ambient air quality standards, or at a minimum demonstrate that all feasible measures are being carried out to meet state air quality standards. Each iteration of the plan is an update of the previous plan. To date, the SCAQMD's Governing Board has adopted such plans demonstrating attainment in 1989, 1991, 1994, 1997, 1999 (amendments to the plan adopted in 1997), 2003, 2007 and 2012. Earlier plans in 1979 and 1982 did not show attainment and predicted continued unhealthful air well into this century. The current 2012 AQMP demonstrates attainment of the federal 24-hour $PM_{2.5}$ standard by 2014. Revisions to the federal annual $PM_{2.5}$ standard, adopted by EPA to further protect public health, will extend the projected attainment of the new annual $PM_{2.5}$ standard to the 2020-2025 timeframe. The revised 2008 federal 8-hour ozone standard is projected to extend attainment to 2032. Determination of the final attainment date will be part of the 2016 AQMP already under development.

State Laws include:

- California Clean Air Act (AB 2595) requires air districts in California to adopt plans to expeditiously meet state ambient air quality standards. It mandates that SCAQMD's attainment plans meet several specific requirements including:
  - ♦ a 5% per year reduction in emissions (the plan can achieve less than 5% annual reduction if it includes every feasible measure and an expeditious adoption schedule);
  - ♦ Best Available Control Technology (BACT) for new and modified sources;
  - ♦ Best Available Retrofit Control Technology (BARCT) for existing sources.

- Lewis-Presley Air Quality Management Act (SB 151) specifies additional, more stringent requirements for air quality plans in the South Coast Air Basin. It specifies that SCAQMD has responsibility to prepare the plan in conjunction with SCAG, which must prepare the portions of the plan relating to demographic projections, land use, and transportation programs.

- Air Toxics "Hot Spots" Information & Assessment Act (AB 2588) requires facilities that emit significant quantities of pollutants to prepare health risk assessments describing the impact of toxic contaminants on neighboring areas. If the SCAQMD determines that the toxic emissions create a significant risk, the public must be notified, and facilities must reduce emissions to below significant levels.

- Tanner Air Toxics Process (AB 1807) requires CARB to adopt air toxic control measures to limit emissions of toxic air contaminants from classes of industrial facilities. Local air districts are required to enforce these regulations or adopt equally stringent regulations of their own.

State law also includes the following measures:

- authorizes SCAQMD to adopt market incentives such as the emissions trading program known as RECLAIM as long as the emitters achieve reductions equivalent to command-and-control regulations;
- requires SCAQMD to establish a program to encourage voluntary participation in projects to increase the use of clean-burning fuels;
- requires SCAQMD to adopt and enforce rules to ensure no net emission increases from stationary sources.

Under the Federal Clean Air Act, the SCAQMD must develop and submit to CARB for review, followed by submittal to the EPA, an element of the State Implementation Plan (SIP) demonstrating how the region will achieve federal ambient air quality standards. In the case of ozone, the plan was required to be submitted by November 15, 1994 and for fine particulates, PM_{10}, the plan was required to be submitted by February 8, 1997. Plans for other pollutants were submitted in earlier years. In 1997, EPA adopted new ambient air quality standards for $PM_{2.5}$ and replaced the 1-hour ozone standard with the new standard measured over an 8 hour period. Plans to attain these federal standards were submitted to EPA in November, 2007. The plan to attain the 24-hour PM2.5 standard by 2014 was submitted in early 2013. The Federal Clean Air Act mandates that sanctions be imposed on an area if a suitable plan is not adopted. These sanctions can include loss of key federal funds and more stringent requirements on new or expanding industries. Specific requirements for SCAQMD's AQMP include stringent requirements plus Lowest Achievable Emission Rate (LAER) and offsets for major new sources. Federal law also requires an operating permit program for major stationary sources, known as Title V, which must be supported by permit fees. Also, air toxics regulations adopted by EPA pursuant to Title III must be implemented by SCAQMD.

<u>Air Quality Control</u>

Developing solutions to the air quality problem involve highly technical processes and a variety of resources and efforts to meet the legal requirements of California and federal laws.

Monitoring: The first step is to determine the smog problem by measuring air pollution levels. SCAQMD operates 40 monitoring stations throughout its four-county jurisdiction. These range from full-service stations that measure all criteria pollutants, as well as some toxic pollutant levels, to those which measure specific pollutants in critical areas. These measurements provide the basis of our knowledge about the nature of the air pollution problem and for planning efforts to address the problem.

Pollution Sources: The SCAQMD, in cooperation with CARB and SCAG, estimates the sources of emissions causing the air pollution problem. Nature itself causes a portion of the emissions and must be considered. In general, the SCAQMD estimates stationary and natural sources of emissions, SCAG develops the information necessary to estimate population and traffic, and CARB develops the information necessary to estimate mobile and area source emissions using the SCAG traffic data. This data is then consolidated in the AQMP for use in developing the necessary control strategies.

Air Quality Modeling: Using air quality, meteorological and emissions models, SCAQMD planners simulate air pollution to demonstrate attainment of the air quality standards and the impacts of sources to local and regional air quality. Due to the nature of air pollution, air quality models can be very complex. Some pollutants are not emitted directly into the air but are products of photochemical reactions in the atmosphere. For example, VOCs mix with nitrogen dioxide (NO_2) and react in sunlight to form ozone; similarly, nitrogen oxide gases from tailpipes and smokestacks can be transformed into nitrates or particulates ($PM_{2.5}$ and PM_{10}). The planners thus must take into account transport, land use characteristics and chemical reactions of emissions in the atmosphere to evaluate air quality impacts. Using model output, planners can look at different control scenarios to determine the best strategies to reduce air pollution for the lowest cost.

The considerable data required for these analyses is collected on an ongoing basis by SCAQMD staff. Modeling data is prepared and delivered using a geographic information system (GIS). GIS capability is used to prepare and produce data and spatial analysis maps for rulemaking, Environmental Impact Report (EIR) development and for other Offices within SCAQMD.

Planning: With emissions data and an air quality model in place, planners can develop possible control strategies and scenarios. The SCAQMD focuses most of its effort on stationary source controls. As mentioned earlier, for the most part, strategies to reduce vehicle miles traveled (VMT) are developed by SCAG, while mobile source control standards are developed by CARB.

Once a plan of emission controls to achieve federal standards is outlined, SCAQMD is required to hold multiple public meetings to present the proposed control strategies and receive public input. The SCAQMD also conducts a socioeconomic analysis of the strategies. The SCAQMD maintains an ongoing and independent advisory group of outside experts for both its air quality modeling and socioeconomic assessment methodologies.

To meet federal air quality standards, the 2007 AQMP called for significant reductions from projected baseline emissions (2015 for annual $PM_{2.5}$ and 2024 for 8-hour ozone). These combined reductions, while meeting federal standards, will still not result in attainment of all California air quality standards since these are more stringent than federal standards. The 2012 AQMP addresses the 24-hour PM2.5 standard, demonstrating attainment by 2014 primarily thought enhancements to existing episodic mandatory burn restrictions. The SCAQMD is working on improving the emissions inventory and modeling techniques to address the new federal annual $PM_{2.5}$ and 8-hour ozone air quality standards for the next AQMP revision, the 2016 AQMP.

Rulemaking: The regulatory process, known as rulemaking, takes the concepts of control measures outlined in the AQMP and turns them into proposed rule language. This process involves the following: extensive research on technology; site inspections of affected industries to determine feasibility; typically a year or more of public task force and workshop meetings; in-depth analyses of environmental, social and economic impacts; and thorough review with appropriate Governing Board Committees.

This extensive process of public and policymaker participation encourages consensus in development of rule requirements so that affected sources have an opportunity for input into the rules which will regulate their operations. Once the requirements are developed, the proposed rule, along with an environmental impact report and a socioeconomic report, is presented to SCAQMD's Governing Board at a public hearing. Public testimony is presented and considered by the Board before any rule is adopted. The adopted or amended rules are then submitted to CARB and EPA for their approval. It is not uncommon for rulemaking to include follow-up implementation studies. These studies may extend one or more years past rule adoption/amendment and prior to rule implementation. Such studies are typically submitted to the Governing Board or appropriate Governing Board Committees.

Enforcement and Education: The SCAQMD issues permits to construct and operate equipment to companies to ensure equipment is operated in compliance with adopted rules. Follow-up inspections are made to ensure that equipment is being operated under permit conditions.

Technical Innovation: In the late 1980s, SCAQMD recognized that technological innovation, as well as rule enforcement, would be necessary to achieve clean air standards. Thus the Technology Advancement Office was created to look for and encourage technical innovation to reduce emissions. The California State Legislature supported this effort by providing a $1 surcharge on every DMV registration fee paid within the SCAQMD. These funds have been matched at a ratio of approximately three-to-one with funds from the private sector to develop new technologies such as low-emission vehicles, low-NO_x burners for boilers and water heaters, zero-pollution paints and solvents, fuel cells and other innovations.

An additional $4 vehicle registration fee was authorized by the state legislature in 1990. These fees are administered through the SCAQMD with $1.20 going to the SCAQMD for mobile source emissions reductions, $1.60 subvened directly to cities and counties to support their air quality programs, and $1.20 to the Mobile Source Reduction Review Committee (MSRC). The MSRC is an outside panel established by state law whose function is to make the decisions on the actual projects to be funded from that portion of the revenue.

Public Education: In the end, SCAQMD's efforts to clean up the air will be successful only to the extent that the public understands air quality issues and supports and participates in our cleanup effort. Thus, the SCAQMD strives to involve and inform the public through the Legislative and Public Affairs office, public meetings, publications, the press, and public service announcements.

Budget Synopsis

The SCAQMD's annual budget is adopted for the General Fund for a fiscal year that runs from July 1 through June 30 of the following year. The period covered by the FY 2015-16 budget is from July 1, 2015 to June 30, 2016. The General Fund budget is the agency's operating budget and is structured by Office and account. The accounts are categorized into three Major Objects:

Salaries and Employee Benefits, Services and Supplies, and Capital Outlays. The budget is supplemented with a Work Program which estimates staff resources and expenditures along program and activity lines. A Work Program Output Justification is completed for each Work Program which identifies performance goals, measureable outputs, legal mandates, activity changes and revenue categories.

The annual expenditure and revenue budget for the General Fund is adopted on a modified accrual basis. All annual expenditure appropriations lapse at fiscal year-end if they have not been expended or encumbered. Throughout the year, budget amendments may be necessary to accommodate additional revenues and expenditure needs. Any amendments due to budget increases or transfers between expenditure accounts in different Major Objects must be approved by SCAQMD's Governing Board. They are submitted to the Governing Board for approval at a monthly Board meeting in the format of a board letter which documents the need for the request and the source of funding for the expenditure. Budget amendments resulting from transfers between expenditure accounts within the same Major Object are approved at the Office level.

SCAQMD does not adopt annual budgets for its Special Revenue Funds. Special Revenue Funds are used to record transactions applicable to specific revenue sources that are legally restricted for specific purposes. All transactions in Special Revenue Funds are approved by the Governing Board on an as needed basis.

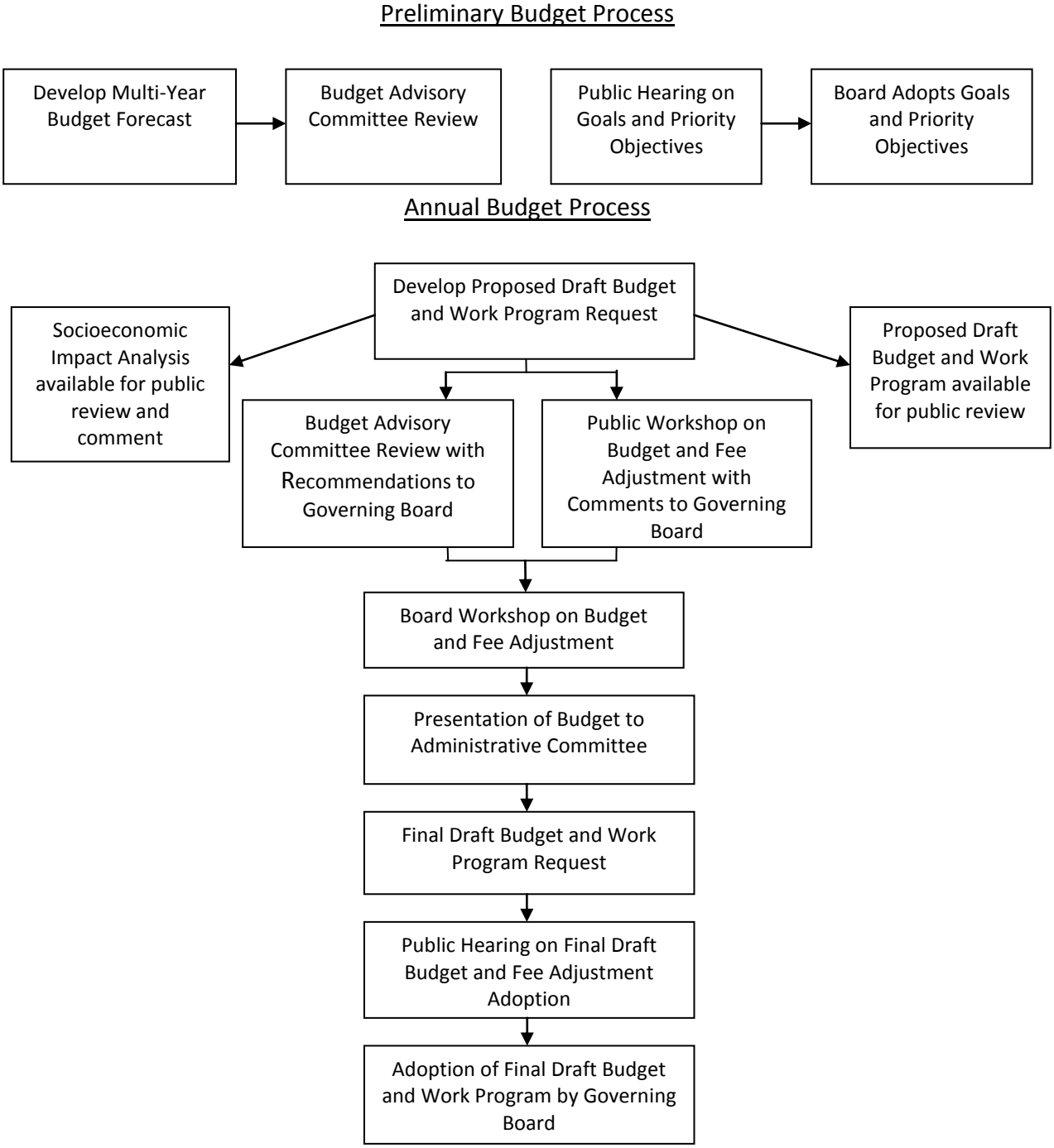
Budget Process

The SCAQMD budget process begins by establishing Goals and Priority Objectives for the fiscal year. The proposed annual budget and multi-year forecast is then developed by the Offices, Finance, Executive Council, and the Executive Officer based on the Goals and Priority Objectives as well as guidelines issued by the Executive Officer. Each Office submits requests for staffing, select Salary accounts, Services and Supplies accounts, and the Capital Outlays account. The remaining salary and benefit costs are developed by Finance. Capital expenditure requests are reviewed by an in-house committee who prioritizes the requests. Revenue projections are developed by Finance based on input received from the appropriate Offices and incorporating any proposed changes to the fee schedules. This information is integrated into an initial budget request, including a top-level multi-year forecast, and then fine-tuned under the direction of the Executive Officer to arrive at a proposed budget. The public, business community, and other stakeholders have several opportunities to participate in the budget process, up to and at the budget adoption hearing by the Governing Board, including:

- two meetings of the Budget Advisory Committee whose members include various stakeholder representatives
- a public workshop to discuss proposed changes to the fee schedules and to discuss the proposed budget
- two public hearings, including one on the Goals and Priority Objectives and one on the proposed budget

The proposed budget is presented to SCAQMD's Governing Board at a budget workshop and to SCAQMD's Administrative Committee. Any public comment and Budget Advisory Committee recommendations are also submitted to the Governing Board. The final proposed budget, including final fee schedules, is adopted by the Governing Board and is in place on July 1 for the start of the new fiscal year.

The following flow charts represent the major milestones and processes that take place in the development of the SCAQMD budget:



Budget Timeline	
Budget packages distributed to Offices	Jan 13, 2015
Budget Advisory Committee meeting	Jan 23, 2015
Budget submissions received from Offices	Feb 6, 2015
Proposed budget available for public review	April 1, 2015
Public Hearing on Goals & Priority Objectives	April 3, 2015
Budget Advisory Committee meeting on proposed budget	April 8, 2015
Public Workshop on proposed budget	April 10, 2015
Governing Board budget workshop	April 10, 2015
Budget presented to Administrative Committee	April 10, 2015
Public comments and Budget Advisory Committee recommendations submitted to Governing Board	April 15, 2015
Public Hearing & Governing Board adoption of budget	May 1, 2015

Proposed Draft Budget & Work Program

Budget Overview

The budget for FY 2015-16 proposes expenditures of $137.2 million and revenues of $135.0 million, using prior year revenues to supplement FY 2015-16 estimated revenues. To compare against prior years, the following table shows SCAQMD amended budget and actual expenditures for FY 2013-14, adopted and amended budgets for FY 2014-15 and proposed budget for FY 2015-16.

Description	FY 2013-14 Amended	FY 2013-14 Actual	FY 2014-15 Budget	FY 2014-15 Amended[1]	FY 2015-16 Budget
Staffing	797	-	798	800	803
Revenue/Transfers In	$143.3	$145.6	$132.2	$139.2	$135.0
Program Costs/Transfers Out	$143.2	$138.4	$132.2	$142.9	$137.2

[1] Includes Board approved changes through March 2015

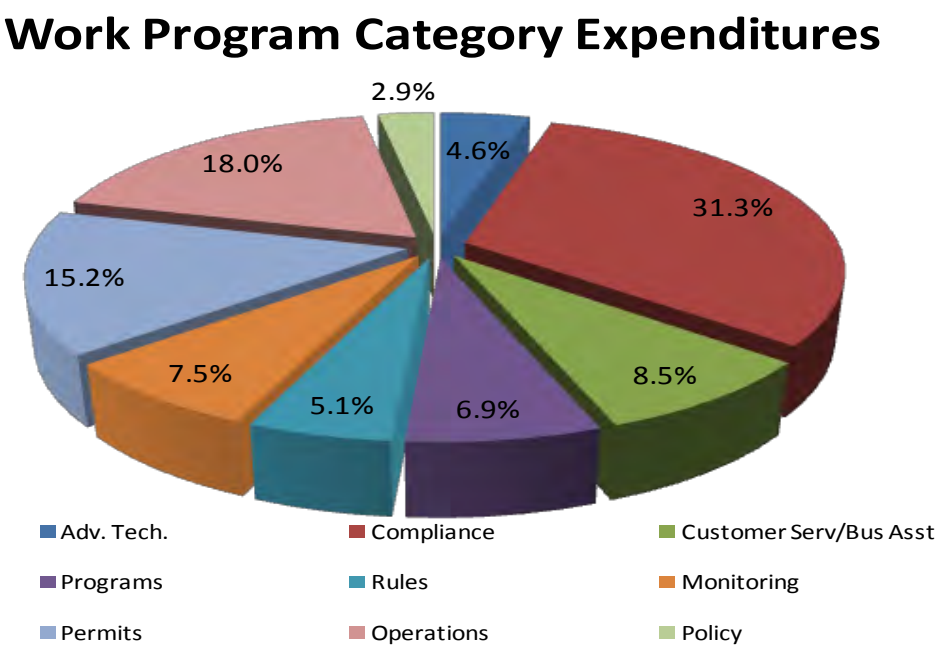
This budget reflects a decrease of approximately $5.7 million in expenditures from the FY 2014-15 amended budget and a $5.0 million increase in expenditures from the budget adopted for FY 2014-15. The increase in expenditures from the FY 2014-15 adopted budget can be attributed to increases in retirement, salaries, and contractual costs. The FY 2015-16 proposed budget increases the funded staffing level by 3 positions (from 800 to 803) from the FY 2014-15 amended budget.

Expenditures

Work Program

SCAQMD expenditures are organized into nine Work Program Categories: Advance Clean Air Technology; Ensure Compliance with Clean Air Rules; Customer Service and Business Assistance; Develop Programs to Achieve Clean Air; Develop Rules to Achieve Clean Air; Monitoring Air Quality; Operational Support; Timely Review of Permits; and Policy Support. Each category consists of a number of Work Programs, or activities, which are classified according to the nature of the activity being performed.

Each Work Program ties to the goals and objectives of the agency and identifies resources, performance measures/outputs and legal mandates. A complete description of each program category along with a detailed work program sort by program is included in the Work Program section. The pie chart that follows represents the budgeted expenditures by Program Category for FY 2015-16.



The following table compares SCAQMD Work Program expenditures by category for the FY 2014-15 adopted budget and FY 2015-16 proposed budget.

Work Program Categories	FY 2014-15 Adopted Budget	FY 2015-16 Proposed Budget
Advance Clean Air Technology	$ 5,943,279	$ 6,273,618
Ensure Compliance with Clean Air Rules	40,595,094	42,891,828
Customer Service and Business Assistance	11,257,410	11,644,377
Develop Programs to Achieve Clean Air	9,001,281	9,531,386
Develop Rules to Achieve Clean Air	6,937,646	7,034,486
Monitoring Air Quality	10,159,755	10,346,762
Operational Support	24,127,044	24,743,686
Timely Review of Permits	20,331,852	20,800,011
Policy Support	3,866,713	3,951,646
Total	$ 132,220,074	$ 137,217,800

Account Categories

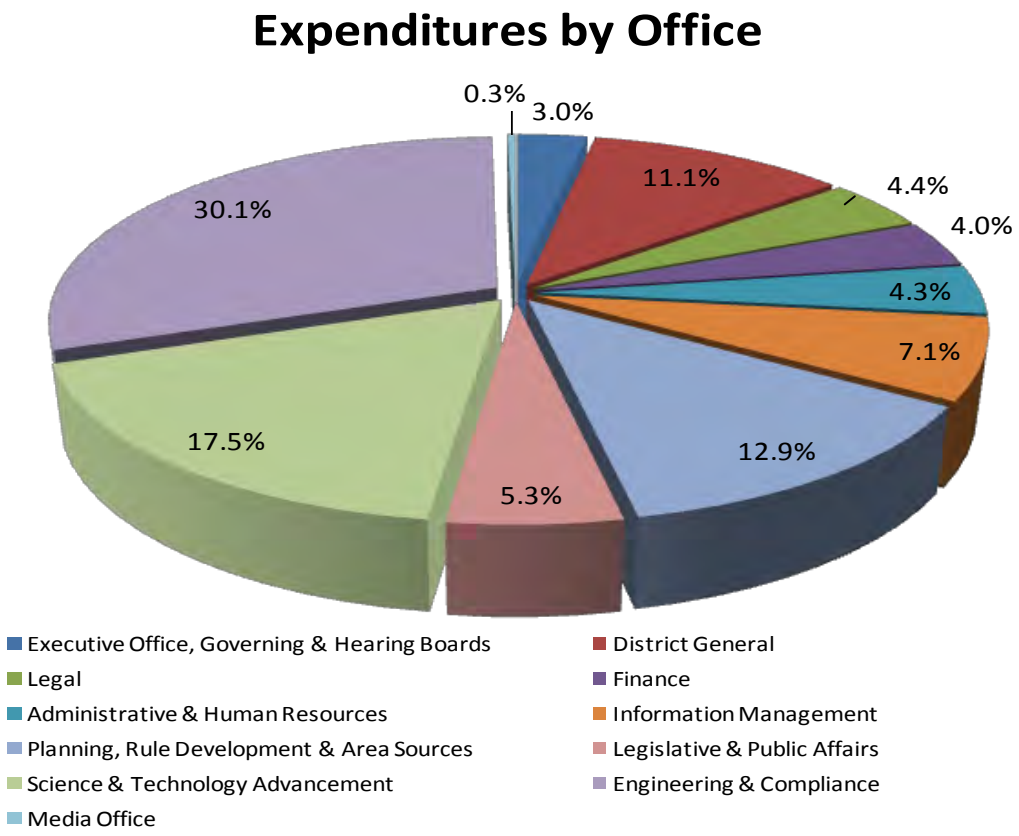
The following table compares the FY 2014-15 adopted budget to the proposed budget for FY 2015-16 by account category. The middle column is the FY 2014-15 amended budget that includes the Board-approved mid-year adjustments through March 2015.

Account Description	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget	FY 2015-16 Proposed Budget
Salaries/Benefits	$ 106,539,331	$ 106,881,846	$ 110,766,918
Insurance	1,317,400	1,208,774	1,317,400
Rents	431,234	537,443	457,388
Supplies	2,449,483	2,962,949	2,605,501
Contracts and Services	7,116,845	10,968,121	8,672,281
Maintenance	1,977,611	2,101,231	1,949,741
Travel/Auto Expense	693,502	894,925	854,972
Utilities	1,766,989	1,741,989	1,943,689
Communications	626,226	671,726	706,590
Capital Outlays	1,062,500	3,715,450	722,500
Other	1,002,575	1,175,786	1,030,668
Debt Service	7,236,378	7,236,378	6,190,152
Transfers Out	-	2,791,882	-
Total	$ 132,220,074	$ 142,888,500	$ 137,217,800

As mentioned previously, the proposed budget for FY 2015-16 represents an approximately $5.7 million decrease in expenditures from the FY 2014-15 amended budget. The FY 2014-15 amended budget includes mid-year increases associated with the purchase of air toxics monitoring lab and field equipment and data management software, establishment of an AQ Sensor Performance Evaluation Center (AQ-SPEC), oversight and monitoring of mitigation activities (reimbursed by third party), purchase of a LIDAR system for continuous wind profile measurements, transfer of one time revenues to the Health Effects Research Fund, as well as grant related expenditures offset by revenue.

Office Categories

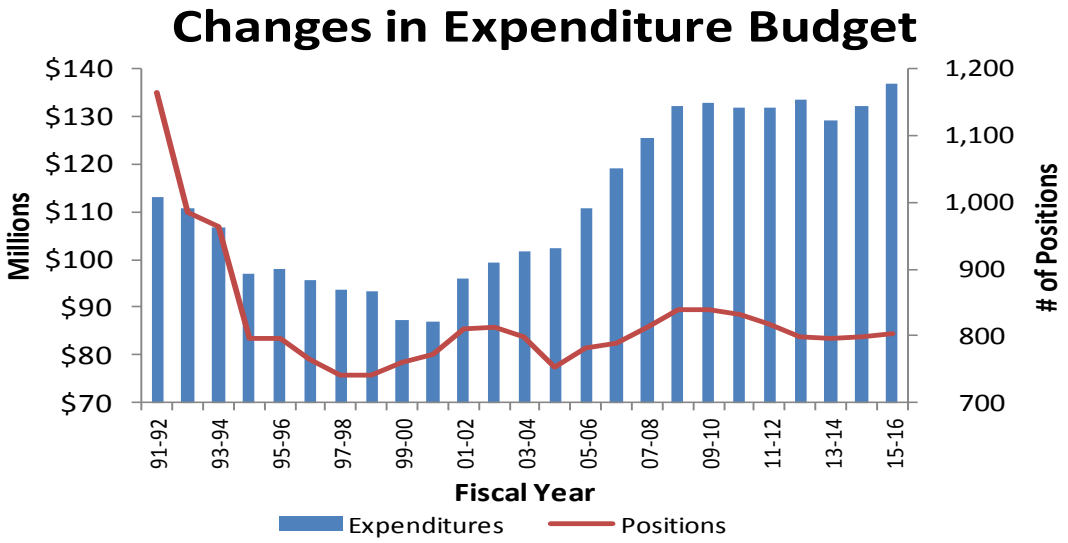
The following pie chart represents budgeted expenditures by Office for FY 2015-16

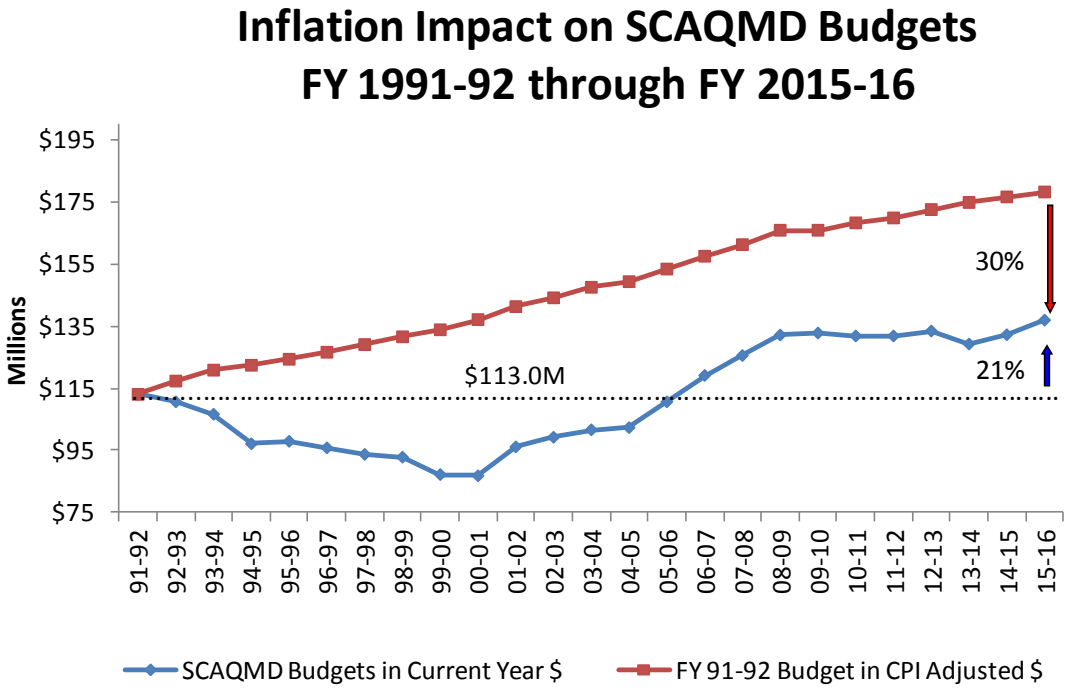


Budget Changes

Over the years, SCAQMD has focused on streamlining many of its operations while still meeting its program commitments, despite new federal and state mandates and increased workload complexity. The focus has been on reducing expenditures in the Major Object of Services and Supplies and maximizing the efficient use of staff resources to enable select vacant positions to remain vacant, be deleted or be unfunded. This effort has resulted in reduced program costs and is reflected in the following charts showing SCAQMD's staffing and budget levels starting in

FY 1991-92 when legislation went into effect limiting the agency's fee authority and staffing was at 1,163 FTEs. The proposed budget for FY 2015-16 reflects a staffing level of 803 FTEs. This level is 31% (360 FTEs) below the FY 1991-92 level. The FY 2015-16 proposed budget is only 21% higher when compared to the FY 1991-92 adopted budget of $113 million. After adjusting the FY 1991-92 adopted budget for CPI over the last 24 years, the FY 15-16 proposal is 30% lower.



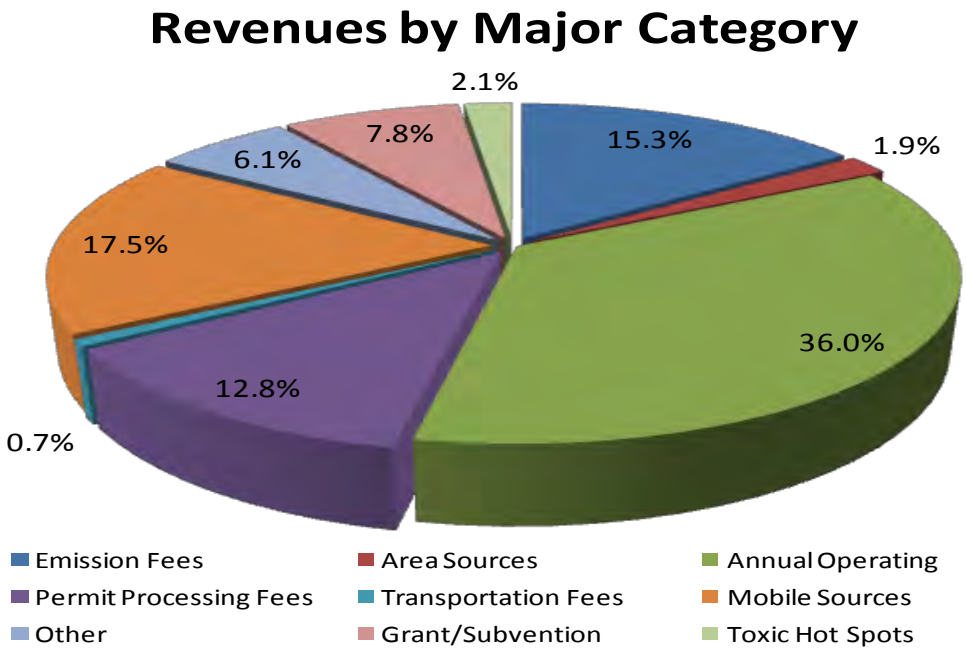


CPI adjustment based on California Consumer Price Index for the preceding Calendar Year

Revenues

Revenue Categories

Each year, in order to meet its financial needs, the SCAQMD Governing Board adopts a budget supported by a system of annual operating and emission fees, processing fees, toxic "hot spots" fees, area sources fees, and transportation plan fees which are estimated to generate approximately $93 million or about 69% of SCAQMD revenues. Other sources, which include penalties/settlements, interest, and miscellaneous income, generate approximately 6% of total revenues. The remaining 25% of revenue are projected to be received in the form of federal grants, California Air Resource Board (CARB) subvention, and California Clean Air Act motor vehicle fees. Beginning with its Fiscal Year 1978-79 Budget, the SCAQMD became a fee supported agency no longer receiving financial support from property taxes. The revenue budget includes a proposed CPI fee adjustment of 1.4% plus the second year phase-in of the additional fee adjustment of 3% for Annual Operating Permit Renewal and Permit Processing Fees to better align program costs with revenues. The 3% fee adjustment was approved by the Governing Board in June 2014 as part of a 6% adjustment spread over two years starting in FY 2014-15.



The following table compares the FY 2014-15 adopted revenues to the proposed revenues for FY 2015-16. The middle column is the amended revenues for FY 2014-15 that include Board-approved mid-year changes through March 2015.

Revenue Description	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget	FY 2015-16 Proposed Budget
Annual Operating Emission Fees	$ 19,907,239	$ 19,907,239	$ 20,597,280
Annual Operating Permit Renewal Fees	45,519,161	45,519,161	47,471,770
Permit Processing Fees	18,340,435	18,340,435	17,319,690
Portable Equip Registration Prgm	1,184,169	1,184,169	1,151,630
Area Sources	2,133,600	2,133,600	2,535,000
Grant/Subvention	10,429,152	13,097,834	10,487,980
Mobile Sources	22,452,611	23,758,611	23,585,360
Transportation Program	894,080	894,080	812,720
Toxic Hot Spots	2,291,515	2,291,515	2,802,310
Other[1]	8,092,494	8,961,689	7,871,070
Transfers In	975,618	3,130,068	345,500
Total	$ 132,220,074	$ 139,218,401	$ 134,980,310

[1]Includes revenues from Lease Income, Source Testing, Hearing Board, Penalties/Settlements, Interest, Subscriptions, and Other.

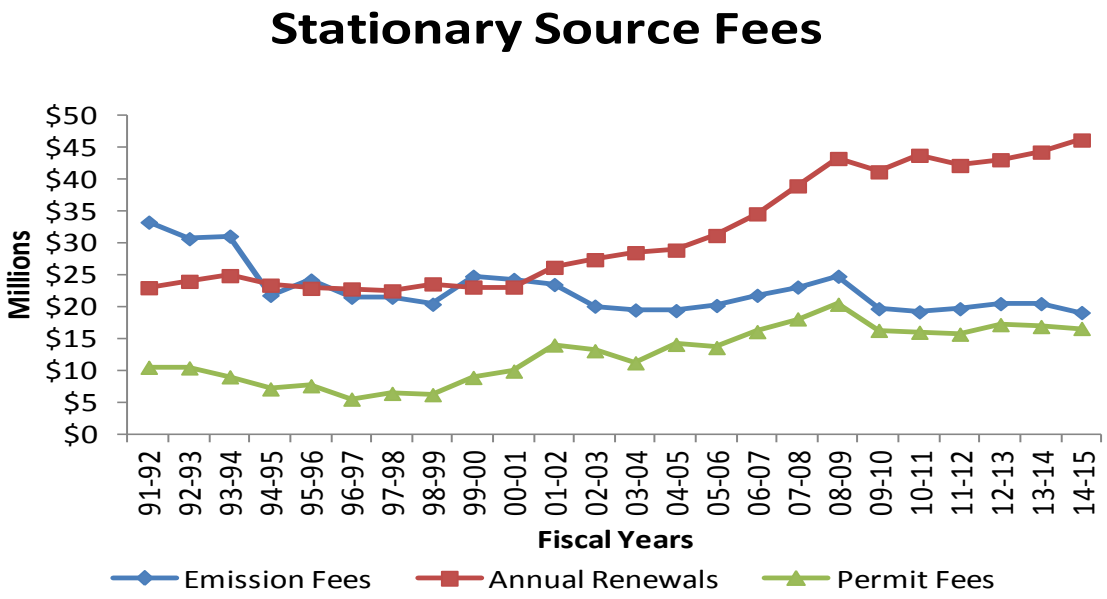
Over the past two decades, total permit fees (including permit processing, annual operating permit, and annual emissions based fees) collected from stationary sources has increased by about 22% from $66.8 million in FY 1991-92 to $81.8 million (estimated) in FY 2014-15. When adjusted for inflation however, stationary source revenues have decreased by 28% over this same period.

Mobile source revenues that are subvened to the SCAQMD by the Department of Motor Vehicles (DMV) are projected to increase from the FY 2014-15 budgeted amounts based on vehicle registration information from the DMV and recent revenue received. In addition, this category reflects incentive programs (Clean Fuels, Carl Moyer, and Prop 1B) whose contract activities and revenues are recorded in special revenue funds outside the General Fund. These incentive program costs are reimbursed to the General Fund from the various special revenue funds (subject to any administrative caps) and are reflected in the FY 2014-15 Amended Budget under the Mobile Source revenue category.

Revenues from the federal government, (Environmental Protection Agency, Department of Homeland Security, and Department of Energy) are projected to stay flat in FY 2015-16 from FY 2014-15 budgeted levels reflecting little change in the anticipated amount of federal dollars from other one-time and on-going grants in support of air quality efforts. State Subvention

funding is expected to remain at the current level (reduced approximately 35% from FY 2001-02) for FY 2015-16.

The following graph tracks actual stationary source revenues by type of fee from FY 1991-92 (when CPI limits were placed on SCAQMD fee authority) to estimated revenues for FY 2014-15.



Debt Structure

Pension Obligation Bonds

These bonds were issued jointly by the County of San Bernardino and the SCAQMD in December 1995. In June 2004 the SCAQMD went out separately and issued pension obligation bonds to refinance its respective obligation to the San Bernardino County Employee's Retirement Association for certain amounts arising as a result of retirement benefits accruing to members of the Association.

The annual payment requirements under these bonds are as follows:

Year Ending June 30	Principal	Interest	Total
2016	$ 3,235,598	$ 3,954,554	$ 7,190,152
2017	3,331,010	3,863,482	7,194,492
2018	3,432,798	3,756,716	7,189,514
2019	3,553,110	3,637,290	7,190,400
2020-2022	19,323,964	10,511,082	29,835,046
Total	$ 32,876,480	$ 25,723,124	$ 58,599,604

Fund Balance

The SCAQMD is projecting an Unreserved Undesignated Fund Balance for June 30, 2016 of $30,046,262 in addition to the following Reserved and Unreserved Designated Fund Balances for FY 2015-16.

Classification	Reserve/Unreserved Designation	Amount
Committed	Reserve for Encumbrances	$ 6,976,000
Nonspendable	Reserve for Inventory of Supplies	80,000
	Unreserved Designations:	
Assigned	For Enhanced Compliance Activities	883,018
Assigned	For Litigation/Enforcement	1,600,000
Assigned	For Other Post Employment Benefit (OPEB) Obligations	2,952,496
Assigned	For Permit Streamlining	288,385
Assigned	For Self-Insurance	2,000,000
Assigned	For Unemployment Claims	80,000
	Total Reserves & Unreserved Designations	$ 14,859,899

Reserves represent portions of the fund balance set aside for future use and are therefore not available for appropriation. These reserves are made-up of encumbrances which represent the estimated amount of current and prior years' unperformed purchase orders and contract commitments at year-end; and inventory which represents the value at cost of office, computer, cleaning and laboratory supplies on hand at year-end.

Designations in the fund balance indicate plans for use of financial resources in future years. The Designation for Enhanced Compliance Activities provides funding for inspection/compliance efforts. The Designation for Litigation/Enforcement provides funding for outside legal support. The Designation for Other Post Employment Benefit Obligations (OPEB) provides funding to cover the current actuarial valuation of the inherited OPEB obligation for long-term healthcare costs from the County of Los Angeles resulting from the consolidation of the four county Air Pollution Control Districts (APCDs). The Designation for Permit Streamlining was established to fund program enhancements to increase permitting efficiency and customer service. The SCAQMD is self-insured for general liability, workers' compensation, automobile liability, premises liability, and unemployment.

Long-Term Projection

The SCAQMD continues to face a number of challenges in the upcoming years, including higher operating costs due to increased retirement costs and the need for major infrastructure improvement projects for an aging headquarters building and continued streamlining of operations while meeting growing program commitments. A primary uncertainty is the degree of fluctuations the financial markets will take over the next few years which will determine the performance of our retirement investments and other investments. Another uncertainty is any legislative action that may impact the level of federal and state funding from grant awards and subvention funds. Cost recovery within the constraints of Prop 26 is a third uncertainty as SCAQMD strives to balance program operating expenses with revenues collected from fees. In order to face these challenges, SCAQMD has a five year plan in place that provides for critical infrastructure improvement projects, maintains a stable vacancy rate in order to maximize cost efficiency, and keeps the percentage of unreserved fund balance to revenue within the Governing Board mandate of 20%. The following chart, outlining SCAQMD's financial projection over this time period, shows the agency's commitment to meet these challenges and uncertainties while protecting the health of the residents within the SCAQMD boundaries and remaining sensitive to business.

Fiscal 2014-15 Estimate and Five Year Projection ($ in Millions)

	FY 14-15 Estimate	FY 15-16 Proposed	FY 16-17 Projected	FY 17-18 Projected	FY 18-19 Projected	FY 19-20 Projected
STAFFING		803	803	803	803	803
REVENUES*	$137.7	$135.0	$136.0	$137.7	$139.6	$140.9
EXPENDITURES/TRANSFERS OUT	$137.5	$137.2	$140.0	$141.0	$140.4	$139.9
Change in Fund Balance	$0.2	($2.2)	($4.0)	($3.3)	($0.8)	$1.0
UNRESERVED FUND BALANCE (at year-end)	$40.1	$37.9	$33.9	$30.6	$29.8	$30.8
% of REVENUE	29%	28%	25%	22%	21%	22%

*Includes projected CPI fee increase of 1.4% for FY 2015-16, 2.1% for FY 2016-17, and 2.2% for FY 2017-18, FY 2018-19 and FY 2019-20. In FY 2015-16 there is an additional 3% increase to Annual Operating revenue and Permit Processing fees.

As part of the Five Year Projection, SCAQMD details out the needed building maintenance and capital outlay improvement projects for its headquarters building. These projects are outlined in the chart below. In addition, the Infrastructure Improvement Fund has been created with unanticipated one-time revenues from the General Fund for many of the capital outlay building improvement projects. The projects proposed to be initiated in FY 2015-16 from the Infrastructure Improvement Fund include converting pneumatic controls to DDC (Direct Digital

Control), and replacing air volume controllers in the lab, the 800 ton Cooling Tower, furnishings In the GB Conference Room, and aging kitchen equipment.

GENERAL FUND BUILDING MAINTENANCE and CAPITAL OUTLAY PROJECTS Five Year Projection - FY 2015-16 through FY 2019-20	
FY 2015-16	**Amount**
Atrium and Building Expansion Joint Waterproofing	$ 170,000
Concrete Repair Various Sidewalks and Curbs	80,000
Repair and Reseal Parking Lot	150,000
Child Care Playground Renovation	125,000
Total	**$ 525,000**
FY 2016-17	**Amount**
Replace Aging Kitchen Equipment	$ 140,000
Replace Air Handler Fan Walls (5)	425,000
Replace Air Volume Controllers (CVDD) Lab	150,000
Convert Pneumatic Controls to DDC (Direct Digital Control.)	150,000
Upgrade Lighting Controls	150,000
Replace Vinyl Wall Covering (Various Areas)	125,000
Irrigation Renovation and Upgrade Controllers	25,000
Recoat Cooling Tower Piping	80,000
Restroom and Copy/Coffee Sink and Counter Tops	35,500
Refurbish Ceiling/Walls in Conference Room GB	50,000
Repaint Building Exterior (Trim and Doors)	150,000
Repaint Building Interior	150,000
Refurbish/Replace Restroom Panels	80,000
Total	**$ 1,710,500**
FY 2017-18	**Amount**
Replace Air Handler Fan Walls (5)	$ 425,000
Replace Air Volume Controllers (CVDD) Lab	150,000
Upgrade Pneumatic Controls to Direct Digital Control	150,000
Upgrade Energy Management System	75,000
Replace Aging Kitchen Equipment	50,000
Parking Lot Lights (Convert to LED)	245,000
Rebuild/Recompact Patio Area	675,000
Irrigation Renovation and Upgrade Controllers	60,000
Restroom and Copy/Coffee Sink and Counter Tops	35,500
Refurbish Ceiling/Walls in Conference Room GB	25,000

GENERAL FUND BUILDING MAINTENANCE and CAPITAL OUTLAY PROJECTS Five Year Projection - FY 2015-16 through FY 2019-20 (cont.)	
FY 2017-18 (cont.)	**Amount**
Retrofit Can Lighting (LED)	$ 55,000
Total	**$ 1,945,500**
FY 2018-19	**Amount**
Replace Air Handler Fan Walls (5)	$ 425,000
Convert Pneumatic Controls to DDC (Direct Digital Control.)	150,000
Repair and Re-coat Upper Parking Deck	130,000
Recoat District Roofing Surface	150,000
Parking Lot Repair and Repaint Stalls and Curbs	75,000
Recoat Roofing Surface	150,000
Conference Center Paint and Wallpaper	200,000
Restroom and Copy/Coffee Sink and Counter Tops	35,500
Replace VCT Tiles (Various Areas)	75,000
Repair and Re-coat Parking Structure Deck	130,000
Parking Lot Repair and Repaint Stalls and Curbs	75,000
Total	**$ 1,595,500**
FY 2019-20	**Amount**
Replace Air Handler Fan Walls (5)	$ 425,000
Convert Pneumatic Controls to DDC (Direct Digital Control.)	150,000
EVES Charger and Support System Upgrades	175,000
Convert Fluorescent Office Lighting to LED	375,000
Restroom and Copy/Coffee Sink and Counter Tops	35,500
Total	**$ 1,160,500**

SUMMARY OF FISCAL YEAR 2015-16 DRAFT BUDGET				
	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget [1]	FY 2014-15 Estimate [2]	FY 2015-16 Proposed
Funding Sources				
Revenue	$ 131,244,456	$ 136,088,333	$ 135,094,922	$ 134,634,810
Transfers-In	975,618	3,130,068	2,604,605	345,500
Use of Designations	-	1,000,000	-	-
Use of Undesignated Fund Balance	-	2,670,099	-	-
Total Financing Sources	$ 132,220,074	$ 142,888,500	$ 137,699,527	$ 134,980,310
Funding Uses				
Salaries & Employee Benefits	$ 106,539,331	$ 106,881,846	$ 104,053,809	$ 110,766,918
Services & Supplies	24,618,243	29,499,322	27,265,069	25,728,382
Capital Outlays	1,062,500	3,715,450	3,343,905	722,500
Transfers-Out	-	2,791,882	2,791,882	-
Total Funding Uses	$ 132,220,074	$ 142,888,500	$ 137,454,665	$ 137,217,800

Fund Balances -Reserves & Unreserved Designations	Classification	Projected June 30, 2015	Projected June 30, 2016
Reserve for Encumbrances	Committed	$ 6,710,000	$ 6,976,000
Reserve for Inventory of Supplies	Nonspendable	80,000	80,000
Designated for Budget Stabilization	Assigned	-	-
Designated for Enhanced Compliance Activities	Assigned	883,018	883,018
Designated for Litigation/Enforcement	Assigned	600,000	1,600,000
Designated for Other Post Employment Benefit (OPEB) Obligations	Assigned	2,952,496	2,952,496
Designated for Permit Streamlining	Assigned	288,385	288,385
Designated for Self-Insurance	Assigned	2,000,000	2,000,000
Designated for Unemployment Claims	Assigned	80,000	80,000
Total Reserves & Unreserved Designations		$ 13,593,899	$ 14,859,899
Undesignated Fund Balance	Unassigned	$ 33,294,111	$ 30,062,622
Total Fund Balances		$ 46,888,010	$ 44,922,521

[1] The FY 14-15 Amended Budget includes mid-year changes through March 2015.

[2] Includes estimated encumbrances of $4,909,000 which will be applicable to the fiscal year ending June 30, 2015.

ANALYSIS OF PROJECTED JUNE 30, 2015 FUND BALANCE			
Fund Balances as of June 30, 2014			
Reserves	$ 5,912,188		
Designated	12,194,651		
Undesignated	27,672,310		
Total Fund Balances, June 30, 2014:		$	45,779,149
Add Excess Fiscal Year 2014-15 Revenues over Expenditures:			
Revenues	$ 137,699,527		
Expenditures[1]	129,753,783		
Sub-Total:		$	7,945,743
Deduct Decrease in Encumbrances Open on June 30, 2014:			(4,045,000)
Deduct Projected FY 2014-15 Transfers Out to Other Funds			(2,791,882)
Total Projected Fund Balances, June 30, 2015:		$	46,888,010
Fund Balances (Projected) at June 30, 2015			
Reserve for Encumbrances		$	6,710,000
Reserve for Inventory of Supplies			80,000
Designated for Enhanced Compliance Activities			883,018
Designated for Litigation/Enforcement			600,000
Designated for Other Post Employment Benefit (OPEB) Obligations			2,952,496
Designated for Permit Streamlining			288,385
Designated for Self-Insurance			2,000,000
Designated for Unemployment Claims			80,000
Undesignated			33,294,111
Total Projected Fund Balances, June 30, 2015		$	46,888,010
Note: This analysis summarizes the estimated amount of funds that will be carried into FY 2015-16.			
[1] Expenditures do not include estimated $4,909,000 encumbrances for the Fiscal Year ended June 30, 2015.			

SCHEDULE OF AVAILABLE FINANCING AND PROPOSED FISCAL YEAR 2015-16 RESERVES AND DESIGNATIONS		
Fund Balances	$ 46,888,010	
Emission Fees	20,597,280	
Annual Renewal Fees	47,471,770	
Permit Processing Fees	17,319,690	
Portable Equipment Registration Program	1,151,630	
State Subvention	3,947,390	
Federal Grant	6,540,590	
Interest Revenue	482,110	
Lease Revenue	145,410	
Source Test/Analysis Fees	766,580	
Hearing Board Fees	349,830	
Penalties and Settlements	5,000,000	
Area Sources	2,535,000	
Transportation Programs	812,720	
Mobile Sources/Clean Fuels	23,585,360	
Air Toxics "Hot Spots"	2,802,310	
Other Revenues	1,472,640	
Total Funds		$ 181,868,320
Less Proposed Fiscal Year 2015-16 Reserves and Designations:		
Reserve for Encumbrances	$ 6,976,000	
Reserve for Inventory of Supplies	80,000	
Designated for Enhanced Compliance Activities	883,018	
Designated for Litigation/Enforcement	1,600,000	
Designated for Other Post Employment Benefit (OPEB) Obligations	2,952,496	
Designated for Permit Streamlining	288,385	
Designated for Self-Insurance	2,000,000	
Designated for Unemployment Claims	80,000	
Total Proposed Reserves and Designations:		$ 14,859,899
Available Financing:		$ 167,008,421

ANALYSIS OF PROJECTED JUNE 30, 2016 FUND BALANCE		
Fund Balances as of June 30, 2015		
Reserves	$ 6,790,000	
Designated	6,803,899	
Undesignated	33,294,111	
Total Fund Balances, June 30, 2015:		$ 46,888,010
Add Excess Fiscal Year 2015-16 Revenues over Expenditures:		
Revenues	$ 134,980,310	
Expenditures[1]	132,357,800	
Sub-Total:		$ 2,622,510
Deduct Decrease in Encumbrances Open on July 1, 2015:		(4,588,000)
Total Projected Fund Balances, June 30, 2016:		$ 44,922,521
Fund Balances (Projected) Fiscal Year 2015-16:		
Reserve for Encumbrances		$ 6,976,000
Reserve for Inventory of Supplies		80,000
Designated for Enhanced Compliance Activities		883,018
Designated for Litigation/Enforcement		1,600,000
Designated for Other Post Employment Benefit (OPEB) Obligations		2,952,496
Designated for Permit Streamlining		288,385
Designated for Self-Insurance		2,000,000
Designated for Unemployment Claims		80,000
Undesignated		30,062,622
Total Projected Fund Balances, June 30, 2016		$ 44,922,521

[1] Expenditures do not include estimated $4,860,000 encumbrances for the Fiscal Year ended June 30, 2016.

Revenue Comparison				
Revenue Account	FY 2013-14 Actual	FY 2014-15 Budget	FY 14-15 Estimate	FY 15-16 Proposed
Emission Fees	$ 20,472,379	$ 19,907,239	$ 19,074,689	$ 20,597,280
Annual renewal Fees	42,962,617	45,519,161	45,110,921	47,471,770
Permit Processing Fees	16,945,777	18,340,435	16,608,963	17,319,690
Portable Equipment Registration Program	1,298,018	1,184,169	1,045,386	1,151,630
State Subvention	3,949,439	3,900,000	3,947,386	3,947,390
Federal Grant	8,682,390	6,529,152	8,633,177	6,540,590
Interest Revenue	461,444	529,000	461,444	482,110
Lease Revenue	133,916	140,895	136,122	145,410
Source Test/Analysis Fees	697,133	741,680	733,643	766,580
Hearing Board Fees	342,508	279,400	277,140	349,830
Penalties and Settlements	17,959,410	5,000,000	8,709,580	5,000,000
Area Sources	2,819,001	2,133,600	2,133,600	2,535,000
Transportation Programs	877,816	894,080	983,897	812,720
Mobile Sources/Clean Fuels	23,429,712	22,452,611	22,676,746	23,585,360
Air Toxics "Hot Spots"	1,623,051	2,291,515	2,291,515	2,802,310
Other Revenues/Transfers In	2,966,344	2,377,136	4,875,318	1,472,640
Total Revenue	$ 145,620,955	$ 132,220,074	$ 137,699,527	$ 134,980,310

Annual Operating Emissions Fees

The Lewis-Presley Air Quality Management Act (Health & Safety Code §40400-40540) authorizes the SCAQMD to collect fees for permitted sources to recover the costs of District programs related to these sources. Health & Safety Code §40510(b). This statute provides that such fees may be varied in accordance with the quantity of emissions and the effect of those emissions on ambient air quality in the District. Health & Safety Code §40510(c)(1). The SCAQMD initiated an annual operating emissions fees program in January 1978 whereby all permitted facilities pay a flat fee for up to four tons of emissions. In addition to the flat fee, facilities that emit four tons or greater of any organic gases, specific organics, nitrogen oxides, sulfur oxides, or particulate matter, or 100 tons per year or greater of carbon monoxide, also pay fees based on the facility's total emissions. These facilities pay for emissions from permitted equipment as well as emissions from unpermitted equipment and processes which are regulated, but for which permits are not required, such as solvent use. In addition, a fee-per-pound is assessed on the following toxic air contaminants and ozone depleters: ammonia; asbestos; benzene; cadmium; carbon tetrachloride; chlorinated dioxins and dibenzofurans; ethylene dibromide; ethylene dichloride; ethylene oxide; formaldehyde; hexavalent chromium; methylene chloride; nickel; perchloroethylene; 1,3-butadiene; inorganic arsenic; beryllium; polynuclear aromatic hydrocarbons (PAHs); vinyl chloride; lead; 1,4-dioxane; trichloroethylene; chlorofluorocarbons (CFCs); and 1,1,1-trichloroethane. The rates are set forth in SCAQMD Rule 301.

Emissions fees partially recover the costs of SCAQMD's planning, rulemaking, air monitoring, public outreach, small business assistance, and intergovernmental affairs programs.

FY 2015-16 Proposed Budget: The non-RECLAIM emissions are based on Annual Emission Report (AER) data for Calendar Year 2013. The RECLAIM NO_X and So_X emission projection is based on holdings according to the RECLAIM Trading Credit (RTC) listing. The flat emission fees are projected based on the number of active facilities with at least one permit. A 1.4% CPI increase is included.

Annual Operating Permit Renewal

State law authorizes the SCAQMD to have an annual permit renewal program and authorizes fees to recover the costs of the program. Health & Safety Code §42300; §40510(b). The annual operating permit renewal program, initiated by the SCAQMD in February 1977, requires that all active permits be renewed on an annual basis upon payment of annual renewal fees. The annual renewal rates are established in SCAQMD Rule 301 and are based on the type of equipment, which is related to the complexity of related compliance activity. For basic equipment (not control equipment), the operating fee schedule also corresponds to some extent to the emission potential of the equipment. Annual operating permit renewal fees are designed to recover the costs of SCAQMD's compliance and enforcement programs.

FY 2015-16 Proposed Budget: The projection is based on an estimated number of permits at the various equipment fee schedules. A 1.4% CPI increase is included as well as the second year phase-in of an additional 3% fee increase to more fully recover costs.

Permit Processing Fees

Under the Health and Safety Code, SCAQMD may adopt and implement a program requiring that before a person constructs or operates any equipment which emits or controls air pollution in SCAQMD's jurisdictional boundaries, a permit to operate must be obtained from SCAQMD. SCAQMD has adopted rules requiring such permits, but exempts certain equipment which is deemed to have de minimis emissions (Rule 219) to ensure that the equipment is in compliance with SCAQMD rules and regulations. Permit processing fees are authorized by state law to recover the costs of the permit processing program. SCAQMD Rule 301 establishes the fee rate schedule for the different equipment categories, which are based on the average time it takes to process and issue a permit. Each

applicant, at the time of filing, pays a permit processing fee which partially recovers the costs for normal evaluation of the application, issuance of the permit to construct, and any permit modifications. This revenue category also includes fees charged to partially recover the costs of evaluation of plans, including but not limited to Rule 403 dust control plans, Rule 1118 flare monitoring plans, and Rule 1113 architectural coating plans. Fees for plan review and enforcement are authorized by Health & Safety Code §40522. In addition, permit processing fees include fees to cover the administrative cost to process Change of Operator applications, applications for Emission Reduction Credits, and Administrative Changes to permits.

FY 2015-16 Proposed Budget: The projection is based on the anticipated number and type of applications that will be processed. A 1.4% CPI increase is included as well as the second year phase-in of an additional 3% fee increase to more fully recover costs.

Portable Equipment Registration Program (PERP)

The California Air Resources Board (CARB) provides revenues to local air districts to offset the costs of inspecting equipment registered under CARB's Portable Equipment Registration Program (PERP). Fees for inspection of PERP-registered engines by SCAQMD field staff are collected by CARB at the time of registration and passed through to SCAQMD on an annual basis. Fees for inspection of all other PERP-registered equipment are billed at an hourly rate set forth in SCAQMD Rule 301, but determined by CARB and collected by SCAQMD at the time the inspection is conducted.

FY 2015-16 Proposed Budget: The revenue projection is based on the anticipated number of inspections.

Area Sources

Emissions fees from architectural coatings revenue covers architectural coatings fair share of emissions supported programs. Quantity-based fees on architectural coatings are also assessed. SCAQMD Rule 314 covers emission-based fees and quantity-based fees. Fees on area sources are authorized by Health & Safety Code §40522.5. Beginning in FY 2008-09, annual assessments of architectural coatings, based on quantity (gallons) distributed or sold for use in SCAQMD's jurisdiction, are included in revenue projections. This revenue allows SCAQMD to recover the costs of staff working on compliance, laboratory support, architectural coatings emissions data, rule development, and architectural coatings revenue collection.

FY 2015-16 Proposed Budget: Fees are based on the annual quantity and emissions of architectural coatings distributed or sold into or within the District for use in the District for the previous calendar year. Emissions are decreasing while sales volume is increasing. A 1.4% CPI increase is included.

California Air Resources Board Subvention

Under Health and Safety Code Section 39800-39811, the State appropriates monies each year to CARB to subvene to the air quality districts engaged in the reduction of air contaminants pursuant to the basinwide air pollution control plan and related implementation programs. The SCAQMD received subvention funds, at its inception, beginning in 1977.

FY 2015-16 Proposed Budget: In FY 2002-03, the state reduced SCAQMD's subvention to $4 million, a reduction of approximately $2 million from the FY 2001-02 level. The current amount of $3.9 million is included in FY 2015-16.

EXPLANATION OF REVENUE SOURCES

Federal Grants/Other Federal Revenue

SCAQMD receives funding from EPA Section 103 and 105 grants to help support the SCAQMD in its administration of active air quality control and monitoring programs where the SCAQMD is required to perform specific agreed-upon activities. Other EPA and Department of Energy (DOE) grants provide funding for various air pollution reduction projects. A Department of Homeland Security (DHS) grant funds a special particulate monitoring program. When stipulated in the grant agreement, the General Fund is reimbursed for administrative costs associated with grant-funded projects. Most federal grants are limited to specific purposes but EPA Section 105 grants are available for the general support of air quality-related programs.

FY 2015-16 Proposed Budget: The revenue projection is based on funding levels from current federal grants.

Interest

Revenue from this source is the result of investing the SCAQMD's General Fund cash balances.

FY 2015-16 Proposed Budget: A projected rate of return of 0.75% is included in the proposed budget.

Leases

Revenue in this category is a result of leasing available space at SCAQMD's Headquarters facility.

FY 2015-16 Proposed Budget: The projection is based on the terms of any negotiated lease payments SCAQMD expects to receive.

Source Test/Sample Analysis Fees

Revenue in this category includes fees for source tests, test protocol and report reviews, continuous emissions monitoring systems (CEMS) evaluations and certifications, laboratory approval program (LAP) evaluations, and laboratory sample analyses. The revenue recovers a portion of the costs of performing tests, technical evaluations, and laboratory analyses.

FY 2015-16 Proposed Budget: A 1.4% CPI increase is included.

Hearing Board

Hearing Board revenue is from the filing of petitions for variances and appeals, excess emissions fees, and daily appearance fees. The revenue recovers a portion of the costs associated with these activities. Petitions for Orders for Abatement, which go before the Hearing Board, are filed by the District; therefore, there are no Hearing Board fees/revenue related to these proceedings. Thirty-five percent (35%) of Hearing Board cases for FY 2013-14 were Orders for Abatement.

FY 2015-16 Proposed Budget: This estimate is based on the number of hearings held/cases heard. A 1.4% CPI increase is included.

Penalties/Settlements

The revenue from this source is derived from cash settlements for violations of permit conditions, SCAQMD Rules, or state law. This revenue source is available for the general support of the SCAQMD's programs.

FY 2015-16 Proposed Budget: It is anticipated that revenue in this category will be approximately $5.0 million.

Mobile Sources

Mobile Sources revenue is composed of four components: AB2766 revenue and administrative/program cost reimbursements from three programs: Carl Moyer, Proposition 1B, and MSRC .

AB2766:
Section 9250.17 of the Vehicle Code gives the Department of Motor Vehicles (DMV) authority to collect and forward to the SCAQMD $4 for every vehicle registered in SCAQMD's jurisdictional boundaries. Thirty percent of the money ($1.20 per vehicle) collected is recognized in SCAQMD's General Fund as mobile sources revenue and is used for programs to reduce air pollution from motor vehicles and to carry out related planning, monitoring, enforcement, and technical studies authorized by, or necessary to implement, the California Clean Air Act of 1988 or the Air Quality Management Plan. A proportionate share of programs that are not associated with any individual type of source (e.g. air quality monitoring) is supported by these revenues.

The remaining monies are used to pay for projects to reduce air pollution from mobile vehicles: 40% ($1.60 per vehicle) to the Air Quality Improvement Special Revenue Fund to be passed through to local governments and 30% ($1.20 per vehicle) to the Mobile Sources Air Pollution Reduction Special Revenue Fund (MSRC) to pay for projects recommended by the MSRC and approved by the Governing Board.

Carl Moyer:
The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) provides funding from the state of California for the incremental cost of cleaner heavy-duty vehicles, off-road vehicles and equipment, marine, and locomotive engines. The General Fund receives reimbursements from the Carl Moyer Fund for staff time and other program implementation/administration costs.

Proposition 1B:
The Proposition 1B Program is a $1 billion bond program approved by California voters in November 2006. This incentive program is designed to reduce diesel emissions and public health risks from goods movement activities along California's trade corridors. The General Fund receives reimbursements from the Proposition 1B Funds for staff time and other program implementation/administration costs.

MSRC:
MSRC revenue reflects the reimbursement from the Mobile Source Air Pollution Reduction Special Revenue Fund for the cost of staff support provided to the MSRC in administering a mobile source program. These administrative costs are limited by State law and the MSRC adopts a budget for staff support each year.

FY 2015-16 Proposed Budget: Revenue projections are based on vehicle registration data from the DMV, recent revenue received, and anticipated reimbursable staff costs to implement the Carl Moyer Prop 1B, and MSRC programs.

Clean Fuels

The General Fund receives reimbursements from the Clean Fuels Program Special Revenue Fund for staff time and other program implementation/administration costs necessary to implement the Clean Fuels Program.

Section 9250.11 of the Vehicle Code gives the DMV authority to collect and forward to SCAQMD money for clean fuels technology advancement programs and transportation control measures related to stationary sources, according to the plan approved pursuant to Health & Safety Code §40448.5. One dollar is collected by the DMV for every vehicle registered in SCAQMD's jurisdictional boundaries, forwarded to SCAQMD, and deposited in the Clean Fuels Program Special Revenue Fund.

Clean fuels fees from stationary sources are recorded in a separate revenue account within the Clean Fuels Program Special Revenue Fund. Fees are collected from sources that emit 250 tons or more per year of Nitrogen Oxides (NO_x), Sulfur Oxides (SO_x), Reactive Organic Compounds (ROC), or Particulate Matter (PM). The fees collected are used to develop and implement activities that promote the use of clean-burning fuels. These activities include assessing the cost effectiveness of emission reductions associated with clean fuels development and use of new clean fuels technologies, and other clean fuels related projects.

FY 2015-16 Proposed Budget: Revenue projections are based on anticipated reimbursable staff costs to implement the Clean Fuels Program.

Transportation Programs

In accordance with federal and state Clean Air Act requirements, SCAQMD's Rule 2202 provides employers with various options to either reduce mobile source emissions generated from employee commutes or implement mobile source emission reduction programs. Employers with 250 or more employees at a worksite are subject to Rule 2202 and are required to submit an annual registration to implement an emission reduction program that will obtain emission reductions equivalent to a worksite specific emission reduction target. The revenue from this category is used to recover a portion of the costs associated with filing, processing, reviewing, and auditing the registrations. Fees for indirect sources, which are sources that attract mobile sources, such as the large employers covered by Rule 2202, are authorized by Health & Safety Code §40522.5.

FY 2015-16 Proposed Budget: The projection is based on the anticipated number of registrations. A 1.4% CPI increase is included.

Toxic "Hot Spots"

Health and Safety Code Section 44380 requires the SCAQMD to assess and collect fees from facilities that emit toxic compounds. Fees collected are used to recover state and SCAQMD costs to collect and analyze data regarding air toxics and their effect on the public. Costs recovered include a portion of the administrative, outreach, plan processing, and enforcement costs to implement this program.

FY 2015-16 Proposed Budget: The revenue projection is based on estimated General Fund reimbursements from the Air Toxics Fund for staff time and other program and administrative expenditures.

Other

Miscellaneous revenue includes revenue attributable to professional services the SCAQMD renders to other agencies, reimbursements from special revenue funds (non-mobile source), vanpool revenue, fees from fitness center memberships, and Public Records Act requests.

FY 2015-16 Proposed Budget: The revenue projections are based on historical trend information.

SCAQMD Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals ***	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget ***	**FY 2014-15 Estimate ****	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 67,643,348	$ 70,157,184	$ 70,495,662	$ 68,088,263	$ 73,107,948
53000-55000	Employee Benefits	33,380,419	36,382,147	36,386,184	35,965,546	37,658,969
Sub-total Salary & Employee Benefits		$ 101,023,768	$ 106,539,331	$ 106,881,846	$ 104,053,809	$ 110,766,918
Services & Supplies						
67250	Insurance	$ 1,238,111	$ 1,317,400	$ 1,208,774	$ 1,100,996	$ 1,317,400
67300	Rents & Leases Equipment	294,957	143,628	204,687	192,712	176,682
67350	Rents & Leases Structure	302,040	287,606	332,756	292,912	280,706
67400	Household	511,825	712,287	707,237	563,077	722,021
67450	Professional & Special Services	6,644,411	5,059,793	8,406,354	7,770,279	6,598,832
67460	Temporary Agency Services	1,162,178	898,235	1,359,190	1,261,133	880,398
67500	Public Notice & Advertising	382,360	394,100	409,430	339,550	406,100
67550	Demurrage	75,987	52,430	85,910	75,535	64,930
67600	Maintenance of Equipment	550,878	520,132	804,502	600,609	542,262
67650	Building Maintenance	905,597	1,457,479	1,296,729	944,796	1,407,479
67700	Auto Mileage	134,020	63,142	224,154	133,583	68,659
67750	Auto Service	309,157	312,047	314,608	313,608	471,000
67800	Travel	296,607	318,313	356,163	286,525	315,313
67850	Utilities	1,637,327	1,766,989	1,741,989	1,678,812	1,943,689
67900	Communications	629,542	626,226	671,726	618,973	706,590
67950	Interest Expense	4,094,658	4,076,994	4,076,994	4,076,994	3,954,554
68000	Clothing	25,271	27,550	32,362	31,976	28,418
68050	Laboratory Supplies	515,566	275,000	469,787	454,013	300,000
68060	Postage	380,467	409,387	404,576	337,975	450,087
68100	Office Expense	1,171,984	1,079,779	1,239,083	1,226,758	1,066,979
68200	Office Furniture	70,380	56,500	50,600	49,786	61,500
68250	Subscriptions & Books	138,955	164,107	162,661	137,418	166,027
68300	Small Tools, Instruments, Equipment	236,350	65,160	231,880	225,986	160,490
68400	Gas and Oil	238,718	372,000	372,000	331,949	372,000
69500	Training/Conference/Tuition/ Board Exp.	654,215	655,492	672,742	640,143	660,165
69550	Memberships	187,969	70,960	199,005	191,354	69,780
69600	Taxes	20,823	49,000	67,291	40,920	74,000
69650	Awards	85,198	77,023	77,023	69,809	77,023
69700	Miscellaneous Expenses	115,551	150,100	159,725	117,506	149,700
69750	Prior Year Expense	(43,451)	-	-	-	-
69800	Uncollectable Accounts Receivable	1,116,103	-	-	-	-
89100	Principal Repayment	3,099,025	3,159,384	3,159,384	3,159,384	2,235,598
Sub-total Services & Supplies		$ 27,182,779	$ 24,618,243	$ 29,499,322	$ 27,265,069	$ 25,728,382
77000	**Capital Outlays**	$ 2,695,286	$ 1,062,500	$ 3,715,450	$ 3,343,905	$ 722,500
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 130,901,833	$ 132,220,074	$ 140,096,618	$ 134,662,783	$ 137,217,800

* Does not include Transfers Out.

** Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.

Acct. #	Account Description	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget	FY 2014-15 Estimate	FY 2015-16 Proposed Budget	Increase/ (Decrease)[(a)]
51000-52000	**SALARIES**	**$ 70,157,184**	**$ 70,498,336**	**$ 68,088,263**	**$ 73,107,948**	**$2,950,764**
These accounts include salaries and special pays such as: Call-Back, Hazard, Night Shift, Rideshare, Skilled Based, Stand By and Overtime. The FY 2015-16 Request includes the costs associated with the three year labor agreement that went into effect on January 1, 2015 and proposes to maintain vacant positions (salaries) at 8%. In FY 2014-15 vacant positions (salaries) were also budgeted at 8% and are projected to end the fiscal year at 11%. This is due to a greater number of retirees than was anticipated when the FY 2014-15 Budget was developed. The FY 2015-16 Proposed Budget does not include overtime amounts for federal grant work that is not expected to be awarded until mid-year and will not be appropriated until the grants are awarded.						
53000	**EMPLOYEE BENEFITS**	**$ 2,724,527**	**$ 2,724,527**	**$ 2,997,910**	**$ 3,094,129**	**$369,602**
This account includes the costs associated with State Disability Insurance, employer share of unemployment insurance, Social Security and Medicare. In addition, this account includes individual memberships and/or management physicals.						
54000	**RETIREMENT**	**$ 22,904,535**	**$ 22,904,535**	**$ 23,154,679**	**$24,466,886**	**$1,562,351**
This account includes the employer's share of the employee retirement system contributions. The increase from the FY 2014-15 Adopted Budget is based on the contribution rates provided from the San Bernardino County Retirement Association (SBCERA).						
55000	**INSURANCE**	**$ 10,753,085**	**$ 10,754,448**	**$ 9,812,957**	**$10,097,955**	**($655,130)**
This account includes employer's share of health, life, dental, vision care and accident insurance.						

[(a)]FY 2015-16 Proposed Budget vs. FY 2014-15 Adopted Budget.

SCAQD Personnel Summary – Authorized/Funded Positions						
Positions as of	**Mid-Year Adjustments**		**Positions as of**	**FY 2015-16 Request**		**Positions as of**
June 30, 2014	Add	Delete	June 30, 2015	Add	Delete	July 1, 2015
798	3	1	800	7	4	803

Fiscal Year 2014-15 Mid-Year Changes in Authorized/Funded Positions				
Office	**Position**	**Add**	**Delete**	**Total**
Science & Technology Advancement	Air Quality Specialist	1		1
Science & Technology Advancement	Air Quality Instrument Specialist II	1		1
Science & Technology Advancement	Assistant Deputy Executive Officer	1		1
Science & Technology Advancement	Director of Technology Implementation		(1)	(1)
Total Mid-Year Changes		**3**	**(1)**	**2**

Fiscal Year 2015-16 Requested Personnel Actions				
Office	**Position**	**Add**	**Delete**	**Total**
Administrative & Human Resources	Career Development Intern	2		2
Finance	Supervising Payroll Technician		(1)	(1)
Engineering & Compliance	Assistant Deputy Executive Officer	1		1
Planning, Rules Development, & Area Sources	Program Supervisor	1		
Planning, Rules Development, & Area Sources	Senior Staff Specialist	1		
Planning, Rules Development, & Area Sources	Air Quality Specialist		(2)	
Science & Technology Advancement	Air Quality Specialist	1		1
Science & Technology Advancement	Senior Administrative Secretary	1		1
Science & Technology Advancement	Administrative Secretary		(1)	(1)
		7	(4)	3

Acct. #	Account Description	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget	FY 2014-15 Estimate	FY 2015-16 Proposed Budget	Increase/ (Decrease)[(a)]
67250	**INSURANCE**	**$ 1,317,400**	**$ 1,208,774**	**$ 1,100,996**	**$ 1,317,400**	**$ -**
This account is for insurance coverage for the following: commercial property (real and personal) with earthquake and flood coverage, boiler and machinery, public official liability, excess workers' compensation, and excess general liability. The SCAQMD is self-insured for workers' compensation, general liability, and automobile liability. The amount requested reflects anticipated workers' compensation claims, insurance policy premiums, property losses above SCAQMD's insurance deductibles, and liability claim payments.						
67300	**RENTS & LEASES EQUIPMENT**	**$ 143,628**	**$ 204,687**	**$ 192,712**	**$ 176,682**	**$ 33,054**
This account is for lease agreements and/or rental of office equipment such as communication devices for emergency response inspectors, laboratory and atmospheric measurement equipment for special projects, audio visual equipment for outside meetings, printing equipment, and photocopiers. The increase from the FY 2014-15 Adopted Budget reflects lease increases for equipment used in the Mailroom and Subscription Services as well as the lease cost for equipment for the AQ-SPEC Program.						
67350	**RENTS & LEASES STRUCTURE**	**$ 287,606**	**$ 332,756**	**$ 292,912**	**$ 280,706**	**$ (6,900)**
This account is for expenditures associated with structures and lot leases, and off-site storage rentals: Long Beach field office - $101,706; Conference and meeting rooms - $9,000; and Air monitoring sites/Wind Stations - $170,000 Free and low-cost public facilities are used whenever possible for public workshops and informational meetings. The decrease from the FY 2014-15 Adopted Budget is due to the closure of the Sacramento office. The FY 2015-16 Proposed Budget does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.					
67400	**HOUSEHOLD**	**$ 712,287**	**$ 707,237**	**$ 563,077**	**$ 722,021**	**$ 9,734**
This account is used for trash disposal, landscape maintenance, parking lot maintenance, janitorial supplies, and janitorial contracts. This account is also used for expenses associated with the Diamond Bar facility, such as specialized cleaning supplies and services required in the computer room.						
67450	**PROFESSIONAL & SPECIAL SERVICES**	**$ 5,059,793**	**$ 8,406,354**	**$ 7,770,279**	**$6,598,832**	**$ 1,539,039**
This account is for services rendered to the SCAQMD by other agencies and consultants. The FY 2015-16 Professional & Special Services supporting detail is located at the end of this section. The increase from the FY 2014-15 Adopted Budget is due to new or additional projects for outside building consultants, community outreach, and planning and rule development activities. The FY 2015-16 Proposed Budget does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						

[(a)]FY 2015-16 Proposed Budget vs. FY 2014-15 Adopted Budget.

Acct. #	Account Description	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget	FY 2014-15 Estimate	FY 2015-16 Proposed Budget	Increase/ (Decrease)[(a)]
67460	**TEMPORARY AGENCY SERVICES**	**$ 898,235**	**$ 1,359,190**	**$ 1,261,133**	**$ 880,398**	**$ (17,837)**
Funds budgeted in this account are used for specialized temporary services that supplement staff in support of SCAQMD programs. Amounts are budgeted as a contingency for long-term absences and retirements/resignations. Also budgeted in this account is the student internship program that provides the opportunity to gain experience in the workplace. The FY 2015-16 Proposed Budget does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						
67500	**PUBLIC NOTICE & ADVERTISING**	**$ 394,100**	**$ 409,430**	**$ 339,550**	**$ 406,100**	**$ 12,000**
This account is used for legally required publications such as Requests for Proposals, Requests for Quotations, personnel recruitment, outreach, advertisement of SCAQMD Governing Board and Hearing Board meetings, and public notification of SCAQMD rulemaking activities.						
67550	**DEMURRAGE**	**$ 52,430**	**$ 85,910**	**$ 75,535**	**$ 64,930**	**$ 12,500**
This account is for various freight and cylinder charges as well as workspace reconfigurations and personnel moves. The FY 2015-16 Proposed Budget increase is due to needs for the AQ-SPEC Program. The FY 2015-16 Proposed Budget does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						
67600	**MAINTENANCE OF EQUIPMENT**	**$ 520,132**	**$ 804,502**	**$ 600,609**	**$ 542,262**	**$ 22,130**
This account is for maintenance costs of SCAQMD equipment such as the following: mainframe computer hardware, phone switch, air monitoring equipment, print shop equipment, copiers, and audio visual equipment. The FY 2015-16 Proposed Budget reflects anticipated maintenance cost increases for printers, server hardware, network hardware as well as equipment maintenance costs for the AQ-SPEC program but does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						
67650	**BUILDING MAINTENANCE**	**$ 1,457,479**	**$ 1,296,729**	**$ 944,796**	**$1,407,479**	**$ (50,000)**
This account reflects expenditures for maintaining SCAQMD offices and air monitoring stations. Also included are: a contingency amount for unplanned repairs; Gateway Association Dues; elevator maintenance; energy management; and compressor services. The decrease from the FY 2014-15 Adopted Budget is due to the completion of one-time projects. The FY 2015-16 Proposed Budget does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						

[(a)]FY 2015-16 Proposed Budget vs. FY 2014-15 Adopted Budget.

Acct. #	Account Description	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget	FY 2014-15 Estimate	FY 2015-16 Proposed Budget	Increase/ (Decrease)[(a)]
67700	AUTO MILEAGE	$ 63,142	$ 224,154	$ 133,583	$ 68,659	$ 5,517
This account is used to reimburse employees for the cost of using personal vehicles while on SCAQMD business. The requests include the mileage incurred for staff that are required to work on their scheduled days off and for employees who use their personal vehicles on SCAQMD-related business, conferences, and seminars. Mileage reimbursement for the Legislative and Public Affairs staff to attend various community, business and intergovernmental events is also included. The FY 2015-16 Proposed Budget does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						
67750	AUTO SERVICE	$ 312,047	$ 314,608	$ 313,608	$ 471,000	$ 158,953
This account is used for the maintenance, towing, repair, and expired CNG tank replacement of SCAQMD fleet vehicles. The FY 2015-16 Proposed Request reflects the growing age of the fleet and increased costs to maintain.						
67800	TRAVEL	$ 318,313	$ 356,163	$ 286,525	$ 315,313	$ (3,000)
This account is for business travel, including lodging and meals paid pursuant to the Administrative Code, for participation in legislative hearings and meetings involving state, federal, and inter-agency issues that affect air quality in the South Coast Air Basin. The FY 2015-16 Proposed Budget reflects anticipated needs but does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						
67850	UTILITIES	$ 1,766,989	$ 1,741,989	$ 1,678,812	$1,943,689	$ 176,700
This account is used to pay gas, water, and electricity costs at the SCAQMD's headquarters building, the Long Beach field office, and air monitoring stations. The FY 2015-16 Proposed Budget reflects anticipated rate increases.						
67900	COMMUNICATIONS	$ 626,226	$ 671,726	$ 618,973	$ 706,590	$ 80,364
This account includes telephone and fax service, leased computer lines, video conferencing, wireless internet access for inspectors in the field, radio, and microwave services. The increase from the FY 2014-15 Adopted Budget reflects upgraded and additional data lines, along with rate increases for FY 2015-16. The FY 2015-16 Proposed Budget does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						
67950	INTEREST EXPENSE	$ 4,076,994	$ 4,076,994	$ 4,076,994	$3,954,554	$ (122,440)
This account is for the interest due on the 1995 and 2004 Pension Obligation Bonds. The decrease from the FY 2014-15 Adopted Budget reflects scheduled payments for FY 2015-16.						

[(a)]FY 2015-16 Proposed Budget vs. FY 2014-15 Adopted Budget.

Acct. #	Account Description	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget	FY 2014-15 Estimate	FY 2015-16 Proposed Budget	Increase/ (Decrease)[(a)]
68000	**CLOTHING**	**$ 27,550**	**$ 32,362**	**$ 31,976**	**$ 28,418**	**$ 868**
This account is for the purchase of safety equipment and protective clothing used by source testing, laboratory, compliance, and stockroom personnel. The increase from the FY 2014-15 Adopted Budget reflects the anticipated level of expenditures for FY 2015-16.						
68050	**LABORATORY SUPPLIES**	**$ 275,000**	**$ 469,787**	**$ 454,013**	**$ 300,000**	**$ 25,000**
This account is used to purchase various supplies such as chemicals, calibration gases and glassware for laboratory services. The FY 2015-16 Proposed Budget reflects anticipated increases due to a larger sampling and analysis effort for the special monitoring program sites but does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						
68060	**POSTAGE**	**$ 409,387**	**$ 404,576**	**$ 337,975**	**$ 450,087**	**$ 40,700**
This account covers the cost of mailing out annual billings, permits, notifications to the Governing Board and Advisory groups, monthly newsletters, warrants, outreach materials to local governments, and Rule 2202 notifications. The FY 2015-16 Proposed Budget reflects an increase in mailings based on current activity.						
68100	**OFFICE EXPENSE**	**$ 1,079,779**	**$ 1,239,083**	**$ 1,226,758**	**$ 1,066,979**	**$ (12,800)**
This account is used for the purchase of office supplies, computer hardware and software under $5,000, photocopier supplies, print shop and artist supplies, and stationery and forms. The FY 2015-16 Proposed Budget reflects anticipated needs but does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						
68200	**OFFICE FURNITURE**	**$ 56,500**	**$ 50,600**	**$ 49,786**	**$ 61,500**	**$ 5,000**
This account is for office furniture under $5,000.						
68250	**SUBSCRIPTIONS & BOOKS**	**$ 164,107**	**$ 162,661**	**$ 137,418**	**$ 166,027**	**$ 1,920**
This account is used to purchase reference materials, magazine subscriptions, books, and on-line database legal research services. The FY 2015-16 Proposed Budget reflects anticipated cost increases.						
68300	**SMALL TOOLS, INSTRUMENTS, EQUIPMENT**	**$ 65,160**	**$ 231,880**	**$ 225,986**	**$ 160,490**	**$ 95,330**
This account covers the purchase of small tools and equipment for the air monitoring stations, the laboratory, and headquarters building maintenance. The increase from the FY 2014-15 Adopted Budget is for purchases for the monitoring stations and the AQ-SPEC program The FY 2015-16 Proposed Budget does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						

[(a)]FY 2015-16 Proposed Budget vs. FY 2014-15 Adopted Budget.

Acct. #	Account Description	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget	FY 2014-15 Estimate	FY 2015-16 Proposed Budget	Increase/ (Decrease)[(a)]
68400	**GAS & OIL**	**$ 372,000**	**$ 372,000**	**$ 331,949**	**$ 372,000**	**$ -**
This account is for the purchase of gasoline, oil, and alternative fuels for the SCAQMD fleet. The cost is anticipated to stay flat from the FY 2014-15 Adopted Budget.						
69500	**TRAINING/CONF/ TUITION/BOARD EXP**	**$ 655,492**	**$ 672,742**	**$ 640,143**	**$ 660,165**	**$ 4,673**
This account is used for tuition reimbursement, conference and training registrations, certain costs associated with the SCAQMD's Governing and Hearing Boards and SCAQMD advisory groups, and training-related travel expenditures. The FY 2015-16 Proposed Budget reflects anticipated needs.						
69550	**MEMBERSHIPS**	**$ 70,960**	**$ 199,005**	**$ 191,354**	**$ 69,780**	**$ (1,180)**
This account provides for SCAQMD membership in various organizations such as: Merchants and Manufacturers Association; California Air Pollution Control Officers Association; Air and Waste Management Association; Western Region Item Bank; Inland Empire Economic Council; the Black, Latino, and Asian Business Associations; and several Chambers of Commerce. Also budgeted are the continued memberships in scientific, clean fuels, advanced technology, and related environmental business/policy organizations, such as ASTM (American Society for Testing and Materials), California Environmental Business Council, and the California Hydrogen Business Council. The decrease from the FY 2014-15 Adopted Budget reflects anticipated needs.						
69600	**TAXES**	**$ 49,000**	**$ 67,291**	**$ 40,920**	**$ 74,000**	**$ 25,000**
This account is for unsecured property and use taxes, fuel taxes, and sales taxes. The increase from the FY 2014-15 Adopted Budget reflects anticipated increases in use tax, fuel tax and sales tax.						
69650	**AWARDS**	**$ 77,023**	**$ 77,023**	**$ 69,809**	**$ 77,023**	**$ -**
This account covers employee service awards for continuous service, employee recognition programs, plaques/awards the SCAQMD may present to individuals/businesses/ community groups for outstanding contributions towards air quality goals, and promotional awards for community events. The cost is anticipated to stay flat from the FY 2014-15 Adopted Budget.						
69700	**MISCELLANEOUS EXPENSES**	**$ 150,100**	**$ 159,725**	**$ 117,506**	**$ 149,700**	**$ (400)**
This account is to record expenditures that do not fall in any other account such as SCAQMD advisory group per diems, meeting and event expenses, and sponsorships. The decrease from the FY 2014-15 Adopted Budget reflects the anticipated miscellaneous expenses for FY 2015-16.						

[(a)]FY 2015-16 Proposed Budget vs. FY 2014-15 Adopted Budget.

	Account Description	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget	FY 2014-15 Estimate	FY 2015-16 Proposed Budget	Increase/ (Decrease)[a]
69750	**PRIOR YEAR EXPENSE**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
This account is used to record expenditures attributable to prior year budgets. No amount is budgeted for this account due to the nature of the account.						
69800	**UNCOLLECTIBLE ACCOUNTS RECEIVABLE**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
No amount is budgeted for this account due to the nature of the account.						
89100	**PRINCIPAL REPAYMENT**	**$ 3,159,384**	**$ 3,159,384**	**$ 3,159,384**	**$ 2,235,598**	**$ (923,786)**
This account is for the principal due on pension obligation bonds. The decrease from the FY 2014-15 Adopted Budget reflects scheduled payments for FY 2015-16.						

[a]FY 2015-16 Proposed Budget vs. FY 2014-15 Adopted Budget.

Proposed Fiscal Year 2015-16 Professional & Special Services Detail by Office			
Office	**Program**	**Contract Description**	**Amount**
District General	Dist. General Overhead	Administrative Fees for 1995 & 2004 Pension Obligation Bonds (POBs)	$1,500
	Dist. General Overhead	Arbitration/Hearing Officer	9,400
	Dist. General Overhead	Benefits Administrator	13,000
	Dist. General Overhead	Commercial Real Estate Broker	95,000
	Dist. General Overhead	COBRA Administration Services	6,000
	Dist. General Overhead	Employee Assistance Program	13,995
	Dist. General Overhead	Employee Relations Litigation	250,000
	Dist. General Overhead	Custodial Fees for 1995 & 2004 POBs	800
	Dist. General Overhead	Health Reimbursement Arrangement Plan Admin	5,000
	Dist. General Overhead	Modular Furniture Maintenance, Setup, and Moving Services	15,000
	Dist. General Overhead	Oracle Software Support	30,400
	Dist. General Overhead	Outside Consultants for Building Projects	400,000
	Dist. General Overhead	PeopleSoft Maintenance	208,400
	Dist. General Overhead	Security Alarm Monitoring	1,980
	Dist. General Overhead	Security Guard Services	472,500
	Dist. General Overhead	Wellness Program	37,500
	Sub-total District General		**$1,560,475**
Governing Board	Operational Support	Board Member Assistant/Consultants	$445,620
	Sub-total Governing Board		**$445,620**
Executive Office	Develop Programs	Professional & Special Services	$50,000
	Sub-total Executive Office		**$50,000**
Finance	Operational Support	Bank Service Charges/Los Angeles County Treasurer Office	$60,000
	Ensure Compliance	Bank Services Fund 15, Hot Spots Lockbox	15,000
	Operational Support	Financial Audit	43,000
	Operational Support	Financial Consultant for Treasury Management	22,000
	Operational Support	LA County Treasurer Office - PGP Maintenance	1,650
	Sub-total Finance		**$141,650**
Legal	Ensure Compliance	Experts/Court Reporters/Attorney Services	$25,000
	Ensure Compliance	Litigation Counsel	164,500
	Ensure Compliance	Software Maintenance & Licensing - Courtview Justice Solutions	30,000
	Operational Support	Specialized Legal Services	60,000
	Sub-total Legal		**$279,500**

Proposed Fiscal Year 2015-16 Professional & Special Services Detail by Office (cont.)			
Office	**Program**	**Contract Description**	**Amount**
Administrative & Human Resources	Operational Support	Architectural, Engineering and Surveyor Consultants	$3,250
	Operational Support	Classification Study & Consulting Services	65,000
	Operational Support	In-house Training Classes	500
	Operational Support	Insurance Broker of Record	49,000
	Operational Support	Locksmith	2,000
	Operational Support	Medical Services Provider	20,000
	Operational Support	NEOGOV Subscription License	8,000
	Operational Support	Occupational Health Services	25,000
	Operational Support	Office Ergonomics Evaluations and Training	10,000
	Customer Service & Business Assistance	Outside Binding Services	6,000
	Customer Service & Business Assistance	Outside Printing Services	5,000
	Operational Support	Test Development	15,000
	Operational Support	Third-Party Claims Administrator for Workers Compensation	18,000
	Sub-total Administrative & Human Resources		**$226,750**
Clerk of the Boards	Ensure Compliance	Court Reporting, Audiovisual, and/or Security Services	$4,000
	Ensure Compliance	Outside Legal Contract	15,000
	Ensure Compliance	Professional Interpreter Services	6,400
	Sub-total Clerk of the Boards		**$25,400**
Media Office	Policy Support	Graphics, Printing & Outreach Materials	$4,000
	Policy Support	News Release Services	9,000
	Policy Support	Photographic & Video Services	5,000
	Policy Support	Radio/Television Monitoring	11,000
	Sub-total Media Office		**$29,000**
Information Management	Operational Support	Action Works Metro System Software Support	$20,000
	Operational Support	AER & R1113/314 Upgrade & Maintenance	15,000
	Operational Support	AIS (Address Information System) Five Digit subscription	1,100
	Operational Support	Anti-Spam Maintenance/Support	11,500

Proposed Fiscal Year 2015-16 Professional & Special Services Detail by Office (cont.)			
Office	**Program**	**Contract Description**	**Amount**
Information Management (cont.)	Operational Support	Backup Software	$30,000
	Operational Support	Backup Utility Maintenance	11,000
	Operational Support	CLASS System Maintenance	80,000
	Operational Support	Computer-Based Training Software Support	1,800
	Operational Support	Crystal Reports Software Support	20,000
	Operational Support	Dundas Chart Software Support	700
	Operational Support	Email Recovery Software (PowerControls) Maint/Support	1,750
	Operational Support	Email Reporting	3,800
	Operational Support	ERwin ERX & BPwin SW Support	24,000
	Operational Support	Faxcom FaxServer Support	12,500
	Operational Support	Imaging Software Support	126,000
	Operational Support	Ingres/OpenIngres Additional Licensing	72,000
	Operational Support	Ingres/OpenIngres Advanced Success Pack	140,000
	Operational Support	Installshield Software Support	3,700
	Operational Support	Internet Filtering (SmartFilter) Maintenance/Support	35,000
	Operational Support	Kronos Time Keeper	2,000
	Operational Support	Microsoft Developer Network CD - Application Development	15,196
	Operational Support	Microsoft Developer Network Premium Renewal	4,000
	Operational Support	Microsoft Technical Software Support (Server Applications)	15,000
	Operational Support	Microsoft Virtual Earth Maintenance/Support	12,500
	Operational Support	Network Analyzer (Sniffer) Maintenance/Support	4,500
	Operational Support	Network Backbone Support	15,000
	Operational Support	NT Software Support - Proactive	62,000
	Operational Support	Off-site Document Destruction Services	24,000
	Operational Support	Off-site Storage Nightly Computer Backup	22,000
	Operational Support	Online Filing Infrastructure	25,000

Proposed Fiscal Year 2015-16 Professional & Special Services Detail by Office (cont.)			
Office	**Program**	**Contract Description**	**Amount**
Information Management (cont.)	Operational Support	PowerBuilder Software Support	$24,000
	Operational Support	Proxy Reporting Support	3,250
	Operational Support	PVCS Software Support	4,700
	Operational Support	ScaleOut StateServer Maintenance	2,000
	Operational Support	SCAQMD Web Application Modifications	20,000
	Operational Support	Secure Service Digital ID DEC Internet Server	850
	Operational Support	Secure Service Digital ID Services	1,000
	Operational Support	Silk Test, Silk Central Test Manager, and Silk Performer Maintenance and Support	22,500
	Operational Support	Sitefinity CMS Software Support	9,500
	Operational Support	Software Support for EOS.Web Enterprise	6,300
	Operational Support	Software Support for On-Line Catalog	2,050
	Operational Support	Swiftview Software Support	950
	Operational Support	Telephone Switchview Software Support	9,500
	Operational Support	Terminal Emulation (Reflection) Maintenance/Support	1,175
	Operational Support	Videoteleconferencing Maintenance & Support	13,000
	Operational Support	Virus Scan Support	15,000
	Operational Support	Visual Expert Software Support	6,000
	Operational Support	Web Consulting Support	64,300
	Operational Support	Web Core Technology Upgrade (.NET upgrade)	10,000
	Operational Support	Website Evaluation & Improvement	200,000
	Sub-total Information Management		**$1,227,121**
Planning, Rule Development , & Area Sources	Ensure Compliance	AB 2588 Program Support for Implementing New Health Risk Guidance	$150,000
	Ensure Compliance	AER Printing	$5,000
	Develop Programs	AQMP Socioeconomic Data Management and Ben Map Training	40,000
	Develop Programs	California Emissions Estimator Model (CalEEMod) Upgrades/Support	10,000
	Develop Programs	CEQA for AQMD Projects	125,000
	Develop Programs	CEQA Special Studies	50,000
	Develop Rules	Coating Application Techniques	50,000
	Monitoring Air Quality	Contracted Communication Services	5,000
	Develop Programs	Data Adjustment to REMI Forecast Sole Source Contracts	23,000
	Timely Review of Permits	Dispersion Modeling Support	50,000

Proposed Fiscal Year 2015-16 Professional & Special Services Detail by Office (cont.)			
Office	**Program**	**Contract Description**	**Amount**
Planning, Rule Development, & Area Sources (cont.)	Develop Programs	Dun & Bradstreet Data	$30,000
	Monitoring Air Quality	Maintain Wind Stations and Analyze Data	$60,000
	Monitoring Air Quality	Meteorological Data Services	7,500
	Develop Rules	PM and Ozone Model Consulting	100,000
	Develop Rules	Polymer Research and Technology Transfer of Coatings	50,000
	Ensure Compliance	Protocol Development for Reconciling Air Quality Monitoring Data with Dispersion Modeling Results	100,000
	Develop Programs	REMI Renewal	51,000
	Develop Programs	Rule 2202 Computer System Maintenance	15,000
	Customer Service & Business Assistance	Rule 2202 ETC On-Line Training	25,000
	Develop Programs	SIP, AQMP and Rule Printing	8,000
	Develop Rules	Software/Hardware Maintenance in Support of Regional Modeling	50,000
	Develop Programs	STAMPRAG Member Sole Source Contracts	60,000
	Ensure Compliance	Technology Assessment Studies	50,000
	Monitoring Air Quality	Weather Data Services Communications	7,500
	Sub-total Planning, Rule Development & Area Sources		**$1,122,000**
Legislative & Public Affairs	Policy Support	After-hours Call Center Service	$3,500
	Customer Service & Business Assistance	Clean Air Awards	12,600
	Customer Service & Business Assistance	Community Outreach	410,000
	Policy Support	Graphics & Printing	33,616
	Policy Support	Legislative Advocacy - Sacramento	365,000
	Policy Support	Legislative Advocacy - Washington DC	440,600
	Policy Support	Legislative Computer Services	10,000
	Customer Service & Business Assistance	Multi-Lingual Translation - Public Participation	20,000
	Policy Support	Photographic and Video Services	50,000
	Customer Service & Business Assistance	Promotion Marketing of Smart Phone Tools	50,000
	Sub-total Legislative & Public Affairs		**$1,395,316**

Proposed Fiscal Year 2015-16 Professional & Special Services Detail by Office (cont.)			
Office	**Program**	**Contract Description**	**Amount**
Science &Technology Advancement	Ensure Compliance	Laboratory Analytical Services	$15,000
	Ensure Compliance	Source Testing Services	30,000
	Ensure Compliance	Technical Support for Air Monitoring and Community Complaint Resolution	35,000
	Sub-total Science & Technology Advancement		**$80,000**
Engineering & Compliance	Ensure Compliance	Lab Analysis Services for R1176 & Other Air Samples	$5,000
	Operational Support	Learning Management Systems for Online Training Classes	6,000
	Operational Support	Workspace Reconfiguration	5,000
	Sub-total Engineering & Compliance		**$16,000**
		Total Professional & Special Services	**$6,598,832**

CAPITAL OUTLAYS & BUILDING REMODELING

Acct. #	Account Description	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget	FY 2014-15 Estimate	FY 2015-16 Proposed Budget	Increase/ (Decrease)[(a)]
77000	**CAPITAL OUTLAYS**	**$ 1,062,500**	**$ 3,715,450**	**$ 3,343,905**	**$ 722,500**	**($340,000)**

This account is for tangible asset expenditures with a value of at least $5,000 and a useful life of at least three years and intangible asset expenditures with a value of at least $5,000 and a useful life of at least one year. The decrease from the FY 2014-15 Adopted Budget reflects anticipated needs and the use of appropriate Special Revenue Funds to fund one-time capital outlay projects. The FY 2015-16 Proposed Budget does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.

The following is a listing by office of the proposed Capital Outlays for FY 2015-16.

[(a)]FY 2015-16 Proposed Budget vs. FY 2014-15 Adopted Budget.

Fiscal Year 2015-16 Capital Outlays Detail				
Office	**Program**	**Category**	**Description**	**Amount**
District General	Operational Support	N/A	Unbudgeted Capital Outlay	$75,000
	Operational Support	Replacement	System Support and Programming (PeopleSoft/CLASS)	75,000
	Operational Support	New	Online Web-based Benefits Administration System	80,000
	Sub-total District General			**$230,000**
Planning, Rule Development & Area sources	Customer Service/Business Assistance	New	Learning Management System Support	$7,500
	Ensure Compliance	Replacement	Support Web-based Annual Emissions Reporting (AER) Program	150,000
	Develop Programs	New	Rule 2202 Web Based Plan Submittal System*	150,000
	Policy Support	New	Verification of GHG Emissions for Facilities	25,000
	Sub-total Planning, Rules & Area Sources			**$332,500**
Information Management	Operational Support	New	Miscellaneous Telecommunication Upgrade/Enhancement	$35,000
	Operational Support	Replacement	Network Server Upgrade	75,000
	Sub-total Information Management			**$110,000**
Engineering & Compliance	Operational Support	New	Learning Management System Support	$7,500
	Timely Review of Permits	New	PAATS/Title V Tracking Updates	20,000
	Timely Review of Permits	New	Permit Processing System (PPS) Updates	22,500
	Sub-total Engineering & Compliance			**$50,000**
Total Capital Outlays				**$722,500**

Acct. #	Account Description	FY 2014-15 Adopted Budget	FY 2014-15 Amended Budget	FY 2014-15 Estimate	FY 2015-16 Proposed Budget	Increase/ (Decrease)[(a)]
79050	**BUILDING REMODELING**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$0**

This account is used for minor remodeling projects which become necessary as a result of reorganizations or for safety reasons. No projects are anticipated in Fiscal Year 2015-16.

[(a)]FY 2015-16 Proposed Budget vs. FY 2014-15 Adopted Budget.

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
DRAFT GOALS AND PRIORITY OBJECTIVES FOR FY 2015-16

MISSION STATEMENT

"All residents have a right to live and work in an environment of clean air and we are committed to undertaking all necessary steps to protect public health from air pollution with sensitivity to the impacts of our actions on the community, public agencies and businesses."

VALUES

S Sound scientific, technical, and legal basis for actions

C Customer service

A Air that is healthful to breathe

Q Quality programs that are effective and efficient

M Multiple partnerships and collaboration with stakeholders

D Developing solutions for the future

GOALS AND PRIORITY OBJECTIVES

The following Goals and Priority Objectives have been identified as being critical to meeting SCAQMD's Mission in Fiscal Year 2015-16.

GOAL I. Ensure expeditious progress toward meeting clean air standards and protecting public health.

Priority Objective/Project	Outcome
1. Development of the 2016 AQMP	Develop and adopt a comprehensive attainment strategy using the latest technical and planning assumptions to meet the federal 8-hour ozone (75 ppb) and annual PM2.5 (12 $\mu g/m^3$) air quality standards by statutory deadlines. The plan will also update the 1-hour ozone and the 1997 8-hour ozone SIPs, as necessary, to demonstrate progress toward attainment. Conduct modeling to demonstrate attainment of the standards with the application of the control strategy. Identify and implement early action measures to further ensure attainment of federal 24-hour PM2.5 standard.
2. Implementation of OEHHA Revised Health Risk Assessment Guidelines	Update and implement policies, rules and associated programs to implement OEHHA Revised Health Risk Assessment Guidelines for SCAQMD (i.e., rule amendments, permitting, AB2588, and CEQA). Provide outreach and training regarding risk communication and implementation of the Revised OEHHA Health Risk Assessment Guidelines.
3. Implementation of socioeconomic analysis enhancements	Implement the action plan approved by the Governing Board at its October 2014 meeting to address the recommendations contained in the November 2014 Abt Associates report.

GOAL I. **Ensure expeditious progress toward meeting clean air standards and protecting public health.** ***(Cont.)***

Priority Objective/Project	Outcome
4. Development of the 2016 Air Toxics Control Plan	In response to the findings in MATES IV, develop a control plan to further reduce air toxics exposure in the Basin. The air toxics control plan will be presented as part of the 2016 AQMP with consistent inventory and modeling methodologies. The control strategy will identify toxic reduction co-benefits from the AQMP and climate change measures.
5. Further develop enhanced emissions/ambient monitoring capabilities	Conduct comprehensive research by evaluating a variety of advanced optical remote sensing technologies for the purposes of providing SCAQMD and the public with enhanced real- and near-real-time monitoring capabilities that will ultimately result in improved control efficiencies and compliance. Four advanced optical technologies will be initiated and demonstrated in the field to characterize fugitive VOC emissions from refineries, gas stations, oil wells, and other small point sources. Complete in-stack and ambient real-time metals monitoring demonstration.
6. Demonstration programs for CNG police vehicles and zero-emission police vehicles	Develop and demonstrate alternative fuel and zero-emission police vehicles in the South Coast. Initiate contracts for the development of a CNG police pursuit vehicle and a zero-emission pursuit vehicle. The vehicles (cars, trucks and motorcycles) will be part of a loaner program to gain real-world experience for both police departments and the technology providers.
7. Zero-emission lawn and garden equipment	Conduct a loaner program for zero-emission lawn and garden equipment to promote their environmental benefits and efficacy in a commercial environment, including local government.
8. Next-generation natural gas engine/hybrid vehicles	Develop natural gas heavy-duty engines that are 90% cleaner than current emissions standard for NOx, including the option for integration with hybrid systems and alternative fuels that will provide additional NOx reductions.
9. Develop and demonstrate zero-emission goods movement technologies	Continue to work with the DOE, CEC, the Ports and others to develop and demonstrate zero-emission miles in goods movement technologies. Coordinate these actions with policy efforts in Washington DC and national outreach efforts to develop a supportive stakeholder network.
10. Updating and enhancements to the Carl Moyer Program	Pursue legislative changes to the Carl Moyer Program through the joint efforts of CARB and CAPCOA to enhance the program objectives by allowing expansion of project categories, leveraging of funds, inclusion of greenhouse gases, increasing cost-effectiveness limit to fund advanced technologies, and improving implementation efficiency.
11. Proposition 1B-Goods Movement Program	Secure SCAQMD's share of funds for the last round of bond sales (estimated to be around $240 million), and implement goods movement modernization projects in accordance with CARB's program guidelines.
12. Incentive Funding Programs	Continue the implementation of the Carl Moyer, Lower-Emission School Bus, Lawnmower Exchange, fireplace/woodstove conversion (Mira Loma area), and other incentive funding programs to achieve early and surplus emissions reductions.

GOAL I. **Ensure expeditious progress toward meeting clean air standards and protecting public health.** ***(Cont.)***

Priority Objective/Project	Outcome
13. Ensure compliance through a program that includes using community-based and/or industry-specific deployment of field personnel	Inspect all Major or RECLAIM sources at least annually and inspect all chrome plating facilities quarterly. Conduct a total of 20,000 site visits for compliance evaluations and perform inspections of 3,300 portable equipment and 1,800 Asbestos demolition or renovation activities. Continue targeted evaluation program for select industries, including but not limited to, metal processing, and oil production. Conduct 40 Team Inspections at selected facilities.
14. Ensure compliance through a program that includes timely processing of permit applications for stationary sources	Process a total of 7,000 applications, including 1,800 Permits to Construct (new construction, modification or relocations). Process all Title V Permit Renewals in timely manner and meet all statutory requirements. Through SCAQMD's Small Business Assistance program help more local businesses understand the permit process, prepare and submit permit applications, and expand efforts to educate small business owners about the agency and compliance. Continue the program's expanded outreach to help ensure continued compliance through efforts to more widely distribute the Air Quality Permit Checklist and through the ongoing Expired Permit Outreach Program. Continue to hold meetings with the permit streamlining working group.
15. Continue to implement SCAQMD's Environmental Justice (EJ) policies and programs, and other initiatives directed at equitable treatment for all communities and sensitive populations	Work with residents and community leaders in disproportionately impacted communities to remedy their air quality concerns. Increase partnerships with health, educational, and other organizations in impacted communities. Better communicate, coordinate and streamline agency response to EJ-related concerns, in part through the execution of SCAQMD's Environmental Justice Community Partnership, a new initiative offering quarterly training and forums to maintain and grow the agency's partnership with both EJ thought leaders and community stakeholders, while increasing awareness of SCAQMD's targeted efforts to mitigate air pollution specifically in and around adversely impacted EJ communities. Prioritize representation of SCAQMD on community task forces and other organizations as appropriate, including business organizations, to help mitigate current and prevent future air quality impacts.
16. Enhance community response program	Assess current SCAQMD community response program and identify measurement techniques and protocols with consideration to recurring types of community concerns, and update the program accordingly to be more informative and responsive to impacted communities in a more timely manner. Develop an enhanced communication plan to inform the community regarding complaints. Examine how social media can be incorporated into the program to provide timely information to the general as well as impacted public.

GOAL I. **Ensure expeditious progress toward meeting clean air standards and protecting public health.** ***(Cont.)***

Priority Objective/Project	Outcome
17. Prioritize prosecution of high-impact enforcement cases to maximize deterrence for air pollution violations and protect public health	Enhance prosecution of high-impact enforcement cases, such as prosecutions of major or serial violators, major air toxics releases, significant public nuisance cases, or companies having violations at several locations. Achieve satisfactory resolution of these cases to reduce health impacts and provide for future deterrence.
18. Work proactively on drought-related air quality impacts and needed response	Continue implementation of drought response plan and revise as necessary.
19. Develop and demonstrate low-emission energy generation technology as well as energy storage options	Continue demonstration projects and continue working with stakeholders to facilitate additional power options.

GOAL II. **Enhance public education and ensure equitable treatment for all communities.**

Priority Objective/Project	Outcome
1. Continue implementation of the Clean Communities Plan Pilot Studies in Boyle Heights and San Bernardino and complete implementation of the U.S. EPA Targeted Air Shed Grant	Complete the implementation of the Clean Communities Plan Pilot Studies in Boyle Heights and San Bernardino.
2. Fully deploy newly established testing center, AQ-SPEC	Conduct large-scale testing of emerging "low-cost sensors" for accuracy and performance, communicate findings to the public and explore collaborative opportunities with entities interested in utilizing such sensors for community-based monitoring.
3. Demonstrate viability for car scrapping and vouchers for cleaner vehicles in disadvantaged communities	Complete pilot programs to encourage disadvantaged community members to participate more fully in the Enhanced Fleet Modernization Program (EFMP). Provide enhanced outreach and incentives for users to scrap their eligible vehicles and obtain vouchers for cleaner new and used vehicles or transit passes.
4. Employ the latest communication technologies; engage in community based programs and outreach events; and foster relationships with traditional media outlets	Creatively and actively engage the public, through town hall and community meetings, video and PSA messages relayed through local cable and Public, Education and Government channels, specifically themed or targeted outreach events linked to public interest and environmental and health concerns. Further improve agency engagement with the public through more effective use of website, video and social and digital media tools (i.e. smartphone app, the digital Advisor, Facebook, Twitter), as well as the integration of other possible communication platforms. Launch a comprehensive social media campaign.
5. Continue timely response to community complaints	Respond to all air quality complaints received by SCAQMD in a timely manner.

GOAL III. Operate efficiently and in a manner sensitive to public agencies, businesses, the public and SCAQMD staff.

Priority Objective/Project	Outcome
1. Maintain a knowledgeable, professional and well-trained staff	Provide training and educational opportunities to ensure up-to-date expertise and competency in core agency functions. Develop leadership development programs and opportunities to ensure a smooth transition of key leadership positions within the agency.
2. Continue to overhaul SCAQMD's information technology systems, including the use of state-of-the-art software, hardware, and communications systems to improve overall agency effectiveness and efficiency	Continue the phased replacement of server and desktop hardware and software. Expand server virtualization and private cloud capabilities, along with public cloud capabilities. Explore the implementation of a Big Data Analytics platform for agency use. Complete work with Legal's Contractor to implement and integrate CourtView's JWorks caseflow management software. Complete data migration, document management, and synchronization among systems that share case-related information. Continue modernization of SCAQMD business applications by developing and implementing a web-based portal to provide compliance, financial, and permitting information to improve overall agency effectiveness and operational activities. Expand GIS infrastructure to provide enhanced access capabilities across all computing devices including desktops, laptops, tablets and mobile phones. Continue expansion of SCAQMD's e-government/e-commerce capabilities by providing on-line permit application and compliance notification form filing.
3. Provide excellent customer service to all stakeholders	Ensure that all stakeholders are treated as partners, and that regulations, requirements and objectives are made clear early in the permitting, rulemaking and planning processes. Work with stakeholders in a cooperative and collaborative manner toward air quality goals and related activities in a timely and cost-effective manner, always seeking to balance priorities of public health protections, business retention, economic growth, and job creation, while meeting Federal and State Clean Air Laws.
4. Build and maintain partnerships with public agencies, stakeholder groups and the business community	Further enhanced outreach programs to public agencies in areas including, but not limited to, rulemaking and rule implementation and enforcement, regional air quality impacts and attainment strategies, and other issues affecting public agencies, especially local government. Develop partnerships with local jurisdictions and regional agencies, and seek cooperative strategies for achieving air quality goals and objectives while supporting local control and sustainable economic growth, and leveraging local efforts to improve the health and well-being of residents. Develop new partnerships with the business and regulated communities, as well as environmental justice, environmental, health-based organizations, and community groups – especially environmentally conscientious youth groups – through outreach to, and participation in, various activities, conferences, and other opportunities to cultivate early and continuing cooperative relationships. Build relationships outside of California to broaden support for SCAQMD's federal priorities.

GOAL III. Operate efficiently and in a manner sensitive to public agencies, businesses, the public and SCAQMD staff. *(Cont.)*

Priority Objective/Project	Outcome
5. Ensure rulemaking is transparent and inclusive	Implement early and continuing outreach to affected and interested stakeholders, including businesses, local agencies, environmental justice and environmental groups, and affected communities in the rulemaking process, and provide ample opportunity for input and collaboration.

PROGRAM CATEGORIES

ADVANCE CLEAN AIR TECHNOLOGY

Identify technologies from anywhere in the world that may have application in reducing emissions from mobile and stationary sources in the SCAQMD's jurisdiction. Suggest strategies to overcome any barriers and, when appropriate, implement those strategies.

(A) Identify short-term and long-term technical barriers to the use of low-emission clean fuels and transportation technologies.

(B) Promote development and assess the use of clean fuels and low-emitting technologies.

(C) Work with industry to promote research and development in promising low-emission technologies and clean fuels.

(D) Provide technical and program support to the Mobile Source Air Pollution Reduction Review Committee (MSRC).

(E) Conduct source tests and analysis of samples to assess effectiveness of low-emissions technology.

(F) Implement and administer state-funded programs such as the Carl Moyer program for retrofitting, re-powering, or replacing diesel engines with newer and cleaner engines and the Proposition 1B program that provides funding for projects to reduce air pollution associated with freight movement along California's trade corridors.

ENSURE COMPLIANCE WITH CLEAN AIR RULES

Ensure compliance with SCAQMD rules for existing major and small stationary sources.

(A) Verify compliance with SCAQMD rules through inspections, sample collections, Visible Emissions Evaluations, certification of Continuous Emission Monitoring Systems (CEMS), and emissions audits.

(B) Issue Notices of Violation for major violations when discovered or a Notice to Comply for minor violations or to request records.

(C) Respond to and resolve public complaints concerning air pollution.

(D) Participate in Hearing Board cases, investigate breakdowns and notifications of demolitions or renovations of structures which may contain asbestos, conduct periodic monitoring, and observe source tests.

(E) Respond to industrial and chemical emergencies when requested by other agencies.

(F) Provide training classes for compliance with various SCAQMD rules such as Gasoline Transfer and Dispensing (Rule 461), Asbestos Demolition and Renovation (Rule 1403), Chrome Plating Operations (Rule 1469), Fugitive Dust Plans (Rule 403 & 403.1), Sump and Wastewater Separators (Rule 1176) and Combustion Gas Portable Analyzer Training & Certification (Rules 1146, 1146.1 & 1110.2).

PROGRAM CATEGORIES

CUSTOMER SERVICE AND BUSINESS ASSISTANCE

(A) Provide local government, business and the public with accesses and input into the regulatory and policy processes of the SCAQMD.

(B) Assist cities and others with AB 2766 projects.

(C) Interact with local, state and federal agencies as well as others to share air quality information, resolve jurisdictional questions, and implement joint programs.

(D) Support air pollution reduction through implementation of comprehensive public information, legislative and customer service programs.

(E) Provide small business assistance services and support economic development and business retention activities.

(F) Make presentations to and meet with regulated organizations, individuals, public agencies and the media.

(G) Notify all interested parties of upcoming changes to air quality rules and regulations through public meetings, workshops, and printed and electronic information.

(H) Resolve permit- and fee-related problems and provide technical assistance to industry.

(I) Respond to Public Records Act requests.

(J) Produce brochures, newsletters, television, radio and print media information and materials, and electronic information.

(K) Respond to letters and Internet inquiries from the public and to media inquiries and requests.

DEVELOP PROGRAMS TO ACHIEVE CLEAN AIR

Develop a regional Air Quality Management Plan (AQMP) to achieve federal and state ambient air quality standards and to meet all other requirements of the federal and California Clean Air Acts.

(A) Analyze air quality data and provide an estimation of pollutant emissions by source category.

(B) Develop pollutant control strategies and project future air quality using computer models and statistical analysis of alternative control scenarios.

(C) Analyze issues pertaining to air toxics, acid deposition, and potential socioeconomic and environmental impacts (CEQA) of SCAQMD plans and regulations.

(D) Conduct outreach activities to solicit public input on proposed control measures.

(E) Implement Rule 2201 On-Road Motor Vehicle Mitigation Options and process employee commute reduction program submittals and registrations. Provide one-on-one assistance to employers to ensure compliance with the rule.

(F) Develop and update emissions inventories; conduct in-house auditing of annual emission reports; conduct field audits.

PROGRAM CATEGORIES

DEVELOP RULES TO ACHIEVE CLEAN AIR

Develop emission reduction regulations for sulfur dioxide, nitrogen dioxide, organic gases, particulate matter, toxics, and other pollutants to implement the regional AQMP, Tanner Air Toxics Process (AB 1807), National Emission Standards for Hazardous Air Pollutants (NESHAPS), and Prevention of Significant Deterioration (PSD) requirements.

(A) Provide an assessment of control technologies, evaluation of control cost, source testing and analysis of samples to determine emissions.

(B) Test and analyze products and processes to demonstrate pollution reduction potential.

(C) Solicit public input through meetings and workshops.

(D) Prepare rules to provide flexibility to industry, ensure an effective permit program and increase rule effectiveness.

(E) Evaluate effectiveness of area source rules, evaluate area source emission inventories, and propose new rules or amendments to improve implementation of area source programs, including the certification/registration of equipment, and as necessary pursuant to statewide regulatory requirements.

(F) Implement the AQMP. Develop feasibility studies and control measures.

(G) Conduct research and analyze health effects of air pollutants and assess the health implications of pollutant reduction strategies.

MONITORING AIR QUALITY

Operate and maintain within SCAQMD's jurisdiction a network of air quality monitoring sites for ozone, nitrogen oxides, sulfur oxides, particulate matter, carbon monoxide and other pollutants to obtain data regarding public exposure to air contaminants.

(A) Analyze, summarize, and report air quality information generated from the monitoring sites.

(B) Provide continuous records for assessment of progress toward meeting federal and state air quality standards.

(C) Develop and prepare meteorological forecasts and models.

(D) Respond to emergency requests by providing technical assistance to first-response public safety agencies.

(E) Notify the public, media, schools, regulated industries and others whenever predicted or observed levels exceed the episode levels established under state law.

(F) Conduct special studies such as MATES IV, National Air Toxics Trends (NATTS), Port Air Quality Monitoring, Near Road NO_2 Monitoring, and TraPac Air Filtration Program.

PROGRAM CATEGORIES

OPERATIONAL SUPPORT

Provide operational support to facilitate overall air quality improvement programs.

(A) Provide services that enable SCAQMD offices to function properly. Services include facility administration, human resources and financial services.

(B) Provide information management services in support of all SCAQMD operations, including automation of permitting and compliance records, systems analysis and design, computer programming and operations, records management, and the library.

(C) Provide legal support and representation on all policy and regulatory issues and all associated legal actions.

TIMELY REVIEW OF PERMITS

Ensure timely processing of permits for new sources based on compliance with New Source Review and other applicable local, state and federal air quality rules and regulations.

(A) Process applications for Permits to Construct and/or to Operate for new construction, modification and change of operations of equipment from major and non-major sources.

(B) Process Title V permits (Initial, Renewal, and Revisions) and facility permits for RECLAIM sources.

(C) Process applications for Administrative Changes, Change of Operator, Plans and Emission Reductions Credits (RTC).

(D) Continue efforts to streamline and expedite permit issuance through:

(1) Equipment certification/registration programs
(2) Area sources filing program
(3) Streamlined standard permits
(4) Certification of Permit Processing (CPP) professionals
(5) Enhancement of permitting systems
(6) Expedited Permit Processing Program

POLICY SUPPORT

Monitor, analyze and attempt to influence the outcome of state/federal legislation.

(A) Track changes to the state/federal budgets that may affect SCAQMD.

(B) Respond to Congressional and Senatorial inquiries regarding SCAQMD programs, policies or initiatives.

(C) Assist SCAQMD consultants in identifying potential funding sources and securing funding for SCAQMD programs.

POLICY SUPPORT (Cont.)

(D) Provide support staff to the Governing Board, Board committees, and various advisory and other groups such as the Air Quality Management Plan Advisory Group, the Environmental Justice Advisory Group; the Home Rule Advisory Group; the Local Government and Small Business Assistance Advisory Group; the Mobile Source Air Pollution Reduction Review Committee (MSRC) and MSRC Technical Advisory Committee; the Scientific, Technical and Modeling Peer Review Advisory Group; the Technology Advancement Advisory Group; as well as ad hoc committees established from time to time and various Rule working groups.

REVENUE CATEGORIES

I. **Allocatable**

A portion of SCAQMD revenue offsets operational support costs of the SCAQMD.

1a Allocatable SCAQMD – District-wide administrative and support services (e.g., Human Resources, Payroll, Information Management).

1b Allocatable – Office – Administrative activities specific to a division/office.

II. **Annual Operating Emissions Fees**

III. **Permit Processing Fees**

IV. **Annual Operating Permit Renewal**

V. **Federal Grants/Other Federal Revenue**

VI. **Source Test/Sample Analysis Fees**

VII. **Hearing Board Fees**

VIII. **Clean Fuels Fees**

IX. **Mobile Sources**

X. **Air Toxics AB 2588**

XI. **Transportation Programs**

XII - XIV. These revenue categories are no longer used.

XV. **California Air Resources Board Subvention**

XVI. This revenue category is no longer used.

XVII. **Other Revenue**

XVIII. **Area Sources**

XIX. **Portable Equipment Registration Program (PERP)**

For a description of the revenue categories listed above, please refer to the corresponding revenue account in the FUND BALANCE & REVENUES tab, EXPLANATION OF FUNDING SOURCES section.

WORK PROGRAM OVERVIEW

The Work Program is a management tool that allocates resources by Office, Program Category, and project. It is developed from Program Output Justifications prepared during the budget process by each Office. Work Programs for each office can be found in the 'OFFICE BUDGETS' section of this document. A glossary of terms and acronyms used in the Work Program are at the end of this section.

Professional & Special Services, Temporary Agency Services, and Capital Outlays expenditures are assigned to specific work program codes associated with the project the expenditures support. All other expenditures (Salaries and Benefits and most Services and Supplies line items) are distributed within an Office by FTE. A District General overhead cost has been apportioned to each Work Program line based on the number of Full-Time Equivalent (FTE) staff positions for that line.

The following is a brief description of each column in the Work Program:

The **#** column identifies each line in the Work Program in numerical order.

The **Program Code** is a five-digit code assigned to each program. The first two digits represent the Office number. The last three digits are the Program number.

The **Goal** column identifies which of the three Program Goals (defined in the Draft Goals and Priority Objectives) applies to that output. The Goals are:

GOAL I	**Ensure expeditious progress toward meeting clean air standards and protecting public health.**
GOAL II	**Enhance public education and ensure equitable treatment for all communities.**
GOAL III	**Operate efficiently and in a manner sensitive to public agencies, businesses, the public and SCAQMD staff.**

The **Office** column, which appears on the Work Program by Category document, identifies the Office responsible for performing the work.

The **Program Category** column, which appears on the Work Program by Office document, identifies one of the nine Program Categories associated with an activity.

The **Program** column identifies the Program associated with the work.

The **Activities** column provides a brief description of the work.

The **FTEs** column identifies the number of Full Time Equivalent (FTE) staff positions in the current-year adopted budget, mid-year and proposed changes (+/-), and the proposed budget for the next fiscal year. An FTE position represents one person-year.

The **Proposed Expenditures** column, found in the Work Program by Category document, identifies the expenditures in the current-year adopted budget, proposed changes (+/-) and the proposed budget for the next fiscal year.

The **Revenue Category** column identifies the revenue that supports the work. Revenue Category descriptions can be found on the preceding page.

Advance Clean Air Technology
Work Program by Category

#	Program Code		Goal	Office	Program	Activities	FTEs			Proposed Expenditures			Revenue Category
							FY 2014-15	+/-	FY 2015-16	FY 2014-15	+/-	FY 2015-16	
1	08	001	I	LEG	AB2766/Mob Src/Legal Advice	AB2766 Leg Adv: Trans/Mob Source	0.05		0.05	$ 9,820	$ 209	$ 10,029	IX
2	04	003	III	FIN	AB2766/MSRC	MSRC Program Administration	0.35		0.35	46,930	1,630	48,560	IX
3	08	003	I	LEG	AB2766/MSRC	Legal Advice: MSRC Prog Admin	0.15		0.15	29,460	626	30,086	IX
4	44	003	I	STA	AB2766/MSRC	Mob Src Review Comm Prog Admin	1.00		1.00	154,968	6,690	161,658	IX
5	44	004	I	STA	AB2766/MSRC/Contract Admin	AB2766 Admin Discretionary Prog	3.00		3.00	464,903	20,071	484,974	IX
6	44	039	I	STA	Admin/Office Mgt/Tech Adv	Admin Support/Coordination	0.77		0.77	119,325	5,152	124,477	VIII
7	44	048	I	STA	Admin/Prog Mgmt/Tech Advance	Overall TA Program Mgmt/Coord	1.55		1.55	240,200	10,370	250,570	VIII
8	44	066	I	STA	AQIP Marine SCR DPF	AQIP Marine SCR DPF/Admin/Impl	0.15		0.15	23,245	1,004	24,249	IX
9	44	012	I	STA	AQMP/Control Tech Assessment	Tech Supp: Quantify Cost Effec	0.10		0.10	15,497	669	16,166	VIII
10	44	095	I	STA	CA Natural Gas Veh Partnership	CA Natural Gas Veh Partnership	0.05		0.05	7,748	335	8,083	VIII
11	04	130	III	FIN	Clean Fuels/Contract Admin	Clean Fuels Contract Admin/Monitor	0.15		0.15	20,113	699	20,811	VIII
12	44	130	I	STA	Clean Fuels/Contract Admin	Admin/Project Supp for TA Cont	3.40		3.40	526,890	22,747	549,637	VIII
13	08	131	I	LEG	Clean Fuels/Legal Advice	Legal Advice: Clean Fuels	0.05		0.05	9,820	209	10,029	VIII
14	44	132	I	STA	Clean Fuels/Mobile Sources	Dev/Impl Mobile Src Proj/Demo	5.10		5.10	790,335	34,121	824,456	VIII
15	44	134	I	STA	Clean Fuels/Stationary Combust	Dev/Demo Clean Combustion Tech	0.70		0.70	108,477	4,683	113,161	VIII
16	44	135	I	STA	Clean Fuels/Stationary Energy	Dev/Demo Alt Clean Energy	0.70		0.70	108,477	4,683	113,161	VIII
17	44	136	I	STA	Clean Fuels/Tech Transfer	Disseminate Low Emiss CF Tech	1.45		1.45	224,703	9,701	234,404	VIII
18	44	188	I	STA	DERA FY 13 Veh Repl	DERA Vehicle Repl Admin/Impl	0.20		0.20	30,994	1,338	32,332	XVII
19	44	187	I	STA	DERA Sch Bus Repl	DERA Sch Bus Repl Admin/Impl	0.00	0.03	0.03	-	4,850	4,850	V
20	44	190	I	STA	Diesel Projects EPA	Diesel Projects EPA/Admin/Impl	0.11		0.11	17,046	736	17,782	V
21	44	361	I	STA	HD Trucks DOE ARRA	DOE HD Trucks Admin (ARRA)	2.00		2.00	309,935	13,381	323,316	V,XVII
22	44	424	I	STA	LNG Trucks CEC	LNG Trucks Admin CEC	1.00		1.00	154,968	6,690	161,658	V,IX
23	44	457	I	STA	Mob Src/C Moyer Adm/Outreach	Carl Moyer: Impl/Admin Grant	5.65		5.65	875,567	37,800	913,368	IX
24	44	459	I	STA	Mob Src/C Moyer/Impl/Prg Dev	Moyer/Implem/Program Dev	2.80		2.80	433,909	18,733	452,642	IX
25	08	457	I	LEG	Mob Src/C Moyer/Leg Advice	Moyer/Implem/Program Dev	0.20		0.20	39,280	835	40,115	IX
26	44	453	I	STA	Mob Src: Emiss Inven Method	Rvw CARB/US EPA emissions inven methodology	1.50		1.50	232,451	10,036	242,487	VIII,IX
27	04	457	III	FIN	Mobile Source/Moyer Adm	Carl Moyer: Contract/Fin Admin	1.02		1.02	136,767	4,750	141,517	IX
28	03	455	I	EO	Mobile Sources	Dev/Impl Mobile Source Strategies	0.10		0.10	22,981	1,533	24,514	IX
29	16	457	I	AHR	MS/Carl Moyer Admin	C Moyer/Contractor Compliance	0.50		0.50	85,359	2,435	87,794	IX
30	44	497	I	STA	Plug-in Hybrid EV DOE ARRA	DOE Plug-in Hybrid EV Admin (ARRA)	0.75		0.75	116,226	5,018	121,243	V
31	44	533	I	STA	POLB AMECS Demo	POLB AMECS Demo-Admin/Impl	0.00	0.47	0.47	-	75,979	75,979	XVII
32	04	542	I	FIN	Prop 1B:Goods Movement	Contracts/Finance Admin	0.50		0.50	67,043	2,328	69,371	IX
33	16	542	I	AHR	Prop 1B:Goods Movement	Prop 1B: Goods Movement	0.50		0.50	85,359	2,435	87,794	IX
34	04	544	I	FIN	Prop 1B:Low Emiss Sch Bus	Grants/Finance Admin	0.05		0.05	6,704	233	6,937	IX
35	44	677	I	STA	School Bus/Lower Emission Prog	School Bus Program Oversight	0.70		0.70	108,477	4,683	113,161	IX
36	26	738	I	PRA	Target Air Shed EPA	Targeted Air Shed Admin/Impl	0.25		0.25	40,360	905	41,265	V,XVII
37	44	738	I	STA	Target Air Shed EPA	Targeted Air Shed Admin/Impl	0.15		0.15	23,245	1,004	24,249	V,XVII
38	44	740	I	STA	Tech Adv/Commercialization	Assess CFs/Adv Tech Potential	0.25		0.25	38,742	1,673	40,414	VIII
39	44	741	I	STA	Tech Adv/Non-Combustion	Dev/Demo Non-Combustion Tech	0.10		0.10	15,497	669	16,166	VIII
40	44	816	I	STA	Transportation Research	Transport Research/Adv Systems	0.50		0.50	77,484	3,345	80,829	VIII
41	44	460	I	STA	VIP Admin	VIP Admin/Outreach/Impl	0.80		0.80	123,974	5,352	129,326	IX
						Total	38.35	0.50	38.85	$ 5,943,280	$ 330,339	$ 6,273,618	

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

Customer Service and Business Assistance
Work Program by Category

#	Program Code		Goal	Office	Program	Activities	FTEs			Proposed Expenditures			Revenue Category
							FY 2014-15	+/-	FY 2015-16	FY 2014-15	+/-	FY 2015-16	
1	04	002	III	FIN	AB2766/Mobile Source	Prog Admin: Monitor/Dist/Audit	0.10		0.10	$ 23,409	$ (9,534)	$ 13,874	II,IV,IX
2	26	007	I	PRA	AB2766/MSRC	AB2766 Prov Tech Asst to Cities	1.10		1.10	177,585	3,983	181,568	V,IX
3	50	038	I	EAC	Admin/Office Management	Dev/Coord Goals/Policies/Overs	4.00	1.00	5.00	598,928	166,319	765,248	II,IV
4	50	047	I	EAC	Admin/Operations Support	Budget/Contracts/Reports/Projects	5.00		5.00	753,660	16,587	770,248	II,IV
5	35	046	III	LPA	Admin/Prog Mgmt	Admin Office/Units/SuppCoord Staff	3.02		3.02	470,515	10,328	480,842	II,IV,IX
6	26	216	I	PRA	AER Public Assistance	AER Design/Impl/Monitor Emiss	2.00		2.00	322,882	7,242	330,123	II,V
7	04	170	I	FIN	Billing Services	Answer/Resp/Resolv Prob & Inq	8.00		8.00	1,087,685	37,753	1,125,439	II,IV,IX
8	04	631	III	FIN	Cash Mgmt/Refunds	Research/Doc/Prep/Proc Refunds	0.30		0.30	40,226	1,397	41,623	X
9	35	126	II	LPA	Clean Air Connections	Coord of region-wide community group	1.00		1.00	155,800	3,420	159,219	II,IV,IX
10	50	200	I	EAC	Economic Dev/Bus Retention	Perm Proc/Public Participation	0.10		0.10	14,973	332	15,305	II
11	35	205	II	LPA	Environmental Education	Curriculum Dev/Project Coord	0.25		0.25	38,950	855	39,805	II,IV,IX
12	35	240	I	LPA	Environmental Justice	Impl Board's EJ Pgrms/Policies	2.00		2.00	311,599	6,839	318,439	II,IV,IX
13	04	260	III	FIN	Fee Review	Cmte Mtg/Fee-Related Complaint	0.10		0.10	13,409	466	13,874	II,IV,IX
14	35	260	III	LPA	Fee Review	Cmte Mtg/Fee-Related Complaint	0.50		0.50	77,900	1,710	79,610	II,IV,IX
15	50	260	III	EAC	Fee Review	Fee Review Committee	0.45		0.45	67,379	1,493	68,872	II
16	04	355	III	FIN	Grants Management	Grant Anlyz/Eval/Negot/Acc/Rpt	1.00		1.00	134,086	4,657	138,742	II,IV,IX
17	35	381	III	LPA	Interagency Liaison	Interact Gov Agns/Promote SCAQMD	0.15		0.15	23,370	513	23,883	II,IV,IX
18	35	390	I	LPA	Intergov/Geographic Deployment	Dev/Impl Local Govt Outreach	9.50		9.50	1,518,096	32,487	1,550,583	II,IV,IX
19	08	404	I	LEG	Legal Rep/Legislation	Draft Legis/SCAQMD Position/Mtgs	0.05		0.05	9,820	209	10,029	IX,XV
20	50	425	I	EAC	Lobby Permit Services	Supp Perm Proc/Customer Svc	1.00		1.00	149,732	3,317	153,050	II,IV
21	03	390	I	EO	Local Govt Policy Development	Policy Development	0.05		0.05	11,490	767	12,257	X
22	27	481	III	IM	New System Development	Dev sys in supp of Dist-wide	1.75		1.75	740,173	(395,357)	344,816	V
23	03	490	II	EO	Outreach	Publ Awareness Clean Air Prog	1.00		1.00	229,807	15,334	245,141	X
24	35	491	II	LPA	Outreach/Business	Chambers/Business Meetings	1.00		1.00	168,400	3,420	171,819	II,IV,IX
25	35	496	II	LPA	Outreach/Visiting Dignitary	Tours/Briefings-Dignitary	0.25		0.25	38,950	855	39,805	II,IV,IX
26	50	520	I	EAC	Perm Proc/Pre-Appl Mtg Outreac	Pre-App Mtgs/Genl Prescreening	4.00		4.00	598,928	13,270	612,198	II,IV
27	35	514	I	LPA	Permit: Expired Permit Program	Assist w Permit Reinstatement	0.30		0.30	46,740	1,026	47,766	II,IV,IX
28	16	540	III	AHR	Print Shop	Printing/Collating/Binding	4.00		4.00	693,873	19,479	713,352	1a
29	35	492	II	LPA	Public Education/Public Events	Pub Events/Conf/Rideshare Fair	1.00		1.00	315,800	253,420	569,219	II,IV,IX
30	35	555	II	LPA	Public Information Center	Inform public of unhealthy air	1.00		1.00	245,800	3,420	249,219	II,IV,IX
31	03	565	III	EO	Public Records Act	Comply w/ Public Req for Info	0.05		0.05	11,490	767	12,257	II,IV,IX
32	04	565	I	FIN	Public Records Act	Comply w/ Public Rec Requests	0.02		0.02	2,682	93	2,775	X
33	08	565	III	LEG	Public Records Act	Comply w/ Public Rec Requests	0.50	0.50	1.00	98,199	102,374	200,573	IX,XV
34	16	565	III	AHR	Public Records Act	Comply w/ Public Rec Requests	0.05		0.05	8,536	243	8,779	1a
35	17	565	III	CB	Public Records Act	Comply w/ Public Rec Requests	0.02		0.02	3,908	21	3,929	IV,V,VII
36	26	565	III	PRA	Public Records Act	Comply w/ Public Rec Requests	0.53		0.53	85,564	1,919	87,483	IX
37	27	565	III	IM	Public Records Act	Comply w/ Public Req for Info	3.75		3.75	662,943	9,948	672,891	V
38	35	565	III	LPA	Public Records Act	Comply w/ Public Req for Info	0.10		0.10	15,580	342	15,922	II,IV,IX
39	44	565	III	STA	Public Records Act	Comply w/ Public Req for Info	0.17		0.17	26,344	1,137	27,482	II,V,IX
40	50	565	III	EAC	Public Records Act	Comply w/ Public Req for Info	0.50		0.50	74,866	1,659	76,525	II,IV,V,XV
41	26	833	II	PRA	Rule 2202 ETC Training	Rule 2202 ETC Training	1.30		1.30	209,873	37,207	247,080	X
42	35	679	III	LPA	Small Business Assistance	Small Business/Financial Assistance	1.00		1.00	155,800	3,420	159,219	II,IV,IX
43	08	681	III	LEG	Small Business/Legal Advice	Legal Advice: SB/Fee Review	0.05		0.05	9,820	209	10,029	IX,XV
44	50	690	I	EAC	Source Education	Prov Tech Asst To Industries	2.80		2.80	419,250	9,289	428,539	IV

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

Customer Service and Business Assistance Work Program by Category														
#	Program Code		Goal	Office	Program	Activities	FTEs FY 2014-15	+/-	FTEs FY 2015-16	Proposed Expenditures FY 2014-15		+/-		Proposed Expenditures FY 2015-16	Revenue Category
45	44	701	I	STA	Source Testing/Customer Svc	Conduct ST/Prov Data/Cust Svc	0.05		0.05	$	7,748	$	335	$ 8,083	VI
46	35	710	I	LPA	Speakers Bureau	Coordinate/conduct speeches	0.10		0.10		15,580		342	15,922	II,IV,IX
47	16	720	I	AHR	Subscription Services	Rule & Gov Board Materials	1.70		1.70		290,221		8,279	298,500	1a
48	35	791	I	LPA	Toxics/AB2588	Outreach/AB 2588 Air Toxics	0.01		0.01		1,558		34	1,592	II,IV,IX
49	44	709	I	STA	VOC Sample Analysis/SBA/Other	VOC Analysis & Reptg/Cust Svc	0.50		0.50		77,484		3,345	80,829	IV,XV
						Total	67.17	1.50	68.67	$	11,257,410	$	386,967	$ 11,644,377	

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

Ensure Compliance with Clean Air Rules Work Program by Category														
#	Program Code		Goal	Office	Program	Activities	FTEs FY 2014-15	+/-	FTEs FY 2015-16	Proposed Expenditures FY 2014-15	+/-	Proposed Expenditures FY 2015-16	Revenue Category
1	44	015	I	STA	Acid Rain Program	Acid Rain CEMS Eval/Cert	0.50		0.50	$ 77,484	$ 3,345	$ 80,829	III,VI
2	26	042	I	PRA	Admin/Office Mgmt/Compliance	Admin: Compl w SCAQMD Rules	0.25		0.25	40,360	905	41,265	V
3	26	046	I	PRA	Admin/Office Mgmt/Compliance	Admin: Compl of Existing Source	0.52		0.52	83,949	1,883	85,832	V
4	44	042	I	STA	Admin/Office Mgmt/Compliance	Compliance: Assign/Manage/Supp	0.37		0.37	57,338	2,475	59,813	II,IV,VI
5	26	215	I	PRA	Annual Emission Reporting	Annl Des/Impl/Emiss Monitor Sys	7.50		7.50	1,315,806	77,157	1,392,962	II,V
6	50	071	I	EAC	Arch Ctgs - Admin	Report Review	0.10		0.10	14,973	332	15,305	IV
7	08	072	I	LEG	Arch Ctgs - End User	Case Dispo/Rvw, Track, Prep NOVs	0.05		0.05	9,820	209	10,029	IX,XV
8	26	072	I	PRA	Arch Ctgs - End User	Compliance/Rpts/Rule Implementation	1.00		1.00	161,441	3,621	165,062	IV,IX,XV
9	44	072	I	STA	Arch Ctgs - End User	Sample Analysis/Rpts	1.00	4.00	5.00	154,968	653,322	808,290	1a
10	50	072	I	EAC	Arch Ctgs - End User	Compliance/Rpts/RuleImpmenta	0.10		0.10	14,973	332	15,305	IV
11	08	073	I	LEG	Arch Ctgs - Other	Case Dispo/Rvw, Track, Prep NOVs	0.20	(0.15)	0.05	39,280	(29,251)	10,029	IX,XV
12	26	073	I	PRA	Arch Ctgs - Other	Compliance/Rpts/Rule Implementation	1.00		1.00	161,441	3,621	165,062	IV,IX,XV
13	50	073	I	EAC	Arch Ctgs - Other	Compliance/Rpts/Rule Implementation	4.50		4.50	673,794	14,929	688,723	IV
14	26	076	I	PRA	Area Sources/Compliance	Area Source Compliance	3.00	1.00	4.00	534,322	175,924	710,247	IV,IX,XV
15	16	080	III	AHR	Auto Services	Vehicle/Radio Repair & Maint	3.00		3.00	512,155	14,609	526,764	1a
16	35	111	II	LPA	Call Center/CUT SMOG	Smoking Vehicle Complaints	8.00		8.00	1,246,397	27,358	1,273,754	IX,XV
17	50	070	I	EAC	CARB PERP Program	CARB Audits/Statewide Equip Reg	7.00		7.00	1,048,124	23,222	1,071,347	IV
18	08	115	I	LEG	Case Disposition	Trial/Dispo-Civil Case/Injunct	6.00	(1.00)	5.00	1,178,392	(175,527)	1,002,865	IX,XV
19	44	105	I	STA	CEMS Certification	CEMS Review/Approval	6.15		6.15	953,051	41,146	994,197	III,VI
20	50	155	I	EAC	Compliance Guidelines	Procedures/Memos/Manuals	0.50		0.50	74,866	1,659	76,525	II
21	50	158	I	EAC	Compliance Testing	R461/Combustion Equip Testing	1.00		1.00	149,732	8,317	158,050	II
22	50	152	III	EAC	Compliance/IM Related Activiti	Assist IM: Design/Review/Test	0.50		0.50	74,866	1,659	76,525	II
23	08	154	I	LEG	Compliance/NOV Administration	Review/Track/Prep NOVs/MSAs	1.20		1.20	235,678	5,009	240,688	IX,XV
24	50	157	I	EAC	Compliance/Special Projects	Prog Audits/Data Req/Board Supp	5.00		5.00	748,660	16,587	765,248	IV
25	08	185	I	LEG	Database Management	Support IM/Dev Tracking System	0.20		0.20	69,280	835	70,115	IX,XV
26	44	175	I	STA	DB/Computerization	Develop Systems/Database	0.44		0.44	68,186	2,944	71,130	II,IV,VI
27	08	235	I	LEG	Enforcement Litigation	Maj Prosecutions/Civil Actions	0.00	1.00	1.00	-	200,573	200,573	IX,XV
28	50	365	I	EAC	Hearing Bd/Variances	Variances/Orders of Abatement	1.50		1.50	224,598	4,976	229,574	VII
29	17	364	I	CB	Hearing Board/Abatement Orders	Attnd/Recrd/Monitr Mtgs	0.10		0.10	19,541	104	19,645	IV
30	08	366	I	LEG	Hearing Board/Legal	Hear/Disp-Varian/Appeal/Rev	2.80	0.20	3.00	549,916	51,803	601,719	IX,XV
31	17	365	I	CB	Hearing Board/Variances/Appeal	Attend/Record/Monitor HB Mtgs	3.20		3.20	650,713	3,322	654,035	IV,V,VII
32	50	375	I	EAC	Inspections	Compliance/Inspection/Follow-up	79.20		79.20	11,858,778	262,743	12,121,521	IV,V,XV
33	50	377	I	EAC	Inspections/RECLAIM Audits	Audit/Compliance Assurance	23.80		23.80	3,563,623	78,956	3,642,578	II,IV
34	08	380	I	LEG	Interagency Coordination	Coordinate with Other Agencies	0.25		0.25	49,100	1,044	50,143	IX,XV
35	08	402	III	LEG	Legal Advice/Legislation	Legal Support/Rep on Legal Matter	0.10		0.10	19,640	417	20,057	IX,XV
36	08	403	III	LEG	Legal Rep/Litigation	Prep/Hearing/Disposition	3.50		3.50	876,895	14,610	891,505	IX,XV
37	44	450	I	STA	Microscopic Analysis	Asbestos/PM/Metals Analysis	3.00		3.00	464,903	20,071	484,974	VI
38	08	465	I	LEG	Mutual Settlement	Mutual Settlement Program	3.00		3.00	589,196	12,523	601,719	IX,XV
39	50	156	I	EAC	Perm Proc/Info to Compliance	Prov Permit Info to Compliance	3.00		3.00	449,196	9,952	459,149	III,IV

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

Ensure Compliance with Clean Air Rules
Work Program by Category

#	Program Code		Goal	Office	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Proposed Expenditures FY 2014-15	Proposed Expenditures +/-	Proposed Expenditures FY 2015-16	Revenue Category
40	44	500	I	STA	PM2.5 Program	Est/Operate/Maint PM2.5 Network	11.30		11.30	$ 1,751,134	$ 75,601	$ 1,826,735	II,V,IX
41	50	538	I	EAC	Port Comm AQ Enforcement	Port Comm AQ Enforcement	0.50		0.50	74,866	1,659	76,525	IX
42	50	542	I	EAC	Prop 1B:Goods Movement	Prop 1B: Gds Mvmnt/Inspect	0.30		0.30	44,920	995	45,915	IX
43	50	550	II	EAC	Public Complaints/Breakdowns	Compltresp/Invflwup/Resolutn	10.00		10.00	1,497,321	33,175	1,530,495	II,IV,V,XV
44	50	605	I	EAC	RECLAIM/Admin Support	Admin/Policy/Guidelines	10.00		10.00	1,497,321	33,175	1,530,495	II,III,IV
45	26	620	I	PRA	Refinery Pilot Project	Refinery Pilot Project	0.25		0.25	40,360	905	41,265	II
46	26	645	I	PRA	Rule 1610 Plan Verification	Rule 1610 Plan Verification	0.50		0.50	80,720	1,810	82,531	V,IX
47	50	678	I	EAC	School Siting	Identify Haz. Emission Sources near Schools	1.00		1.00	149,732	3,317	153,050	II
48	50	680	I	EAC	Small Business Assistance	Asst sm bus w/ Permit Process	0.50		0.50	74,866	1,659	76,525	IV
49	44	700	I	STA	Source Testing/Compliance	Conduct ST/Prov Data/Compl	2.25		2.25	378,677	15,053	393,730	VI
50	26	716	I	PRA	Spec Monitoring/R403	Rule 403 Compliance Monitoring	1.00	0.05	1.05	161,441	11,874	173,315	IV,IX,XV
51	44	716	I	STA	Special Monitoring	Rule 403 Compliance Monitoring	2.20		2.20	375,929	14,719	390,648	IV,IX,XV
52	44	704	I	STA	ST/Sample Analysis/Compliance	Analyze ST Samples/Compliance	4.00		4.00	619,870	26,761	646,632	VI
53	50	751	I	EAC	Title III Inspections	Title III Comp/Insp/Follow Up	0.50		0.50	74,866	1,659	76,525	IV
54	08	770	I	LEG	Title V	Leg Advice: Title V Prog/Perm Dev	0.05		0.05	9,820	209	10,029	IX,XV
55	50	771	I	EAC	Title V Inspections	Title V Compl/Inspect/Follow Up	11.00		11.00	1,647,053	36,492	1,683,545	II,IV
56	04	791	III	FIN	Toxics/AB2588	AB2588 Toxics HS Fee Collection	0.15		0.15	35,113	699	35,811	II,V,IX
57	08	791	I	LEG	Toxics/AB2588	AB2588 Legal Advice: Plan & Impl	0.05		0.05	9,820	209	10,029	IX,XV
58	26	794	I	PRA	Toxics/AB2588	AB2588 Core, Tracking, IWS	8.50	0.95	9.45	1,372,247	437,586	1,809,833	X
59	27	791	III	IM	Toxics/AB2588	AB2588 Database Software Supp	0.50		0.50	143,992	1,326	145,319	X
60	44	794	I	STA	Toxics/AB2588	Eval Protocols/Methods/ST	1.25		1.25	193709.53	8,363	202,072	X
61	50	791	I	EAC	Toxics/AB2588	AB2588 Rev Rprts/Risk Redplans	0.25		0.25	37,433	829	38,262	II,IV
62	44	795	I	STA	Toxics/Engineering	R1401 Toxics/HRA Prot/Rpt Eval	0.05		0.05	7,748	335	8,083	X
63	08	805	III	LEG	Training	Continuing Education/Training	0.50		0.50	98,199	2,087	100,286	IX,XV
64	50	850	I	EAC	VEE Trains	Smoking Trains-Compl/Inspec/FU	0.50		0.50	74,866	1,659	76,525	IX,XV
65	44	707	I	STA	VOC Sample Analysis/Compliance	VOC Analysis & Rptg/Compliance	7.00		7.00	1,121,773	46,832	1,168,606	IV,XV
66	17	855	II	CB	Web Tasks	Create/edit/review web content	0.03		0.03	5,862	31	5,893	1a
						Total	256.66	6.05	262.71	$ 40,595,094	$ 2,296,733	$ 42,891,827	

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

Develop Programs to Achieve Clean Air
Work Program by Category

#	Program Code		Goal	Office	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Proposed Expenditures FY 2014-15	Proposed Expenditures +/-	Proposed Expenditures FY 2015-16	Revenue Category
1	04	009	I	FIN	AB 1318 Mitigation	AB 1318 Projects Admn/Impl	0.13		0.13	$ 17,431	$ 605	$ 18,037	II,V,IX
2	08	009	I	LEG	AB 1318 Mitigation	AB 1318 Projects Admn/Impl	0.05		0.05	9,820	209	10,029	IX,XV
3	26	009	I	PRA	AB 1318 Mitigation	AB 1318 Projects Admn/Impl	0.00	0.25	0.25	-	41,265	41,265	X
4	44	009	I	STA	AB 1318 Mitigation	AB 1318 Projects Admn/Impl	0.75		0.75	116,226	5,018	121,243	X
5	26	002	I	PRA	AB2766/Mobile Source	AB2766 Mobile Source Outreach	0.89		0.89	143,682	3,223	146,905	IV,IX,XV
6	26	038	I	PRA	Admin/Office Management	Coordinate Off/Admin Activities	0.50		0.50	80,720	1,810	82,531	V
7	26	049	I	PRA	Admin/Prog Mgmt/AQMP	Admin: AQMP Development	0.75		0.75	121,081	2,716	123,796	V
8	03	028	I	EO	Admin/SCAQMD Policy	Dev/Coord Goals/Policies/Overs	2.00		2.00	509,614	30,668	540,282	X
9	26	057	I	PRA	Admin/Transportation Prog Mgmt	Admin: Transportation Programs	0.86		0.86	138,839	3,114	141,953	IX
10	44	069	I	STA	AQIP Evaluation	AQIP Contract Admin/Evaluation	0.65		0.65	100,729	4,349	105,078	II,V,IX
11	03	010	I	EO	AQMP	Develop/Implement AQMP	0.05		0.05	11,490	767	12,257	X
12	08	010	I	LEG	AQMP	AQMP Revision/CEQA Review	0.20	0.40	0.60	39,280	81,064	120,344	IX,XV
13	26	010	I	PRA	AQMP	AQMP Special Studies	2.00		2.00	327,882	10,242	338,123	IV,IX,XV
14	26	218	I	PRA	AQMP/Emissions Inventory	Dev Emiss Inv: Forecasts/RFPs	2.45	(1.15)	1.30	395,530	(180,950)	214,580	II,V
15	26	102	II	PRA	CEQA Document Projects	Review/Prepare CEQA Comments	3.75		3.75	605,403	13,578	618,981	IV,IX,XV
16	26	104	I	PRA	CEQA Policy Development	ID/Develop/Impl CEQA Policy	0.50		0.50	90,720	1,810	92,531	IV,IX,XV
17	26	128	I	PRA	Cln Communities Pln	Cln Communities Plan Admn/Impl	0.50		0.50	80,720	1,810	82,531	IV,IX,XV
18	26	600	I	PRA	Credit Generation Programs	Dev RFP/AQMP Ctrl Strats/Inter	1.25	(0.05)	1.20	201,801	(3,727)	198,074	IX
19	26	219	I	PRA	Emissions Field Audit	Emissions Field Audit	0.50		0.50	80,720	1,810	82,531	II,V
20	26	217	I	PRA	Emissions Inventory Studies	Dev Emiss DB/Dev/Update Emiss	2.00		2.00	322,882	7,242	330,123	II,V
21	44	396	I	STA	Lawnmower Exchange	Lawn Mower Admin/Impl/Outreach	0.30		0.30	46,490	2,007	48,497	II,IV,VI
22	26	397	II	PRA	Lead Agency Projects	Prep Envrnmt Assmts/Perm Proj	0.75		0.75	121,081	2,716	123,796	V
23	44	451	I	STA	Mob Src/CARB/EPA Monitoring	CARB/US EPA Mob Src Fuel Policies	1.50		1.50	232,451	10,036	242,487	VI
24	44	452	I	STA	Mob Src/CEC/US DOE Monitoring	CEC/US DOE Mob Src rulemaking proposals	1.00		1.00	154,968	6,690	161,658	VI
25	44	458	I	STA	Mobile Source Strategies	Implement Fleet Rules	1.00		1.00	154,968	6,690	161,658	VI
26	44	448	I	STA	Mobile Src Strategies-Off Road	CARB Off-Road Mob Src ctrl strategy for SIP	1.00		1.00	154,968	6,690	161,658	II,IV,VI
27	26	503	I	PRA	PM Strategies	PM10 Plan/Analyze/Strategy Dev	4.00	(0.15)	3.85	645,763	(10,276)	635,487	V
28	26	221	I	PRA	PR2301 ISR Rule Implementation	Mitigate dev growth	1.50		1.50	242,161	5,431	247,592	II,V
29	44	542	I	STA	Prop 1B:Goods Movement	Prop 1B:Goods Movement	5.70		5.70	883,315	38,135	921,450	II,V,IX
30	44	544	II	STA	Prop 1B:Low Emiss Sch Bus	Prop 1B:Low Emiss Sch Bus	0.50		0.50	77,484	3,345	80,829	II,V,IX
31	35	560	I	LPA	Public Notification	Public notif of rules/hearings	0.50		0.50	97,900	1,710	99,610	II,IV,IX
32	26	745	I	PRA	Rideshare	Dist Rideshare/Telecommute Prog	0.65		0.65	104,936	2,354	107,290	IV,IX,XV
33	26	834	I	PRA	Rule 2202 Implement	Rule 2202 Proc/Sub Plans/Tech Eval	3.07		3.07	495,623	11,116	506,739	X
34	26	836	I	PRA	Rule 2202 Support	R2202 Supt/CmptrMaint/WebSubmt	2.80		2.80	467,034	160,138	627,173	X
35	26	068	II	PRA	SCAQMD Projects	Prepare Environmental Assessments	4.70		4.70	778,772	172,018	950,790	V,IX
36	26	685	I	PRA	Socio-Economic	Apply econ models/Socio-econ	3.45	(0.20)	3.25	665,971	74,480	740,450	V,IX
37	44	702	I	STA	ST Methods Development	Eval ST Methods/Validate	0.95		0.95	147,219	6,356	153,575	VI
38	44	705	I	STA	ST Sample Analysis/Air Program	Analyze ST Samples/Air Prgms	0.25		0.25	38,742	1,673	40,414	VI
39	26	816	I	PRA	Transportation Regional Progs	Dev AQMP Meas/Coord w/Reg Agn	0.60		0.60	96,864	2,173	99,037	X
						Total	54.00	(0.90)	53.10	$ 9,001,281	$ 530,105	$ 9,531,386	

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

Develop Rules to Achieve Clean Air
Work Program by Category

#	Program Code		Goal	Office	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Proposed Expenditures FY 2014-15	Proposed Expenditures +/-	Proposed Expenditures FY 2015-16	Revenue Category
1	44	043	I	STA	Admin/Office Mgmt/Rules	Rules: Assign/Manage/Supp	0.15		0.15	$ 23,245	$ 1,004	$ 24,249	II,IV,VI
2	26	050	I	PRA	Admin/Rule Dev/PRA	Admin: Rule Development	1.00		1.00	161,441	3,621	165,062	V
3	26	071	I	PRA	Arch Ctgs - Admin	Rdev/Aud/DB/TA/SCAQMD/Rpts/AER	0.75	0.25	1.00	121,081	43,981	165,062	V,IX
4	26	077	I	PRA	Area Sources/Rulemaking	Dev/Eval/Impl Area Source Prog	4.00		4.00	645,763	14,483	660,247	IV,IX,XV
5	26	084	I	PRA	Blk Carbon Stdy EPA	EPA Blck Carbon Climate Study	0.20		0.20	32,288	724	33,012	X
6	26	165	I	PRA	Conformity	Monitor Transp. Conformity	0.50		0.50	80,720	1,810	82,531	IV,IX,XV
7	03	385	I	EO	Credit Generation Programs	Dev/Impl Marketable Permit	0.02		0.02	4,596	307	4,903	X
8	26	385	I	PRA	Criteria Pollutants/Mob Srcs	Dev/Impl Intercredit Trading	0.75		0.75	121,081	2,716	123,796	V
9	26	362	II	PRA	Health Effects	Study Health Effect/Toxicology	1.80	0.10	1.90	290,593	23,024	313,617	V
10	44	449	I	STA	Mob Src/SCAQMD Rulemaking	Prepare SCAQMD Mob Src rulemaking proposals	2.00		2.00	309,935	13,381	323,316	II,IV,VI
11	44	456	I	STA	MS & AQMP Control Strategies	AQMP Control Strategies	0.30		0.30	46,490	2,007	48,497	VI
12	26	655	I	PRA	NSR/Adm Rulemaking	Amend/Develop NSR & Admin Rules	3.00		3.00	484,322	10,863	495,185	V,IX
13	26	460	I	PRA	Regional Modeling	Rule Impact/Analyses/Model Dev	5.45	(0.15)	5.30	934,852	89,975	1,024,827	V
14	50	650	I	EAC	Rulemaking	Dev/Amend/Impl Rules	0.50		0.50	74,866	1,659	76,525	II,III,IV
15	44	653	I	STA	Rulemaking/BACT	Dev/Amend BACT Guidelines	2.00		2.00	309,935	13,381	323,316	II,V,IX
16	26	654	I	PRA	Rulemaking/NOX	Rulemaking/NOx	2.00	0.20	2.20	322,882	40,254	363,136	V,IX
17	08	661	I	LEG	Rulemaking/RECLAIM	RECLAIM Legal Adv/Related Iss	0.05		0.05	9,820	209	10,029	IX,XV
18	26	661	I	PRA	Rulemaking/RECLAIM	RECLAIM Amend Rules/Related Is	2.20	(1.10)	1.10	355,170	(173,602)	181,568	V,IX
19	44	657	I	STA	Rulemaking/Support PRA	Assist PRA w/ Rulemaking	0.05		0.05	7,748	335	8,083	II,V,IX
20	50	657	I	EAC	Rulemaking/Support PRA	Provide Rule Development Supp	0.50		0.50	74,866	1,659	76,525	II,III,IV
21	26	659	I	PRA	Rulemaking/Toxics	Develop/Amend Air Toxic Rules	5.00		5.00	807,204	18,104	825,308	V,IX
22	26	656	I	PRA	Rulemaking/VOC	Dev/Amend VOC Rules	7.50		7.50	1,360,806	(22,843)	1,337,962	V,IX
23	03	650	I	EO	Rules	Develop & Implement Rules	0.04		0.04	9,192	613	9,806	II,IV,IX
24	08	651	I	LEG	Rules/Legal Advice	Legal Advice: Rules/Draft Regs	1.00		1.00	196,399	4,174	200,573	IX,XV
25	44	706	I	STA	ST Sample Analysis/Air Program	Analyze ST Samples/Rules	0.25		0.25	38,742	1,673	40,414	VI
26	50	752	I	EAC	Title III Rulemaking	Title III Dev/Implement Rules	0.25		0.25	37,433	829	38,262	IV
27	50	773	I	EAC	Title V & NSR Rulemaking-Supp	Title V Rules Dev/Amend/Impl	0.25		0.25	37,433	829	38,262	II,IV
28	44	708	I	STA	VOC Sample Analysis/Rules	VOC Analysis & Rptg/Rules	0.25		0.25	38,742	1,673	40,414	IV,XV
						Total	41.76	(0.70)	41.06	$ 6,937,646	$ 96,841	$ 7,034,486	

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

Monitoring Air Quality
Work Program by Category

#	Program Code		Goal	Office	Program	Activities	FTEs			Proposed Expenditures			Revenue Category
							FY 2014-15	+/-	FY 2015-16	FY 2014-15	+/-	FY 2015-16	
1	44	038	I	STA	Admin/Office Mgmt/Monitoring	Overall Program Mgmt/Coord	0.90		0.90	$ 139,471	$ 6,021	$ 145,492	Ib
2	44	046	I	STA	Admin/Program Management	STA Program Administration	2.00		2.00	321,935	13,381	335,316	Ib
3	44	081	I	STA	Air Filtration EPA	Air Filtration EPA/Admn/Impl	0.25		0.25	38,742	1,673	40,414	V
4	44	082	I	STA	Air FItration Other	Air Filtration Other/Admn/Impl	0.50		0.50	77,484	3,345	80,829	XVII
5	44	065	I	STA	Air Quality Data Management	AM Audit/Validation/Reporting	1.00		1.00	154,968	6,690	161,658	II,V,IX
6	26	061	I	PRA	Air Quality Evaluation	Air Quality Evaluation	1.00	0.05	1.05	161,441	11,874	173,315	IX
7	44	063	I	STA	Ambient Air Analysis	Analyze Criteria/Tox/Pollutants	11.91	(4.00)	7.91	1,845,664	(566,950)	1,278,715	II,V,IX
8	44	067	II	STA	Ambient Lead Monitoring	Lead Monitoring/Analysis/Reporting	0.50		0.50	77,484	3,345	80,829	IV
9	44	064	I	STA	Ambient Network	Air Monitoring/Toxics Network	18.85		18.85	3,028,740	126,113	3,154,853	II,IV,V,IX
10	44	079	II	STA	AQ SPEC	AQ SPEC	0.00	3.00	3.00	-	484,974	484,974	XVII
11	44	073	I	STA	Arch Ctgs - Other	Sample Analysis/Rpts	2.00		2.00	309,935	13,381	323,316	XVIII
12	44	084	I	STA	Blk Carbon Stdy EPA	EPA Blck Carbon Climate Study	0.20		0.20	30,994	1,338	32,332	XVII
13	50	210	II	EAC	Emergency Response	Emerg Tech Asst to Public Saf	0.25		0.25	37,433	829	38,262	II,XV
14	44	240	I	STA	Environmental Justice	Implement Environmental Justice	0.45		0.45	69,735	3,011	72,746	II,IX
15	26	439	I	PRA	MATES IV	MATES IV	0.10	(0.10)	0.00	16,144	(16,144)	-	II,IX
16	26	445	I	PRA	Meteorology	ModelDev/Data Analysis/Forecast	2.20	(0.05)	2.15	485,170	(50,287)	434,883	II,V,IX
17	44	468	I	STA	NATTS(Natl Air Tox Trends Sta)	NATTS (Natl Air Tox Trends)	1.50		1.50	232,451	10,036	242,487	II,V,IX
18	44	469	I	STA	Near Roadway Mon	Near Roadway Monitoring	1.50		1.50	232,451	10,036	242,487	IV,V,IX
19	26	530	I	PRA	Photochemical Assessment	Photochemical Assessment	0.25		0.25	40,360	905	41,265	II,V
20	44	530	I	STA	Photochemical Assessment	Photochemical Assess & Monitor	3.00		3.00	464,903	20,071	484,974	V,IX
21	44	505	I	STA	PM Sampling Program (EPA)	PM Sampling Program - Addition	10.60		10.60	1,642,657	70,918	1,713,575	V
22	44	507	I	STA	PM Sampling Spec	PM Sampling Special Events	0.10		0.10	15,497	669	16,166	V
23	44	585	I	STA	Quality Assurance	Quality Assurance Branch	3.00		3.00	464,903	20,071	484,974	II,V,IX
24	44	663	I	STA	Salton Sea Monit	Mon/Analyze Hydrogen Sulfide	0.25		0.25	38741.91	1,673	40,414	XVII
25	44	715	II	STA	Spec Monitoring/Emerg Response	Emergency Response	0.50		0.50	77,484	3,345	80,829	II
26	44	821	II	STA	TraPac Air Filt Prg	Admin/Tech Suppt/Reptg/Monitor	1.00		1.00	154,968	6,690	161,658	XVII
						Total	63.81	(1.10)	62.71	$ 10,159,755	$ 187,007	$ 10,346,762	

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

Operational Support Work Program by Category														
#	Program Code		Goal	Office	Program	Activities	FTEs FY 2014-15	+/-	FTEs FY 2015-16	Proposed Expenditures FY 2014-15	+/-	Proposed Expenditures FY 2015-16	Revenue Category
1	04	045	III	FIN	Admin/Office Budget	Office Budget/Prep/Impl/Track	0.05		0.05	$ 6,704	$ 233	$ 6,937	Ib
2	03	038	III	EO	Admin/Office Management	Budget/Program Management	1.00		1.00	229,807	15,334	245,141	Ib
3	04	038	III	FIN	Admin/Office Management	Fin Mgmt/Oversee Activities	3.00		3.00	402,257	13,970	416,227	Ib
4	08	038	III	LEG	Admin/Office Management	Attorney Timekeeping/Perf Eval	3.50		3.50	702,395	12,110	714,505	Ib
5	16	038	III	AHR	Admin/Office Management	Reports/Proj/Budget/Contracts	2.05	2.40	4.45	354,973	431,395	786,367	Ib
6	27	038	III	IM	Admin/Office Management	Overall Direction/Coord of IM	3.00		3.00	530,354	7,959	538,313	Ib
7	44	052	I	STA	Admin/Prog Mgmt/Mob Src	Admin: Mobile Source	1.80		1.80	278,942	12,043	290,984	Ib
8	04	020	III	FIN	Admin/SCAQMD Budget	Analyze/Prepare/Impl/Track WP	2.50		2.50	335,214	11,642	346,856	Ia
9	04	023	III	FIN	Admin/SCAQMD Capital Assets	FA Rep/Reconcile/Inv/Acct	0.70		0.70	93,860	3,260	97,120	Ia
10	04	021	III	FIN	Admin/SCAQMD Contracts	Contract Admin/Monitor/Process	3.20		3.20	429,074	14,901	443,976	Ia
11	17	024	III	CB	Admin/SCAQMD/GB/HB Mgmt	Admin Governing/Hearing Brds	1.25		1.25	244,263	1,298	245,561	Ia,VII,XV
12	08	025	III	LEG	Admin/SCAQMD-Legal Research	Legal Research/Staff/Exec Mgmt	1.25	(0.05)	1.20	245,498	(4,811)	240,688	Ia
13	27	215	I	IM	Annual Emission Reporting	System Enhancements for GHG	0.50		0.50	88,392	1,326	89,719	II,XVII
14	04	071	I	FIN	Arch Ctgs - Admin	Cost Analysis/Payments	0.04		0.04	5,363	186	5,550	XVIII
15	08	071	I	LEG	Arch Ctgs - Admin	Rule Dev/TA/Reinterpretations	1.40	(0.90)	0.50	274,958	(174,672)	100,286	XVIII
16	27	071	I	IM	Arch Ctgs - Admin	Database Dev/Maintenance	0.25		0.25	44,196	663	44,859	XVIII
17	04	085	III	FIN	Building Corporation	Building Corp Acct/Fin Reports	0.02		0.02	2,682	93	2,775	Ia
18	16	090	III	AHR	Building Maintenance	Repairs & Preventative Maint	7.00		7.00	1,198,278	34,089	1,232,367	Ia
19	16	092	III	AHR	Business Services	Building Services Admin/Contracts	2.40		2.40	409,724	11,688	421,412	Ia
20	04	630	III	FIN	Cash Mgmt/Revenue Receiving	Receive/Post Pymts/Reconcile	5.25		5.25	703,950	24,448	728,397	II,III,IV,XI
21	08	102	II	LEG	CEQA Document Projects	CEQA Review	1.00		1.00	196,399	4,174	200,573	II,III,IX
22	16	226	III	AHR	Classification & Pay	Class & Salary Studies	0.30		0.30	81,215	36,461	117,676	Ia
23	27	160	III	IM	Computer Operations	Oper/Manage Host Computer Sys	5.25		5.25	1,272,970	13,928	1,286,898	Ia
24	27	184	III	IM	Database Information Support	Ad Hoc Reports/Bulk Data Update	1.00		1.00	196,785	2,653	199,438	Ia
25	27	185	III	IM	Database Management	Dev/Maintain Central Database	2.25		2.25	397,766	5,969	403,735	Ia
26	16	225	III	AHR	Employee Benefits	Benefits Analysis/Orient/Records	1.40	0.10	1.50	239,006	24,377	263,382	Ia
27	04	233	III	FIN	Employee Relations	Assist HR/Interpret Salary Res	0.10		0.10	13,409	466	13,874	Ia
28	16	233	III	AHR	Employee Relations	Meet/Confer/Labor-Mgmt/Grievance	2.70	(0.50)	2.20	460,939	(74,646)	386,294	Ia
29	08	227	III	LEG	Employee/Employment Law	Legal Advice: Employment Law	1.00		1.00	196,399	4,174	200,573	Ia
30	16	060	III	AHR	Equal Employment Opportunity	Program Dev/Monitor/Reporting	0.10		0.10	17,072	487	17,559	Ia
31	16	255	III	AHR	Facilities Services	Phones/Space/Keys/Audio-Visual	1.00		1.00	172,718	4,870	177,588	Ia
32	04	265	III	FIN	Financial Mgmt/Accounting	Record Accts Rec & Pay/Rpts	6.20		6.20	871,331	31,871	903,203	Ia
33	04	266	III	FIN	Financial Mgmt/Fin Analysis	Fin/SCAQMD Stat Analysis & Audit	0.80		0.80	107,269	3,725	110,994	Ia
34	04	267	III	FIN	Financial Mgmt/Treasury Mgmt	Treas Mgt Anlyz/Trk/Proj/Invst	0.90		0.90	204,177	4,341	208,518	Ia
35	04	268	III	FIN	Financial Systems	CLASS/Rev/Acct/PR/Sys Analyze	0.10		0.10	13,409	466	13,874	Ia
36	02	275	II	GB	Governing Board	Rep of Dist Meet/Conf/Testimony	0.00		0.00	1,381,217	18,489	1,399,707	Ia
37	08	275	III	LEG	Governing Board	Legal Advice:Attend Board/Cmte Mtgs	1.00		1.00	196,399	4,174	200,573	Ia
38	17	275	III	CB	Governing Board	Attend/Record/Monitor Meetings	1.40		1.40	273,575	1,453	275,028	Ia
39	35	350	III	LPA	Graphic Arts	Graphic Arts	2.00		2.00	311,599	6,839	318,439	Ia
40	27	370	III	IM	Information Technology Svcs	Enhance Oper Effic/Productivity	2.75		2.75	518,908	(2,705)	516,204	Ia
41	26	826	III	PRA	Lead Agency Projects	Rep Employees in Grievance Act	0.01		0.01	1,614	36	1,651	Ia

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

Operational Support
Work Program by Category

#	Program Code		Goal	Office	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Proposed Expenditures FY 2014-15	Proposed Expenditures +/-	Proposed Expenditures FY 2015-16	Revenue Category
42	08	401	III	LEG	Legal Advice/SCAQMD Programs	General Advice: Contracts	2.00		2.00	$ 452,797	$ 8,349	$ 461,146	Ia
43	27	420	III	IM	Library	General Library Svcs/Archives	0.25		0.25	52,546	663	53,209	Ia
44	04	447	I	FIN	Mobile Sources/Accounting	Record Acct Rec & Pay/Special Funds	0.65		0.65	87,156	3,027	90,183	IX
45	27	470	III	IM	Network Operations/Telecomm	Operate/Maintain/Implem SCAQMD	9.25		9.25	1,900,735	78,459	1,979,194	Ia
46	27	480	III	IM	New System Development	Dev sys for special oper needs	3.00		3.00	597,550	7,959	605,509	II,IV
47	04	493	II	FIN	Outreach/SB/MB/DVBE	Outreach/Incr SB/DVBE Partic	0.05		0.05	6,704	233	6,937	Ia
48	04	510	III	FIN	Payroll	Ded/Ret Rpts/PR/St & Fed Rpts	4.60	(1.00)	3.60	660,109	(113,159)	546,950	Ia
49	16	232	III	AHR	Position Control	Track Positions/Workforce Analys	0.55		0.55	93,895	2,678	96,573	Ia
50	04	570	III	FIN	Purchasing	Purch/Track Svcs & Supplies	2.50		2.50	335,214	11,642	346,856	Ia
51	04	571	III	FIN	Purchasing/Receiving	Receive/Record SCAQMD Purchases	1.20		1.20	160,903	5,588	166,491	Ia
52	04	572	III	FIN	Purchasing-Receiving/Stockroom	Track/Monitor SCAQMD Supplies	1.00		1.00	134,086	4,657	138,742	Ia
53	27	615	III	IM	Records Information Mgmt Plan	Plan/Impl/Dir/Records Mgmt plan	1.25		1.25	263,981	12,316	276,297	Ia
54	27	616	III	IM	Records Services	Records/Documents processing	3.75		3.75	797,943	948	798,891	Ia,III,IV
55	16	228	III	AHR	Recruitment & Selection	Recruit Candidates for SCAQMD	3.25		3.25	578,335	15,827	594,161	Ia
56	16	640	III	AHR	Risk Management	Liabl/Property/Wk Comp/SelfIns	1.00		1.00	303,718	(6,130)	297,588	Ia
57	16	026	III	AHR	SCAQMD Mail	Posting/Mailing/Delivery	2.30		2.30	392,652	11,201	403,853	Ia
58	27	736	III	IM	Systems Implementation/PeopleS	Fin/HR PeopleSoft Systems Impl	1.50		1.50	515,177	(246,021)	269,157	Ia
59	27	735	III	IM	Systems Maintenance	Maintain Existing Software Prog	4.50		4.50	1,306,352	5,818	1,312,170	II,III,IV
60	04	805	III	FIN	Training	Continuing Education/Training	0.20		0.20	26,817	931	27,748	Ib
61	26	805	III	PRA	Training	Training	0.05		0.05	8,072	181	8,253	Ib
62	50	805	III	EAC	Training	Dist/Org Unit Training	6.00		6.00	898,392	33,405	931,797	Ib
63	04	825	III	FIN	Union Negotiations	Official Labor/Mgmt Negotiate	0.02		0.02	2,682	93	2,775	Ia
64	08	825	III	LEG	Union Negotiations	Legal Adv: Union Negotiations	0.05		0.05	9,820	209	10,029	Ia
65	26	825	III	PRA	Union Negotiations	Official Labor/Mgmt Negotiate	0.01		0.01	1,614	36	1,651	Ia
66	35	825	III	LPA	Union Negotiations	Official Labor/Mgmt Negotiate	0.01		0.01	1,558	34	1,592	Ia
67	44	825	III	STA	Union Negotiations	Labor/Mgmt Negotiations	0.05		0.05	7,748	335	8,083	Ia
68	50	825	III	EAC	Union Negotiations	Official Labor/Mgmt Negotiate	0.10		0.10	14,973	332	15,305	Ia
69	04	826	III	FIN	Union Steward Activities	Rep Employees in Grievance Act	0.01		0.01	1,341	47	1,387	Ia
70	08	826	III	LEG	Union Steward Activities	Rep Employees in Grievance Act	0.05		0.05	9,820	209	10,029	Ia
71	35	826	III	LPA	Union Steward Activities	Union Steward Activities	0.01		0.01	1,558	34	1,592	Ia
72	44	826	III	STA	Union Steward Activities	Rep Employees in Grievance Act	0.05		0.05	7,748	335	8,083	Ia
73	50	826	III	EAC	Union Steward Activities	Rep Employees in Grievance Act	0.10		0.10	14,973	332	15,305	Ia
74	03	855	II	EO	Web Tasks	Create/edit/review web content	0.03		0.03	6,894	460	7,354	Ia
75	04	855	II	FIN	Web Tasks	Create/edit/review web content	0.02		0.02	2,682	93	2,775	Ia
76	20	855	II	MO	Web Tasks	Create/edit/review web content	0.04		0.04	6,055	455	6,510	Ia
77	26	855	II	PRA	Web Tasks	Create/edit/review web content	0.10		0.10	16,144	362	16,506	Ia
78	27	855	II	IM	Web Tasks	Create/edit/review web content	3.25		3.25	606,051	262,922	868,973	Ia
79	35	855	II	LPA	Web Tasks	Create/edit/review web content	0.40		0.40	62,320	1,368	63,688	Ia
80	50	855	II	EAC	Web Tasks	Creation/Update of Web Content	0.50		0.50	74,866	1,659	76,525	Ia
						Total	125.07	0.05	125.12	$ 24,127,044	$ 616,642	$ 24,743,686	

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

Timely Review of Permits
Work Program by Category

#	Program Code		Goal	Office	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Proposed Expenditures FY 2014-15	Proposed Expenditures +/-	Proposed Expenditures FY 2015-16	Revenue Category
1	26	040	I	PRA	Admin/Office Mgmt/AQ Impl	Admin/Modeling/New Legis/Sm Sr	0.42		0.42	$ 67,805	$ 1,521	$ 69,326	Ib
2	26	044	I	PRA	Admin/Office Mgmt/Permit & Fee	Admin: Resolve Perm/Fee Issues	0.10		0.10	16,144	362	16,506	Ib
3	26	120	I	PRA	Certification/Registration Pro	Certification/Registration Prog	1.80		1.80	290,593	6,518	297,111	III
4	50	253	I	EAC	ERC Appl Processing	Process ERC Applications	3.50		3.50	524,062	11,611	535,673	III
5	50	367	I	EAC	Hearing Board/Appeals	Appeals: Permits & Denials	0.50		0.50	74,866	1,659	76,525	III
6	50	476	I	EAC	NSR Data Clean Up	Edit/Update NSR Data	0.50		0.50	74,866	1,659	76,525	II
7	50	475	I	EAC	NSR Implementation	Implement NSR/Allocate ERCs	2.50		2.50	374,330	8,294	382,624	II,III,V,XV
8	50	521	I	EAC	Perm Proc/Expedited Permit	Proc Expedited Permits (301OT)	0.50		0.50	74,866	1,659	76,525	III
9	50	728	I	EAC	Perm Proc/IM Programming	Assist IM: Design/Review/Test	2.00		2.00	299,464	6,635	306,099	II,III,IV
10	50	515	I	EAC	Perm Proc/Non TV/Non RECLAIM	PP: Non TitlV/TitlIII/RECLAIM	55.30		55.30	8,380,182	155,956	8,536,138	III,XV
11	50	519	I	EAC	Perm Proc/Title III (Non TV)	Process Title III Permits	1.00		1.00	149,732	3,317	153,050	III
12	26	461	I	PRA	Permit & CEQA Modeling Review	Review Model Permit/Risk Assmt	1.50		1.50	262,161	35,431	297,592	III
13	08	516	I	LEG	Permit Processing/Legal	Legal Advice: Permit Processing	0.15		0.15	29,460	626	30,086	III
14	44	725	I	STA	Permit Processing/Support EAC	Assist EAC w/ Permit Process	0.05		0.05	7,748	335	8,083	III
15	50	517	I	EAC	Permit Services	Facility Data-Create/Edit	12.50		12.50	1,871,651	41,468	1,913,119	III,XV
16	27	523	III	IM	Permit Streamlining	Permit Streamlining	0.25		0.25	44,196	663	44,859	III
17	50	523	I	EAC	Permit Streamlining	Permit Streamlining	3.75		3.75	561,495	12,440	573,936	III
18	44	545	I	STA	Protocols/Reports/Plans	Eval Test Protocols/Cust Svc	0.10		0.10	15,497	669	16,166	III,IV
19	44	546	I	STA	Protocols/Reports/Plans	Eval Test Protocols/Compliance	6.15		6.15	953,051	41,146	994,197	IV,VI
20	50	607	I	EAC	RECLAIM & Title V	Process RECLAIM & TV Permits	12.40		12.40	1,856,677	41,137	1,897,814	III
21	50	518	I	EAC	RECLAIM Non-Title V	Process RECLAIM Only Permits	4.50		4.50	673,794	14,929	688,723	III,IV,XV
22	26	643	I	PRA	Rule 222 Filing Program	Rule 222 Filing Program	0.20		0.20	82,288	724	83,012	IV
23	35	680	I	LPA	Small Business/Permit Streamln	Asst sm bus to comply/SCAQMD req	3.95		3.95	615,408	13,508	628,916	II,III,IV,V,XV
24	27	770	I	IM	Title V	Dev/Maintain Title V Program	1.00		1.00	176,785	2,653	179,438	III
25	50	775	I	EAC	Title V – Admin	Title V Administration	1.00		1.00	149,732	3,317	153,050	III
26	08	772	I	LEG	Title V Permits	Leg Advice: New Source Title V Permit	0.05		0.05	9,820	209	10,029	III
27	50	774	I	EAC	TV/Non-RECLAIM	Process Title V Only Permits	18.00		18.00	2,695,177	59,714	2,754,891	III
						Total	133.67	0.00	133.67	$ 20,331,852	$ 468,158	$ 20,800,011	

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

Policy Support
Work Program by Category

#	Program Code		Goal	Office	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Proposed Expenditures FY 2014-15	Proposed Expenditures +/-	Proposed Expenditures FY 2015-16	Revenue Category
1	44	041	I	STA	Admin/Office Mgmt/Policy Supp	Overall Policy Supp/Mgmt/Coord	0.49		0.49	$ 75,934	$ 3,278	$ 79,212	Ib
2	26	048	I	PRA	Admin/Prog Mgmt/Policy	Admin: GB/Committee Support	1.00		1.00	161,441	3,621	165,062	Ib
3	26	277	I	PRA	Advisory Group/AQMP	Governing Board AQMP Advisory Group	0.05		0.05	8,072	181	8,253	II,IX
4	35	280	I	LPA	Advisory Group/Ethnic Comm	GB Ethnic Comm Advisory Group	0.40		0.40	62,320	1,368	63,688	II,IX
5	03	276	III	EO	Advisory Group/Governing Board	Governing Board Advisory Group	0.05		0.05	11,490	767	12,257	Ia
6	26	276	I	PRA	Advisory Group/Home Rule	Governing Board Advisory Group	0.30		0.30	48,432	1,086	49,518	Ia
7	26	278	I	PRA	Advisory Group/Sci,Tech,Model	Scientific/Tech/Model Peer Rev	0.05	0.10	0.15	8,072	16,687	24,759	II,IX
8	35	281	I	LPA	Advisory Group/Small Business	SBA Advisory Group Staff Support	0.50		0.50	77,900	1,710	79,610	IV,IX
9	44	276	I	STA	Advisory Group/Technology Adva	Tech Adv Advisory Group Supp	0.10		0.10	15,497	669	16,166	VIII
10	03	078	II	EO	Asthma & Outdoor AQ Consortium	Asthma & Outdoor AQ Consortium	0.01		0.01	2,298	153	2,451	Ia
11	50	276	I	EAC	Board Committees	Admin/Stationary Source Committees	0.25		0.25	37,433	829	38,262	Ia
12	26	083	II	PRA	Brain Tumor & Air Poll Fdn	Brain Tumor & Air Poll Foundation Support	0.10		0.10	16,144	362	16,506	Ia,II,IV
13	03	083	II	EO	Brain Tumor & Air Poll Foundat	Brain Tumor & Air Poll Foundation Support	0.03		0.03	6,894	460	7,354	Ia
14	04	083	II	FIN	Brain Tumor & Air Poll Foundat	Brain Tumor & Air Poll Foundation Support	0.02		0.02	2,682	93	2,775	Ia
15	26	148	I	PRA	Climate Change	GHG/Climate Change Policy Development	1.10		1.10	177,585	28,983	206,568	IV,XVII
16	50	148	I	EAC	Climate Change	GHG/Climate Change Support	0.50		0.50	74,866	1,659	76,525	II,IX
17	26	240	I	PRA	EJ-AQ Guidance Document	AQ Guidance Document	0.23		0.23	37,131	833	37,964	II,IX
18	35	345	II	LPA	Goods Mvmt&Financial Incentive	Goods Movement & Financial Incentives Progr	1.00		1.00	155,800	3,420	159,219	IX
19	03	275	I	EO	Governing Board	Board/Committee Support	1.60		1.60	367,691	24,534	392,226	Ia
20	35	283	I	LPA	Governing Board Policy	Brd sup/Respond to GB req	0.55		0.55	85,690	1,881	87,571	Ia
21	03	381	I	EO	Interagency Liaison	Local/State/Fed Coord/Interact	0.40		0.40	91,923	6,134	98,056	Ia,IX
22	03	410	I	EO	Legislation	Testimony/Mtgs:New/Current Leg	0.50		0.50	114,904	7,667	122,571	Ia,IX
23	44	410	I	STA	Legislation	Support Pollution Reduction thru Legislatio	0.50		0.50	77,484	3,345	80,829	IX
24	35	413	I	LPA	Legislation/Exec Office Suppor	Coord Legis w/ EO, EC, Mgmt	0.25		0.25	38,950	855	39,805	Ia
25	35	412	I	LPA	Legislation/Federal	Lobbying/Analyses/Tracking/Out	0.25		0.25	479,550	855	480,405	Ia
26	35	414	I	LPA	Legislation-Effects	Lobbying/Analyses/Tracking/Out	0.80		0.80	134,640	2,736	137,375	Ia,IX
27	03	416	I	EO	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.05		0.05	11,490	767	12,257	Ia
28	08	416	I	LEG	Legislative Activities	Lobbying: Supp/Promote/Influence legis/Adm	0.10		0.10	19,640	417	20,057	Ia
29	26	416	I	PRA	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.10		0.10	16,144	362	16,506	Ia
30	35	416	I	LPA	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.50		0.50	442,900	1,710	444,610	Ia
31	50	416	I	EAC	Legislative Activities	Legislative Activities	0.25		0.25	37,433	829	38,262	Ia
32	44	454	I	STA	Mob Src:Greenhs Gas Reduc Meas	Provide comments on mob src portion of AB32	1.39	(0.50)	0.89	215,405	(71,529)	143,876	XVII
33	35	494	I	LPA	Outreach/Collateral Developmen	Edits,Brds,Talk shows,Commercl	0.60		0.60	180,596	2,052	182,648	Ia
34	20	494	II	MO	Outreach/Media	Edits,Brds,Talk shows,Commercl	2.96		2.96	477,070	33,665	510,735	Ia,IX
35	03	717	III	EO	Student Interns	Gov Board/Student Intern Program	0.02		0.02	4,596	307	4,903	Ia
36	08	717	II	LEG	Student Interns	Gov Board/Student Intern Program	0.20		0.20	39,280	835	40,115	Ia
37	16	717	II	AHR	Student Interns	Gov Board/Student Intern Program	0.20		0.20	34,144	974	35,118	Ia
38	26	717	II	PRA	Student Interns	Gov Bd/Student Intern Program	0.01		0.01	1,614	36	1,651	Ia
39	35	717	II	LPA	Student Interns	Student Interns	0.10		0.10	15,580	342	15,922	Ia
						Total	17.51	(0.40)	17.11	$ 3,866,713	$ 84,933	$ 3,951,646	
						Total SCAQMD	798.00	5.00	803.00	$ 132,220,074	$ 4,997,726	$ 137,217,800	

A prorated share of the District General budget has been allocated to each line in the workplan based on the number of FTEs reflected on the line.

WORK PROGRAM GLOSSARY

Below are descriptions of the activities related to the Work Program.

AB 1318 Mitigation - an eligible electrical generating facility shall pay mitigation fees for the transfer of emission credits from SCAQMD's internal emission credit accounts. Mitigation fees shall be used to finance emission reduction projects, pursuant to the requirements of AB 1318.

AB 2766 (Mobile Sources, MSRC) **-** programs funded from motor vehicle registration revenues. The activities include: evaluation, monitoring, technical assistance, and tracking of AB2766 Subvention Fund Program progress reports including cost-effectiveness and emissions reductions achieved; supporting programs implemented by the Mobile Source Review Committee (MSRC); disbursing and accounting for revenues subvened to local governments; and performing SCAQMD activities related to reduction of emissions from mobile sources.

Acid Rain Program - developing and implementing the Continuous Emissions Monitoring Program in compliance with 40 CFR Part 75 of the Clean Air Act.

Administration/SCAQMD - supporting the administration of the SCAQMD. Examples are tracking fixed assets, operating the mailroom, preparing and reviewing contracts, conducting oversight of SCAQMD activities, developing District-wide policies and procedures, preparing the SCAQMD budget, providing legal advice on SCAQMD programs and other activities, and performing activities in support of the SCAQMD as a whole.

Admin/SCAQMD Capital Assets (Asset Management) – tracking of acquisitions, disposals/retirements and reconciliation of capital assets to the capital outlay account, and conducting annual lab and biennial asset inventories.

Administration/Office Management - supporting the administration of an organizational unit or a unit within a division. This includes such items as preparing organizational unit budgets, tracking programs, providing overall direction and coordination of the office, providing program management and integration, preparing policies and procedures manuals, and preparing special studies and projects.

Advisory Group – providing support to various groups such as: AQMP (Air Quality Management Plan), Environmental Justice, Home Rule, Local Government and Small Business Assistance, Technology Advancement, and Permit Streamlining Task Force.

AER (Air Emission Reporting Program) Public Assistance – providing public assistance in implementing SCAQMD's AER program by conducting workshops, resolving fee-related issues, and responding to questions.

Air Filtration - installation of high-efficiency air filtration devices in schools with the goal of reducing children's exposure to particulate matter in the classroom.

WORK PROGRAM GLOSSARY

Air Monitoring (Ambient Air Analysis, Ambient Network, Audit, Data Reporting, Special Monitoring) - monitoring the ambient air in the SCAQMD's jurisdiction. This includes operating the SCAQMD's air monitoring network and localized monitoring at landfill sites as well as conducting specialized monitoring in response to public nuisance situations. Also see Special Monitoring.

Air Quality Evaluation - analyzing air quality trends and preparing the RFP (Reasonable Further Progress) report.

Ambient Air Analysis/Ambient Network (Audit, Data Reporting, Special Monitoring) – complying with Federal regulations to monitor air quality for criteria pollutants at air monitoring stations to determine progress toward meeting the federal ambient air quality standards. This includes operating the SCAQMD's air monitoring network and localized monitoring at landfill sites as well as conducting specialized monitoring in response to public nuisance situations. SCAQMD monitoring stations also collect samples which are analyzed by SCAQMD's laboratory. Also see Special Monitoring.

Ambient Lead Monitoring – maintain the current ambient lead monitoring network to meet federal monitoring requirements.

Annual Emission Reporting (AER) – implementing the AER Program and tracking actual emissions reported by facilities, conducting audits of data, handling refunds, and preparing inventories and various reports.

AQIP Evaluation – provides incentive funding for projects to meet VOC, NOx, and CO emission targets with funds generated from companies who pay fees in lieu of carpool programs. Projects are funded through a semi-annual solicitation process.

AQMP (Air Quality Management Plan) – Management Plan for the South Coast Air Basin and the Interagency AQMP Implementation Committee.

Air Quality Sensor Performance Evaluation Center (AQ-SPEC) - program to test commercially available, low-cost air quality sensors.

Architectural Coatings (Admin, End User, Other) – Rule 314 requires architectural coatings manufacturers which distribute or sell their manufactured architectural coatings into or within the SCAQMD for use in the SCAQMD to submit an Annual Quantity and Emissions Report. To recover the cost of the program, a fee is assessed to these manufacturers. The fee is based on the quantity of coatings as well as the cumulative emissions from the quantity of coatings distributed or sold for use in the SCAQMD.

Area Sources/Compliance – developing rules and compliance programs, as well as alternatives to traditional permitting for smaller sources of emissions of VOC and NOx.

WORK PROGRAM GLOSSARY

Asthma and Outdoor Air Quality Consortium – a group composed of researchers from local universities with air pollution and respiratory disease expertise that conducts research projects relating to asthma and air quality.

Auto Services - maintaining the SCAQMD's fleet of automobiles, trucks, and vans as well as providing messenger services as needed.

Billing Services - administering the SCAQMD's permit billing system, responding to inquiries, and resolving problems related to fees billed.

Black Carbon Study – analyzing black carbon emissions in the Basin to determine climate implications that may be used within the AB 32 climate programs and in other air districts.

Board Committees - participation in Governing Board committees by preparing materials, presenting information on significant or new programs and providing technical expertise.

Brain & Lung Tumor & Air Pollution Foundation – foundation established to support research on the relationship between air pollution and brain tumors. The demographic, behavioral, and genetic factors in patients with brain tumors in the Los Angeles area are being studied to determine any potential impact that air pollution may have on brain tumor incidence.

Building Corporation - managing the South Coast Air Quality Management District Building Corporation. The Building Corporation issued Installment Sale Revenue Bonds in conjunction with the construction of the SCAQMD's Diamond Bar headquarters facility.

Building Maintenance - maintaining and repairing the Diamond Bar Headquarters facility and SCAQMD air monitoring sites.

Business Services – overseeing operation of Facilities Services, Automotive Services, Print Shop and Mail/Subscriptions Services; negotiating and administering Diamond Bar facility, Long Beach Office, and air monitoring station lease agreements.

California Natural Gas Vehicle Partnership – strategic, non-binding partnership formed to work together in developing and deploying natural gas vehicles and implementing a statewide natural gas infrastructure.

Call Center (Central Operator, CUT-SMOG, Field Support) - operating the 24-hour radio communication system via telephone between SCAQMD headquarters and the public.

WORK PROGRAM GLOSSARY

CARB PERP (Portable Equipment Registration Program) Program – A program established by CARB allowing the operation of portable equipment in any air district throughout the state without individual local district permits. Amended to enhance enforceability and expand CARB's requirements for portable engines and equipment units, creating a more comprehensive and inclusive statewide registration program that now provides for triennial inspection and renewal of PERP registration.

Carl Moyer Program – provides incentive funding for the repower, replacement, or purchase of new heavy-duty vehicles and equipment beyond the emission limits mandated by regulations. Awards are granted through an annual solicitation process. Separate program announcements are also issued for pre-1990 diesel Class 7 or 8 truck fleet and ports truck fleet modernization programs. Also see Mobile Sources.

Case Disposition - resolving Notices of Violation (NOV) issued by SCAQMD inspectors. This includes preparing both civil and criminal cases and administering SCAQMD's Mutual Settlement Letter Program.

Cash Management (Revenue Receiving, Refunds) – receiving revenue, posting of payments, processing of refunds associated with SCAQMD programs, and bank and cash reconciliations.

CEMS Certification (Continuous Emissions Monitoring System) - evaluating, approving, and certifying the continuous emissions monitoring systems installed on emissions sources to ensure compliance with SCAQMD rules and permit conditions.

CEQA Document Projects/Special Projects (California Environmental Quality Act) - reviewing, preparing, assessing, and commenting on projects which have potential air quality impacts.

Certification/Registration Program – Manufacturers can voluntarily apply to have standard, off-the-shelf equipment certified by SCAQMD to ensure that it meets all applicable requirements.

Classification and Pay – maintaining the classification plan and conducting job analyses to ensure SCAQMD positions are allocated to the proper class, and conducting compensation studies to ensure classes are appropriately compensated and salaries remain competitive in the workforce.

Clean Air Connections – increase awareness of air quality issues and SCAQMD's programs and goals by developing and nurturing a region-wide group of community members with an interest in air quality issues.

Clean Communities Plan (CCP) – an update to the 2000 Air Toxics Control Plan (ATCP) and the 2004 Addendum. The objective of the 2010 CCP is to reduce the exposure to air toxics and air-related nuisances throughout the district, with emphasis on cumulative impacts.

Clean Fuels Program (Contract Admin, Legal Advice, Mobile Sources, Stationary Combust/Energy, Tech Transfer) **–** accelerate the development and deployment of advanced, low emission technologies, including, but not limited to electric, hydrogen, and plug-in hybrid electric vehicles, low emission heavy-duty engines, after treatment for off-road construction equipment and identification of tailpipe emissions from biofuels.

Climate Change – developing and evaluating policy and strategy related to local, state, federal and international efforts on climate change. Seek to maximize synergies for criteria and toxic reduction and minimize and negative impacts.

Compliance (Guidelines, Testing, IM Related Activities, NOV Admin, Special Projects) **–** ensuring compliance of clean air rules and regulations through regular inspection of equipment and facilities, as well as responding to air quality complaints made by the general public.

Compliance/Notice of Violation (NOV) Administration – NOV processing and review for preparation for assignment to Mutual Settlement Agreement, Civil, or Criminal handling.

Computer Operations - operating and managing the SCAQMD's computer resources. These resources support the SCAQMD's business processes, air quality data, and modeling activities and the air monitoring telemetry system. Also see Systems Maintenance.

Conformity - reviewing of federal guidance and providing input on conformity analysis for the Regional Transportation Improvement Program (RTIP). Staff also participates in various Southern California Association of Governments (SCAG) meetings, the Statewide Conformity Working group, and other meetings to address conformity implementation issues. Staff participates in the federal Conformity Rule revision process, and monitors and updates Rule 1902, Transportation Conformity, as needed.

Credit Generation Programs (Intercredit Trading) – rulemaking and developing and implementing a program that expands emission credit trading by linking the SCAQMD's stationary and mobile source credit markets.

Criteria Pollutants/Mobile Sources – coordinating the implementation of the AQMP and conducts feasibility studies for mobile source categories; developing control measures and amended rules as warranted.

1-800-CUT-SMOG - See Call Center.

Database Information Support – day-to-day supporting of ad hoc reports and bulk data updates required from SCAQMD's enterprise databases.

Database Management - developing and supporting the data architecture framework, data modeling, database services, and the ongoing administration of SCAQMD's central information repository.

DB/Computerization – developing laboratory instrument computer systems for data handling and control, evaluating the quality of the stored information, and further development and maintenance of the Source Test Information Management System (STIMS).

DERA (Diesel Emission Reduction Act) School Bus Replacement – an EPA funded project to replace diesel school buses with Compressed Natural Gas (CNG) and electric buses.

DERA (Diesel Emission Reduction Act) FY 13 Vehicle Replacement – an EPA funded project to replace on-road medium-duty diesel trucks with battery electric trucks.

District Prosecutor Support – see Legal

Economic Development/Business Retention – meeting with various governmental agencies to assist company expansion or retention in the Basin.

EJ-AQ Guidance Document – providing outreach to local governments as they update their general plans and make land use decisions. Providing updates to the reference document titled Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning."

Emergency Response - responding to emergency air pollution (toxic) incidents, providing air quality monitoring support to local authorities.

Emission Reduction Credit Application Processing – processing applications for Emission Reduction Credits (ERC).

Emissions Field Audit – conducting field audits at facilities that have reported through Annual Emissions Reporting (AER) to ensure accurate emission reporting and improve the program.

Emissions Inventory Studies – developing major point source emissions data and area source emissions inventory, updating emissions factors, developing and updating control factors, performing special studies to improve emission data, and responding to public inquiries regarding emission data.

Employee Benefits – administering SCAQMD's benefit plans, including medical, dental, vision, and life insurance, as well as State Disability Insurance, Section 125 cafeteria plan, Long Term Care and Long Term Disability plans, Section 457 deferred compensation plan, and COBRA program.

Employee Relations – managing the collective bargaining process, administering MOU's, preparing disciplinary documents, and administering SCAQMD's performance appraisal program, Family and Medical Leave Act (FMLA) requests, tuition reimbursement, and outside training requests.

WORK PROGRAM GLOSSARY

Employee/Employment Law –handling legal issues dealing with employment law with coordination with outside counsel.

Enforcement Litigation – staff attorneys pursue enforcement litigation including actions for civil penalties or injunctions when violations have not been settled or circumstances otherwise dictate.

Environmental Education - informing and educating young people about air pollution and their role in bringing clean air to the basin.

Environmental Justice (EJ) **-** a strategy for equitable environmental policymaking and enforcement to protect the health of all persons who live or work in the South Coast District from the health effects of air pollution regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location. The Environmental Justice Initiatives help to identify and address potential areas where citizens may be disproportionately impacted by air pollutants and ensure clean air benefits are afforded to all citizens and communities of the region.

Equal Employment Opportunity – ensuring non-discrimination and equal employment for employees and applicants through broad-based, targeted advertising; training interviewers to ensure fairness in evaluating candidates; ensuring that selection processes and testing instruments are appropriate and job-related; coaching supervisors and managers regarding hiring processes; and gathering data and preparing related staffing reports.

Facilities Services – monitoring service contracts, supporting tenants, overseeing conference center use, administering identification badges, building access control, and key/lock systems, and workspace planning.

Fee Review – activities relating to conducting Fee Review Committee hearings for businesses that contest SCAQMD fees (Rule 313).

Financial Management (Accounting, Financial Analyses, Treasury Management, Systems) - managing the financial aspects of the SCAQMD. This includes SCAQMD's cash management, investment, and accounting programs, and program and financial audits. It also includes maintaining SCAQMD's permit-related financial and accounting records as well as maintaining and enhancing SCAQMD's payroll and accounting systems.

Goods Movement and Financial Incentives –programs to evaluate the air quality issues associated with goods movement and traffic congestion, and for the identification of financial incentives for expedited facility modernization and diesel engine conversion.

Governing Board (Policy) – supporting the operation of the Governing Board and advisory groups of the SCAQMD. These activities range from preparing the agenda and minutes to providing support services, legal advice, speeches, letters, and conference coordination.

Grants Management - coordinating, negotiating, monitoring, accounting, and reporting of the SCAQMD's air pollution program and financial activities relating to grants, including EPA, DOE, CEC, DHS grants, and the CARB Subvention.

Graphics Arts - designing and producing presentation materials and SCAQMD publications.

Green House Gas Reporting - many of the businesses and facilities within SCAQMD's jurisdiction are required to report their GHG emissions to CARB under the regulation for Mandatory Reporting of Greenhouse Gases (state) and, beginning in 2011, to the U.S. EPA under their Mandatory Reporting Rule (federal).

Health Effects – conducting research and analyzing the health effects of air pollutants and assessing the health implications of pollutant reduction strategies; working with industry, trade associations, environmental groups, CARB and EPA and providing information to concerned citizens.

Hearing Board (Variances, Abatement Orders, Appeals, Legal) – supporting operation of the SCAQMD's Hearing Board. These activities include accepting petitions filed; preparation and distribution of notices; preparation of minute orders, findings, and decisions of the Board; collection of fees; and general clerical support for the Board.

Information Technology Services - implementing new information technologies to enhance operational efficiency and productivity. Examples include developing workflow applications, training and supporting computer end users, and migrating network operating systems.

Inspections - inspecting facilities and equipment that emit or have the potential to emit air pollutants.

Inspections/RECLAIM Audits – conducting RECLAIM inspections and audits at facilities subject to Regulation XX (RECLAIM).

Interagency Coordination/Liaison - interacting with state, local, and federal control agencies and governmental entities.

Intergovernmental/Geographic Deployment - influencing local policy development and implementing a local government clean air program.

Lawnmower Exchange – residents of the South Coast Air Basin may trade in their gas-powered lawnmower and purchase a new zero-emission, battery electric lawnmower at a significant discount.

Lead Agency Projects – SCAQMD permitting and rule development projects where a CEQA document is prepared and the SCAQMD is the lead agency.

WORK PROGRAM GLOSSARY

Legal (Advice, District Prosecutor Support, Representation, Legislation, Liability Defense) - providing legal support to SCAQMD in the areas of liability defense, writs of mandate, injunctions, and public hearings. This activity also includes reviewing contracts, and advising staff on rules, fees and other governmental issues.

Legislation (Annual Reports, State, Federal, Legislative Activity) - drafting new legislation, analyzing and tracking proposed legislation, and developing position recommendations on legislation which impacts air quality.

Library - acquiring and maintaining reference materials and documentation that support the SCAQMD's programs.

Lobby Permit Services – providing information and support to applicants to expedite permit processing. Includes consolidating forms, prescreening review for completeness of applications, providing internet access of certain forms, and providing "over-the-counter" permits in the lobby of the SCAQMD's Diamond Bar headquarters.

MATES IV (Multiple Air Toxics Exposure Study) – a follow-up to a previous air toxics study that characterizes the concentration of airborne toxic compounds within the South Coast Air Basin and to determine the Basin-wide risks associated with major airborne carcinogens. An additional focus of MATES IV is the inclusion of measurements of ultrafine particle concentrations.

Meteorology - modeling, characterizing, and analyzing both meteorological and air quality data to produce the SCAQMD's daily air quality forecast.

Microscopical Analysis - analyzing, identifying, and quantifying asbestos for compliance with SCAQMD, state, and federal regulations.

Mobile Sources (SCAQMD Rulemaking, Carl Moyer, CARB/EPA and CEC/US DOE monitoring, Emission Incentive Method, Greenhouse Gas Reduction Measures, Strategies (Off Road, Control, Accounting,) - transportation monitoring, strategies, control measures, demonstration projects, the Mobile Source Air Pollution Reduction Review Committee (MSRC), implementation of Fleet Rules, High Emitter Repair & Scrappage Program, and locomotive remote sensing.

Mobile Source and AQMP (Air Quality Management Plan) Control Strategies – provide technical assistance on the mobile source element of the AQMP.

Moyer Program – see Carl Moyer Program

Mutual Settlement Program - resolving civil penalties without court intervention; this program is a mechanism to resolve violations and avoid criminal proceedings.

National Air Toxics Trends Stations (NATTS) – through EPA funding, two sites in the monitoring network are utilized to collect ambient VOC and particulate samples. Samples are analyzed by the SCAQMD lab and reported to EPA where the data is used to determine toxic trends.

Near Roadway (NO_2) Monitoring – federal monitoring requirement that calls for state and local air monitoring agencies to install near-road NO_2 monitoring stations at locations where peak hourly NO_2 concentrations are expected to occur within the near-road environment in larger urban areas.

Network Operations/Telecommunications – installing, maintaining, and providing operational support of the SCAQMD's PC, voice, data, image, and radio networks; planning, designing, and implementing new network systems or services in response to the SCAQMD's communications and business needs; and providing training, support, and application development services for end-users of voice and PC systems.

New Systems Development – providing support for major computer systems development efforts.

New Source Review (NSR) (Data Clean-up, Implementation, Modeling Permit Review, Rulemaking) - developing and implementing New Source Review rules; designing, implementing, and maintaining the Emission Reduction Credits and the New Source Review programs. These programs streamline the evaluation of permit renewal and emissions reporting.

Outreach (Business, Media, Visiting Dignitary) - increasing public awareness of the SCAQMD's programs, goals, permit requirements, and employment opportunities; interacting, providing technical assistance, and acting as liaison between SCAQMD staff and various sectors of the private industry, local governments, and small businesses.

Outreach Media/Communications - monitoring local and national press accounts, both print and broadcast media, to assess SCAQMD's outreach and public opinion on SCAQMD rules and activities. This also includes responding to media calls for informational background material on SCAQMD news stories.

Payroll - paying salaries and benefits to SCAQMD employees, withholding and remitting applicable taxes, and issuing W2s.

Permit Processing NSR, (RECLAIM, Non RECLAIM, Title V, Title III, Pre-Application, Services, Expedited, IM Processing, CEQA Modeling Review, Legal, Support EAC, Expired) - inspecting, evaluating, auditing, analyzing, reviewing and preparing final approval or denial to operate equipment which may emit or control air contaminants.

Permit Streamlining – activities relating to reducing organizational costs and streamlining regulatory and permit requirements on businesses.

Photochemical Assessment Monitoring Systems (PAMS) - promulgating PAMS (a federal regulation), which requires continuous ambient monitoring of speciated hydrocarbons during smog season. Through EPA funding, ozone precursors are measured at seven stations and samples are collected.

Plug-in Hybrid EV DOE ARRA – implementing/administering the Department of Energy (DOE) American Recovery and Reinvestment Act (ARRA) Plug-in Hybrid Electric (PHE) Medium Duty Commercial Fleet Demonstration and Evaluation Program.

PM Sampling Program (EPA) – daily collection of particulate samples

PM Monitoring/Strategies Programs ($PM_{2.5}$, PM_{10}, $PM_{10-2.5}$) **–** planning and developing rules related to $PM_{2.5}$, PM_{10}, and $PM_{10-2.5}$. Obtaining measurements of particulates at air monitoring stations throughout the South Coast Air Basin (Basin). Measurements are made for Total Suspended Particulate lead, PM_{10}, and $PM_{2.5}$ using federal reference methods (FRM) to determine compliance with state and federal air quality standards.

Port Community Air Quality Enforcement/I-710 Monitoring - inspecting and auditing marine vessels in the Rule 1631 pilot credit generation program. These oversight activities will help ensure the credit generation program produces real, quantified, and enforceable emissions reductions. Measurements including air toxics and criteria pollutants collected to determine impact of port activities on air quality near the ports and surrounding communities.

Port of Long Beach (POLB) Advanced Maritime Emission Control System (AMECS) Demo – funded by the Port of Long Beach, the proposed project will assess the performance and effectiveness of a barge-mounted emission control system to capture and treat hotelling emissions form ocean going vessels (OGV) at berth at the Port of Long Beach.

Portable Equipment Registration Program (PERP) – see CARB PERP Program.

Position Control – tracking Board-authorized positions and SCAQMD workforce utilization, processing personnel transactions for use by Payroll, and preparing reports regarding employee status, personnel transactions, and vacant positions.

PR 2301 ISR Rule Implementation– developing and implementing rules to mitigate emissions growth from new and redevelopment projects; the scope of the rule will include the reduction of emissions related to residential, commercial and industrial projects.

Print Shop – prioritizing, coordinating, and performing in-house printing jobs and contracting outside printing/binding services when necessary.

Proposition 1B - providing incentive funding for goods movement and lower emission school bus projects with funds approved by voters in November 2006.

Protocols/Reports/Plans/LAP - evaluating and approving protocols, source testing plans and reports submitted by regulated facilities as required by SCAQMD rules and permit conditions, New Source Review, state and federal regulations; and evaluating the capabilities of source test laboratories under the Laboratory Approval Program (LAP).

Public Complaints/Breakdowns - responding to air pollution complaints about odors, smoke, dust, paint overspray, or companies operating out of compliance; responding to industry notifications of equipment breakdowns, possibly resulting in emission exceedances.

Public Education/Public Events – implementing community events and programs to increase the public's understanding of air pollution and their role in improving air quality.

Public Information Center - notifying schools and large employers of predicted and current air quality conditions on a daily basis and providing the public with printed SCAQMD information materials.

Public Notification – providing timely and adequate notification to the public of SCAQMD rulemaking workshops and public hearing, proposed rules, upcoming compliance dates, and projects of interest to the public.

Public Records Act - providing information to the public as requested and as required by Government Code, Section 6254.

Purchasing (Receiving, Stockroom) - procuring services and supplies necessary to carry out SCAQMD programs.

Quality Assurance – assuring the data quality from the Monitoring and Analysis Division meets or exceeds state and federal standards and also assuring the appropriateness of the data for supporting SCAQMD regulatory, scientific and administrative decisions.

RECLAIM/Admin Support – developing and implementing rules, and monitoring of emissions of the REgional CLean Air Incentives Market (RECLAIM) program, a market incentives trading program designed to help achieve federal and state ambient air quality standards in a cost-effective manner with minimal impacts to jobs or public health. Also see Permit Processing.

RECLAIM and Title V – permit processing of applications form facilities that are both RECLAIM and Title V.

RECLAIM Non-Title V – permit processing of applications from RECLAIM facilities only.

Records Information Management Plan – providing the process to comply with internal and external requirements for the retention and retrieval of information pertinent to the mission and operation of the SCAQMD.

Records Services – maintaining SCAQMD's central records and files, converting paper files to images, and operating the network image management system; providing for all off-site long-term storage of records and for developing and monitoring the SCAQMD's Records Retention Policy.

Recruitment and Selection – assisting SCAQMD management in meeting staffing needs by conducting fair and non-discriminatory recruitment and selection processes that result in qualified, diverse applicants for SCAQMD jobs; overseeing promotional and transfer processes, and reviewing proposed staff reassignments.

Refinery Pilot Project – pursuant to the AQMP, a working group was formed to examine the efficacy of an alternative regulatory approach to reducing refinery emissions beyond the current requirements by establishing a targeted emission reduction commitment for each refinery for a set period of time and allow the use of on-site or off-site reduction strategies with acceptable environmental justice attributes.

Regional Modeling – designing, performing, and reviewing modeling and risk assessment analysis to assess the air quality impacts of new or modified sources of air pollution. Also see Meteorology.

Ridesharing - implementing the SCAQMD's Rule 2202 Trip Reduction Plan.

Risk Management - developing and administering the SCAQMD's liability, property, and workers' compensation and safety programs.

Rule 1610 – ensuring compliance with Rule 1610, Old-Vehicle Scrapping.

Rule 2202 ETC Training –administering and conducting monthly Rule 2202 implementation training classes, workshops and/or forums for the regulated public and other interested individuals.

Rule 222 Implement/Support/Filing Program – ensuring compliance with Rule 222 for equipment subject to a filing requirement with the SCAQMD.

Rulemaking/Rules (NOx, BACT, SOx, VOC, Toxics, RECLAIM, Support PRA, Legal Advice) – developing new rules and evaluating existing SCAQMD and CARB rules and compliance information to assure timely implementation of the AQMP and its control measures.

Salton Sea Monitoring – maintain monitoring network for expected nuisance pollutants, primarily hydrogen sulfide, which are released from the Salton Sea area.

School Bus Lower Emission Program – funding to replace pre-1987 diesel school buses with new alternative fuel buses owned and operated by public school districts.

SCAQMD Mail – processing and delivering all incoming and outgoing mail.

SCAQMD Projects – SCAQMD permitting and rule development projects where a California Environmental Quality Act (CEQA) document is prepared and the SCAQMD is the lead agency.

School Siting – identifying any hazardous emission sources within one-quarter mile of a new school site as required by AB3205. District activities include reporting of criteria and toxic pollutant information and conducting inspections of permitted facilities within a quarter-mile radius of proposed schools.

Small Business Assistance (Financial, Legal, Permit Streamlining) **-** providing technical and financial assistance to facilitate the permit process for small businesses.

Socio-Economic - developing an economic database to forecast economic activity, analyzing economic benefits of air pollution control, and analyzing the social impact of economic activity resulting from air quality regulations and plans.

Source Education - providing classes to facility owners and operators to ensure compliance with applicable SCAQMD's rules and regulations.

Source Testing (ST) – conducting source tests as needed in support of permitting functions and to determine compliance with permit conditions and SCAQMD Rules. Additionally, data submitted by facilities is reviewed for protocol approval, CEMS certification, or test data acceptance.

Speaker's Bureau - training SCAQMD staff for advising local government and private industry on air quality issues.

Special Monitoring (Emergency, Rule 403) – performing special ambient air sampling at locations where public health, nuisance concern, or Rule 403 violations may exist; determining the impacts from sources emitting toxics on receptor areas; and performing special monitoring in support of the emergency response program and public complaints response. Also see Emergency Response.

Sample Analyses – analyzing samples submitted by inspectors to determine compliance with SCAQMD Rules. Samples are also analyzed in support of rule development activities.

Student Interns – providing mutually beneficial educational hands-on experience for high school and college students by providing them with the opportunity to engage in day-to-day work with mentoring professionals within SCAQMD.

Subscription Services - maintaining the SCAQMD's rule subscription mailing list and coordinating the mailing of SCAQMD publications.

Systems Implementation – implementing activities required to maintain an integrated Financial and Human Resources system, including additional features and functions introduced with scheduled software upgrades.

Systems Maintenance - routinely maintaining installed production data systems that support SCAQMD's business fluctuations, including minor modifications, special requests, fixes, and general maintenance.

Targeted Air Shed – funding from EPA to reduce air pollution in the nation's areas with the highest levels of ozone or particulate matter 2.5 ($PM_{2.5}$) exposure.

Technology Advancement (Commercialization, non-Combustion) - supporting the development of innovative controls for mobile and stationary sources, reviewing promising control technologies, and identifying those most deserving of SCAQMD developmental support.

Title III (Inspections, Rulemaking) - permitting equipment that emits hazardous air pollutants in compliance with the federal Clean Air Act.

Title V (Compliance,Legal Advice, Inspections, NSR Permits, Rulemaking) - developing and implementing a permit program in compliance with the federal Clean Air Act.

Toxic Inventory Development – non-facility specific tasks performed by the AB 2588 team to include toxic inventory development, support for rule development, and responding to public records and other data requests.

Toxics/AB 2588 – evaluation of toxic inventories, risk assessments and risk reduction plans, with public notification as required. Analyzing, evaluating, reviewing, and making recommendations regarding toxic substances and processes and contributing input to District toxic rules and programs.

Training (Education, Organizational and Human Resources Development, Staff) - providing increased training in the areas of personnel education, computers, safety procedures, new programs, hazardous materials, and new technologies.

Transportation Regional Programs/Research – actively participating in Advisory Groups and Policy Committees involving the development and monitoring of the District's AQMP, Congestion Mitigation Air Quality Improvement Program (CMAQ), Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Transportation Control Measures (TCMs) and regional alternative commute mode programs.

TraPac Air Filtration Program – implementing/administering the installation and maintenance of air filtration systems at Wilmington area schools.

Union Negotiations/Union Steward Activities – Union-related activities of union stewards including labor management negotiations and assisting in the filing of employee grievances.

VEE Trains – conducting periodic visible emission evaluations (VEE) of trains to verify compliance with visible emission requirements.

VOC Sample Analysis (Compliance/Rules/SBA/Other) - providing data and technical input for VOC rule development, performing analytical testing for compliance with SCAQMD rules regulating VOC content in coatings, inks, plastic foam, paint, adhesives, and solvents, and providing assistance and technical input to small businesses and other regulatory agencies, industry and the public.

Voucher Incentive Program (VIP) - incentive program designed to reduce emissions by replacing old, high-polluting vehicles with newer, lower-emission vehicles, or by installing a Verified Diesel Emission Control Strategy (VDECS).

Web Tasks – preparing and reviewing materials for posting to SCAQMD's internet and/or intranet website.

WORK PROGRAM ACRONYMS

ORGANIZATIONAL UNITS

AHR	Administrative & Human Resources
CB	Clerk of the Boards
DG	District General
EAC	Engineering & Compliance
EO	Executive Office
FIN	Finance
GB	Governing Board
IM	Information Management
LEG	Legal
LPA	Legislative & Public Affairs
MO	Media Office
PRA	Planning, Rule Development & Area Sources
STA	Science & Technology Advancement

PROGRAMS

AB 1318	Offsets-Electrical Generating Facilities
AB 2588	Air Toxics ("Hot Spots")
AB 2766	Mobile Sources
APEP	Annual Permit Emissions Program
AQIP	Air Quality Investment Program
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
CEMS	Continuous Emissions Monitoring Systems
CEQA	California Environmental Quality Act
CF	Clean Fuels Program
CMP	Congestion Management Plan
DERA	Diesel Emission Reduction Act
ERC	Emission Reduction Credit
MS	Mobile Sources Program
NSR	New Source Review
PERP	Portable Equipment Registration Program
PR	Public Records Act
QA	Quality Assurance
RFP	Reasonable Further Progress
RECLAIM	REgional CLean Air Incentives Market
SB 1928	Clean Fuels
ST	Source Test
Title III	Federally Mandated Toxics Program
Title V	Federally Mandated Permit Program
VIP	Voucher Incentive Program

POLLUTANTS

CO	Carbon Monoxide
NO_x	Oxides of Nitrogen
O_3	Ozone
$PM_{2.5}$	Particulate Matter <2.5 microns
PM_{10}	Particulate Matter $\leq$ 10 microns
ROG	Reactive Organic Gases
SO_x	Oxides of Sulfur
VOC	Volatile Organic Compound

GOVERNMENT AGENCIES

APCD	Air Pollution Control District (Generic)
CARB	California Air Resources Board
CEC	California Energy Commission
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
NACAA	National Association of Clean Air Agencies
SCAG	Southern California Association of Governments

GENERAL

AA	Affirmative Action
AER	Annual Emissions Reporting
AM	Air Monitoring
AQSCR	Air Quality Standards Compliance Report
AQ-SPEC	Air Quality Sensor Performance Evaluation Center
ARRA	American Recovery and Reinvestment Act
ATIP	Air Toxics Inventory Plan
AVR	Average Vehicle Ridership
CE-CERT	College of Engineering-Center for Environmental Research and Technology
CLASS	Clean Air Support System
CNG	Compressed Natural Gas
CTC	County Transportation Commission
CTG	Control Techniques Guideline
DB	Database
DPF	Diesel Particulate Filter
EIR	Environmental Impact Report
EJ	Environmental Justice
ETC	Employee Transportation Coordinator
EV	Electric Vehicle
FIP	Federal Implementation Plan
FY	Fiscal Year
GHG	Greenhouse Gas
HR	Human Resources
HRA	Health Risk Assessment
IAIC	Interagency AQMP Implementation Committee
IGA	Intergovernmental Affairs
ISR	Indirect Source Rules
LAER	Lowest Achievable Emissions Rate
LEV	Low Emission Vehicle
LNG	Liquefied Natural Gas
LS	Laboratory Services
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MSERCs	Mobile Source Emission Reduction Credits
MSRC	Mobile Source (Air Pollution Reduction) Review Committee
NATTS	National Air Toxics Trends Stations
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NGV	Natural Gas Vehicle
NOV	Notice of Violation
ODC	Ozone Depleter Compounds
PAMS	Photochemical Assessment Monitoring System
PAR	Proposed Amended Rule
PE	Program Evaluations
PR	Proposed Rule
RFP	Request for Proposal
RFQ	Request for Quotations
RTC	RECLAIM Trading Credit
SBA	Small Business Assistance
SIP	State Implementation Plan
SCR	Selective Catalytic Reduction
STE	Source Testing Evaluations
SULEV	Super Ultra Low-Emission Vehicle
TCM	Transportation Control Measure
ULEV	Ultra- Low-Emissions Vehicle
VEE	Visible Emissions Evaluations
VMT	Vehicle Miles Traveled
ZECT	Zero Emission Cargo Transport
ZEV	Zero-Emission Vehicle

Governing Board

The Governing Board is made up of 13 officials who meet monthly to establish policy and review new or amended rules for approval. The Governing Board appoints the SCAQMD Executive Officer and General Counsel, and members of the Hearing Board.

Governing Board members include:

- One county Board of Supervisor's representative each from the counties of Los Angeles, Orange, Riverside, and San Bernardino;
- One representative each from cities within Orange, Riverside, and San Bernardino counties, two representatives from cities within Los Angeles County, and one city representative from the City of Los Angeles;
- One representative appointed by the Governor, one by the Assembly Speaker, and one by the Senate Rules Committee.

Governing Board Work Program by Office									
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Revenue Category
1	02	275	Operational Support	II	Governing Board	Rep of Dist Meet/Conf/Testimony	0.00		0.00	1a
						Total	0.00		0.00	

Governing Board Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 262,971	$ 403,710	$ 403,709	$ 294,567	$ 412,572
53000-55000	Employee Benefits	22,625	252,431	252,431	25,254	253,215
Sub-total Salary & Employee Benefits		$ 285,596	$ 656,140	$ 656,140	$ 319,821	$ 665,787
Services & Supplies						
67250	Insurance	$ -	$ -	$ -	$ -	$ -
67300	Rents & Leases Equipment	-	-	-	-	-
67350	Rents & Leases Structure	-	-	-	-	-
67400	Household	-	-	-	-	-
67450	Professional & Special Services	397,580	436,777	436,777	409,776	445,620
67460	Temporary Agency Services	-	-	-	-	-
67500	Public Notice & Advertising	37,630	52,000	52,000	37,109	52,000
67550	Demurrage	-	-	-	-	-
67600	Maintenance of Equipment	-	-	-	-	-
67650	Building Maintenance	-	-	-	-	-
67700	Auto Mileage	10,509	10,000	10,000	10,000	10,000
67750	Auto Service	-	-	-	-	-
67800	Travel	40,913	64,800	64,800	45,607	64,800
67850	Utilities	-	-	-	-	-
67900	Communications	23,480	20,000	20,000	20,000	20,000
67950	Interest Expense	-	-	-	-	-
68000	Clothing	-	-	-	-	-
68050	Laboratory Supplies	-	-	-	-	-
68060	Postage	2,561	10,000	10,000	1,437	10,000
68100	Office Expense	1,866	4,000	4,000	2,140	4,000
68200	Office Furniture	-	-	-	-	-
68250	Subscriptions & Books	-	-	-	-	-
68300	Small Tools, Instruments, Equipment	-	-	-	-	-
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	124,405	112,500	112,500	112,500	112,500
69550	Memberships	-	-	-	-	-
69600	Taxes	-	-	-	-	-
69650	Awards	-	-	-	-	-
69700	Miscellaneous Expenses	20,042	15,000	15,000	15,000	15,000
69750	Prior Year Expense	-	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 658,986	$ 725,077	$ 725,077	$ 653,569	$ 733,920
77000	**Capital Outlays**	$ -	$ -	$ -	$ -	$ -
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 944,582	$ 1,381,217	$ 1,381,217	$ 973,390	$ 1,399,707
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

DISTRICT GENERAL

Accounts associated with general operations of the SCAQMD are budgeted and tracked in District General. Included are such items as principal and interest payments, insurance, utilities, taxes, housekeeping, security, and building maintenance and improvements.

District General Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ -	$ 992,197	$ 947,197	$ 455,902	$ 990,000
53000-55000	Employee Benefits	22,795	120,000	120,000	6,698	240,000
Sub-total Salary & Employee Benefits		$ 22,795	$ 1,112,197	$ 1,067,197	$ 462,600	$ 1,230,000
Services & Supplies						
67250	Insurance	$ 1,211,748	$ 1,317,400	$ 1,170,400	$ 1,062,622	$ 1,317,400
67300	Rents & Leases Equipment	18,633	18,600	18,650	18,637	18,600
67350	Rents & Leases Structure	19,824	30,000	30,000	19,824	-
67400	Household	511,350	707,332	702,282	562,577	717,066
67450	Professional & Special Services	879,901	1,156,029	1,171,029	1,171,029	1,560,475
67460	Temporary Agency Services	-	-	-	-	-
67500	Public Notice & Advertising	21,777	25,000	25,000	22,586	25,000
67550	Demurrage	-	-	-	-	-
67600	Maintenance of Equipment	83,968	141,900	141,900	51,237	141,900
67650	Building Maintenance	816,717	1,436,479	1,129,479	867,452	1,356,479
67700	Auto Mileage	-	-	-	-	-
67750	Auto Service	-	-	-	-	-
67800	Travel	-	-	-	-	-
67850	Utilities	1,635,484	1,766,989	1,716,989	1,676,969	1,943,689
67900	Communications	109,235	120,900	119,577	119,758	120,900
67950	Interest Expense	4,094,658	4,076,994	4,076,994	4,076,994	3,954,554
68000	Clothing	-	-	-	-	-
68050	Laboratory Supplies	-	-	-	-	-
68060	Postage	28,146	20,000	25,000	25,000	30,000
68100	Office Expense	274,178	278,800	244,800	270,852	278,800
68200	Office Furniture	3,186	4,000	4,000	3,186	4,000
68250	Subscriptions & Books	-	-	-	-	-
68300	Small Tools, Instruments, Equipment	-	-	-	-	-
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	-	-	-	-	-
69550	Memberships	-	-	-	-	-
69600	Taxes	19,285	41,000	38,150	38,150	71,000
69650	Awards	18,223	27,342	27,342	20,128	27,342
69700	Miscellaneous Expenses	6,910	10,375	10,375	6,977	11,375
69750	Prior Year Expense	(8,508)	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-		-
89100	Principal Repayment	3,099,025	3,159,384	3,159,384	3,159,384	2,235,598
Sub-total Services & Supplies		$ 12,843,742	$ 14,338,524	$ 13,811,351	$ 13,173,363	$ 13,814,178
77000	**Capital Outlays**	$ 638,628	$ 150,000	$ 225,000	$ 202,500	$ 230,000
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 13,505,165	$ 15,600,721	$ 15,103,548	$ 13,838,463	$ 15,274,178
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

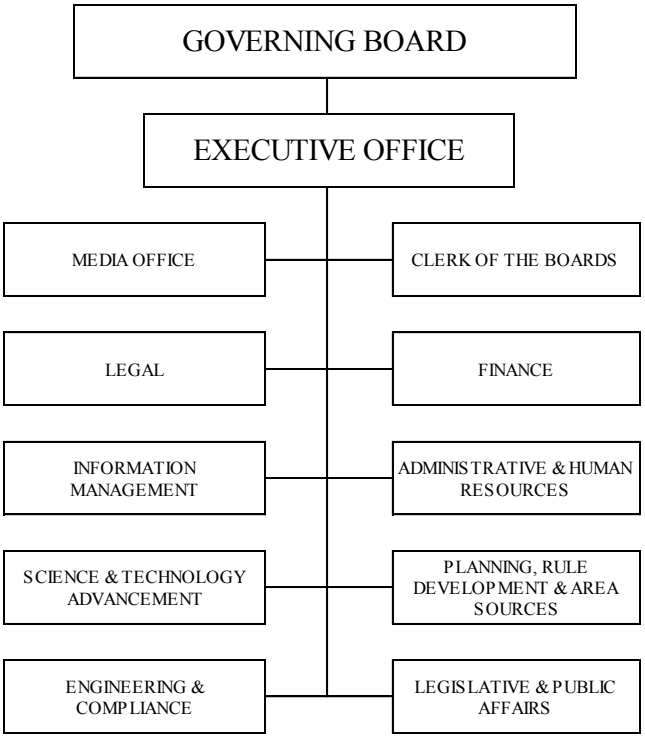
EXECUTIVE OFFICE

BARRY R. WALLERSTEIN
EXECUTIVE OFFICER

DESCRIPTION OF MAJOR SERVICES:

The Executive Office is responsible for the comprehensive management of the SCAQMD and the development and implementation of near-term and long-term strategies to attain ambient air quality standards. The office translates set goals and objectives into effective programs and enforceable regulations that meet federal and state statutory requirements, while being sensitive to potential socioeconomic and environmental justice impacts in the South Coast Air Basin.

The Executive Office currently consists of the Executive Officer, a Senior Policy Advisor, and five support staff. The Executive Officer serves as Chief of Operations in implementing policy directed by the agency's 13-member Governing Board and in working proactively with state and federal regulatory officials. The Executive Officer also oversees all of the day-to-day administrative functions of staff and the annual operating budget.



POSITION SUMMARY: 7 FTEs

Unit	Current (FY 14-15)	Changes	Proposed (FY 15-16)
Office Administration	7	-	7

STAFFING DETAIL:

2015-16 Requested Staffing

Position	Title
1	Executive Officer
3	Executive Secretary
1	Senior Administrative Secretary
1	Senior Policy Advisor
1	Staff Specialist
7	Total Requested Positions

Executive Office
Work Program by Office

#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Revenue Category
1	03	010	Develop Programs	I	AQMP	Develop/Implement AQMP	0.05		0.05	II,IX
2	03	028	Develop Programs	I	Admin/SCAQMD Policy	Dev/Coord Goals/Policies/Overs	2.00		2.00	Ia
3	03	038	Operational Support	III	Admin/Office Management	Budget/Program Management	1.00		1.00	Ib
4	03	078	Policy Support	II	Asthma & Outdoor AQ Consortium	Asthma & Outdoor AQ Consortium	0.01		0.01	Ia
5	03	083	Policy Support	II	Brain Tumor & Air Poll Foundat	Brain Tumor & Air Poll Foundation Support	0.03		0.03	Ia
6	03	275	Policy Support	I	Governing Board	Board/Committee Support	1.60		1.60	Ia
7	03	276	Policy Support	III	Advisory Group/Governing Board	Governing Board Advisory Group	0.05		0.05	Ia
8	03	381	Policy Support	I	Interagency Liaison	Local/State/Fed Coord/Interact	0.40		0.40	Ia,IX
9	03	385	Develop Rules	I	Credit Generation Programs	Dev/Impl Marketable Permit	0.02		0.02	II
10	03	390	Customer Service and Business Assistance	I	Local Govt Policy Development	Policy Development	0.05		0.05	Ia,IX
11	03	410	Policy Support	I	Legislation	Testimony/Mtgs:New/Current Leg	0.50		0.50	Ia,IX
12	03	416	Policy Support	I	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.05		0.05	Ia
13	03	455	Advance Clean Air Technology	I	Mobile Sources	Dev/Impl Mobile Source Strategies	0.10		0.10	IX
14	03	490	Customer Service and Business Assistance	II	Outreach	Publ Awareness Clean Air Prog	1.00		1.00	Ia
15	03	565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Req for Info	0.05		0.05	Ia
16	03	650	Develop Rules	I	Rules	Develop & Implement Rules	0.04		0.04	II,IV,IX
17	03	717	Policy Support	III	Student Interns	Gov Board/Student Intern Program	0.02		0.02	Ia
18	03	855	Operational Support	II	Web Tasks	Create/edit/review web content	0.03		0.03	Ia
						Total	7.00	0.00	7.00	

Executive Office Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 878,718	$ 825,697	$ 825,697	$ 917,211	$ 932,281
53000-55000	Employee Benefits	550,653	508,905	508,905	599,198	513,358
Sub-total Salary & Employee Benefits		$ 1,429,371	$ 1,334,602	$ 1,334,602	$ 1,516,409	$ 1,445,638
Services & Supplies						
67250	Insurance	$ -	$ -	$ -	$ -	$ -
67300	Rents & Leases Equipment	-	-	-	-	-
67350	Rents & Leases Structure	-	-	-	-	-
67400	Household	-	-	-	-	-
67450	Professional & Special Services	-	50,000	5,000	5,000	50,000
67460	Temporary Agency Services	-	-	-	-	-
67500	Public Notice & Advertising	-	7,500	7,500	-	7,500
67550	Demurrage	-	-	-	-	-
67600	Maintenance of Equipment	-	400	400	-	400
67650	Building Maintenance	-	-	-	-	-
67700	Auto Mileage	670	800	800	670	800
67750	Auto Service	-	-	-	-	-
67800	Travel	40,328	52,000	52,000	40,328	52,000
67850	Utilities	-	-	-	-	-
67900	Communications	5,891	6,500	6,500	5,891	6,500
67950	Interest Expense	-	-	-	-	-
68000	Clothing	-	-	-	-	-
68050	Laboratory Supplies	-	-	-	-	-
68060	Postage	31	7,000	7,000	67	7,000
68100	Office Expense	2,409	6,000	6,000	2,175	6,000
68200	Office Furniture	-	-	-	-	-
68250	Subscriptions & Books	721	5,000	5,000	721	5,000
68300	Small Tools, Instruments, Equipment	-	-	-	-	-
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	2,225	1,000	2,000	2,000	1,000
69550	Memberships	25,575	26,000	26,000	26,000	26,000
69600	Taxes	-	-	-	-	-
69650	Awards	-	-	-	-	-
69700	Miscellaneous Expenses	1,065	25,000	24,000	1,088	25,000
69750	Prior Year Expense	-	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 78,916	$ 187,200	$ 142,200	$ 83,940	$ 187,200
77000	**Capital Outlays**	$ -	$ -	$ -	$ -	$ -
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 1,508,286	$ 1,521,802	$ 1,476,802	$ 1,600,349	$ 1,632,838

* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.

CLERK OF THE BOARDS

SAUNDRA MCDANIEL
CLERK OF THE BOARDS

DESCRIPTION OF MAJOR SERVICES:

The Clerk of the Boards office coordinates the activities, provides operational support, and maintains the official records for both the Governing Board and the Hearing Board. The Clerk's office is responsible for preparing the legal notices for hearings and meetings, and ensuring that such notices are published as required. Clerk of the Boards' staff assists petitioners and attorneys in the filing of petitions before the Hearing Board and explains the Hearing Board's functions and procedures. Staff prepares Minute Orders, Findings and Decisions of the Hearing Board, and Summary Minutes of Governing Board meetings. The Clerk acts as communication liaison for the Boards with SCAQMD staff and state and federal agencies.

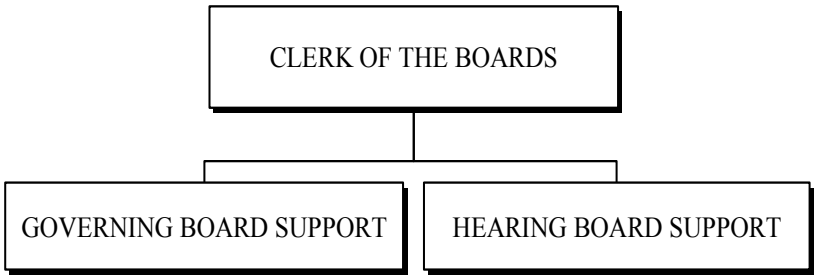
ACCOMPLISHMENTS:

RECENT:

- Received and processed 31 subpoenas, public/administrative records requests, and claims against the District.
- Provided support for 15 Governing Board meetings, including: preparing an agenda and minutes for each meeting; preparation, distribution, and publication of 28 meeting and public hearing notices; preparation of 23 Board Resolutions.
- Provided support for 140 hearings, pre-hearing conferences, and general meetings held by the Hearing Board, including: processing 144 petitions; preparation, distribution, and publication of 140 meeting and public hearing notices; preparation of 160 Minute Orders, Findings & Decisions, Pre-hearing Memoranda, and General Meeting Reports of Actions; and preparation and distribution of 150 daily agendas and monthly case calendars.
- Switched from cassette tape to digital recording of Governing Board and Hearing Board proceedings.
- Planned/coordinated efforts and provided clerical support for special offsite meetings.

ANTICIPATED:

- Provide support for approximately 140 hearings, pre-hearing conferences, and general meetings held by the Hearing Board, including: processing approximately 160 petitions; preparation, distribution, and publication of 130-140 meeting and public hearing notices; preparation of over 200 Minute Orders, Findings and Decisions, Pre-hearing Memoranda, and General Meeting Reports of Actions; and preparation and distribution of more than 200 daily agendas and monthly case calendars.



POSITION SUMMARY: 6 FTEs

Unit	Current (FY 2014-15)	Changes	Proposed (FY 2015-16)
Governing/Hearing Board Support	6	-	6

STAFFING DETAIL:

2015-16 Requested Staffing

Position	Title
1	Clerk of the Board
3	Deputy Clerk/Transcriber
1	Office Assistant
1	Senior Deputy Clerk
6	Total Requested Positions

Clerk of the Boards Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Revenue Category
1	17	024	Operational Support	III	Admin/SCAQMD/GB/HB Mgmt	Admin Governing/Hearing Brds	1.25		1.25	Ia,VII,XV
2	17	275	Operational Support	III	Governing Board	Attend/Record/Monitor Meetings	1.40		1.40	Ia
3	17	364	Ensure Compliance	I	Hearing Board/Abatement Orders	Attnd/Recrd/Monitr Mtgs	0.10		0.10	IV
4	17	365	Ensure Compliance	I	Hearing Board/Variances/Appeal	Attend/Record/Monitor HB Mtgs	3.20		3.20	IV,V,VII
5	17	565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Rec Requests	0.02		0.02	Ia
6	17	855	Ensure Compliance	II	Web Tasks	Create/edit/review web content	0.03		0.03	Ia
						Total	6.00	0.00	6.00	

Clerk of the Boards Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 401,623	$ 377,366	$ 377,366	$ 409,568	$ 390,836
53000-55000	Employee Benefits	253,032	247,048	247,048	237,035	232,553
Sub-total Salary & Employee Benefits		$ 654,655	$ 624,414	$ 624,414	$ 646,603	$ 623,390
Services & Supplies						
67250	Insurance	$ -	$ -	$ -	$ -	$ -
67300	Rents & Leases Equipment	-	-	-	-	-
67350	Rents & Leases Structure	-	-	-	-	-
67400	Household	-	-	-	-	-
67450	Professional & Special Services	17,266	25,400	25,400	17,266	25,400
67460	Temporary Agency Services	-	-	-	-	-
67500	Public Notice & Advertising	27,768	40,000	40,000	35,355	40,000
67550	Demurrage	-	-	-	-	-
67600	Maintenance of Equipment	-	200	200	-	200
67650	Building Maintenance	-	-	-	-	-
67700	Auto Mileage	33	100	100	44	100
67750	Auto Service	-	-	-	-	-
67800	Travel	933	200	200	200	200
67850	Utilities	-	-	-	-	-
67900	Communications	-	500	500	500	500
67950	Interest Expense	-	-	-	-	-
68000	Clothing	-	-	-	-	-
68050	Laboratory Supplies	-	-	-	-	-
68060	Postage	924	1,200	1,200	924	1,200
68100	Office Expense	2,979	6,600	6,600	2,979	6,600
68200	Office Furniture	-	-	-	-	-
68250	Subscriptions & Books	-	-	-	-	-
68300	Small Tools, Instruments, Equipment	-	-	-	-	-
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	374,474	381,450	381,450	374,474	391,873
69550	Memberships	-	-	-	-	-
69600	Taxes	-	-	-	-	-
69650	Awards	-	-	-	-	-
69700	Miscellaneous Expenses	41	500	500	41	500
69750	Prior Year Expense	-	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 424,417	$ 456,150	$ 456,150	$ 431,783	$ 466,573
77000	**Capital Outlays**	$ -	$ -	$ -	$ -	$ -
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 1,079,073	$ 1,080,564	$ 1,080,764	$ 1,078,386	$ 1,089,963
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

MEDIA RELATIONS OFFICE

SAM ATWOOD
MEDIA RELATIONS MANAGER

DESCRIPTION OF MAJOR SERVICES:

SCAQMD's Media Relations Office serves as the agency's official liaison with news media in its many forms, including newspapers and radio; broadcast, cable and satellite TV; books, magazines and newsletters; digital and social media. The Media Relations Office also supports programs and policies of SCAQMD and its Board with a wide range of proactive media and public relations programs. The Office provides strategic counsel to the Executive Officer, board members and their staff and Executive Council members on sensitive, high-profile media relations issues as well as building public awareness of air quality issues.

Services provided by the Media Relations Office include telephone, in-person and on-camera interviews with news media; planning and execution of media events; and the creation, production and distribution of news releases, media advisories, web content, letters to the editor, op-eds, flyers, brochures and videos. The Media Relations Office also plans and executes major advertising and marketing initiatives in partnership with outside contractors.

ACCOMPLISHMENTS:

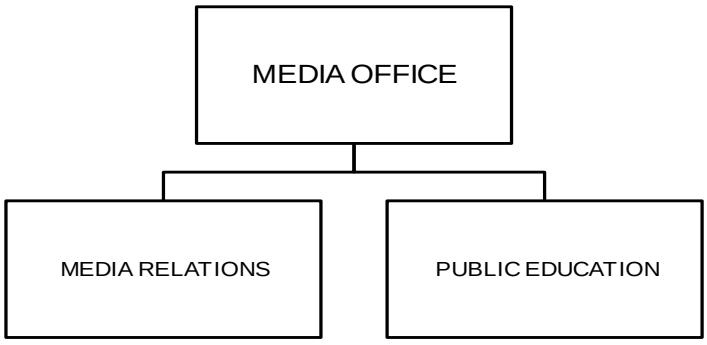
RECENT:

- Implemented the second year of an enhanced winter Check Before You Burn advertising and outreach campaign, including TV, radio, online and billboard ads, and live TV interviews, to continue educating and informing residents about the program and mandatory no-burn days.
- Supported the 2014 Lawn Mower Exchange Program with enhanced advertising and outreach.
- Implemented an advertising and outreach initiative in the Inland Empire to encourage IE residents to replace wood-burning fireplaces with new, cleaner-burning gas fireplaces or other clean-burning hearth devices.
- Managed the production of a new SCAQMD video titled "Do One Thing" to encourage Southland residents to do one thing to help clean our air.
- Supported SCAQMD programs and projects through ongoing outreach to media through press releases, media advisories, press events, opinion pieces and letters to the editor.
- Provided media relations services and strategic counsel for high-profile media issues through press releases, media advisories, in-person and on-camera interviews, and opinion pieces and letters to the editor.

ANTICIPATED:

- Support the 2015 Lawn Mower Exchange program with enhanced advertising and outreach.
- Assist in distribution of SCAQMD's new video "Do One Thing" throughout the South Coast Air Basin.
- Implement the 2015-2016 Check Before You Burn outreach campaign to educate media and public about the program and mandatory no-burn days.
- Support SCAQMD programs and projects through ongoing outreach to media through press releases, media advisories, press events, opinion pieces and letters to the editor.
- Provide media relations services and strategic counsel for high-profile media issues through press releases, media advisories, in-person and on-camera interviews, and
  c

ORGAN



POSITION SUMMARY: 3 FTEs

Unit	Current (FY 2014-15)	Changes	Proposed (FY 2015-16)
Media Relations/Public Education	3	--	3

STAFFING DETAIL:

2015-16 Requested Staffing

Position	Title
1	Community Relations Manager
1	Secretary
1	Senior Public Information Specialist
3	Total Requested Positions

Media Office Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Revenue Category
1	20	494	Policy Support	II	Outreach/Media	Edits,Brds,Talk shows,Commercl	2.96		2.96	Ia,IX
2	20	855	Operational Support	II	Web Tasks	Create/edit/review web content	0.04		0.04	Ia
						Total	3.00	0.00	3.00	

Media Office Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 282,158	$ 264,030	$ 259,993	$ 283,578	$ 264,690
53000-55000	Employee Benefits	142,453	125,195	129,232	163,927	151,641
Sub-total Salary & Employee Benefits		$ 424,611	$ 389,225	$ 389,225	$ 447,506	$ 416,331
Services & Supplies						
67250	Insurance	$ -	$ -	$ -	$ -	$ -
67300	Rents & Leases Equipment	-	500	500	-	500
67350	Rents & Leases Structure	-	-	-	-	-
67400	Household	-	-	-	-	-
67450	Professional & Special Services	35,888	29,000	69,000	69,000	29,000
67460	Temporary Agency Services	-	-	-	-	-
67500	Public Notice & Advertising	-	-	-	-	-
67550	Demurrage	-	-	-	-	-
67600	Maintenance of Equipment	-	-	-	-	-
67650	Building Maintenance	-	-	-	-	-
67700	Auto Mileage	586	-	1,500	597	1,000
67750	Auto Service	-	-	-	-	-
67800	Travel	2,385	2,000	2,000	1,590	2,000
67850	Utilities	-	-	-	-	-
67900	Communications	1,995	-	1,323	1,142	2,000
67950	Interest Expense	-	-	-	-	-
68000	Clothing	-	-	-	-	-
68050	Laboratory Supplies	-	-	-	-	-
68060	Postage	1,377	-	300	300	1,000
68100	Office Expense	1,812	1,500	1,200	1,200	2,500
68200	Office Furniture	-	-	-	-	-
68250	Subscriptions & Books	1,327	-	1,350	1,350	2,000
68300	Small Tools, Instruments, Equipment	-	-	-	-	-
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	174	1,500	1,200	1,200	1,500
69550	Memberships	925	750	750	750	750
69600	Taxes	-	-	-	-	-
69650	Awards	-	-	-	-	-
69700	Miscellaneous Expenses	646	-	300	300	1,600
69750	Prior Year Expense	-	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 47,115	$ 35,250	$ 79,423	$ 77,429	$ 43,850
77000	**Capital Outlays**	$ -	$ -	$ -	$ -	$ -
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 471,726	$ 424,475	$ 468,648	$ 524,935	$ 460,181
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

LEGAL

KURT WIESE
GENERAL COUNSEL

DESCRIPTION OF MAJOR SERVICES:

The General Counsel's office is responsible for advising the SCAQMD Board and staff on all legal matters and enforcing SCAQMD rules and state laws related to air pollution controls. Attorneys review and assist in the drafting of SCAQMD rules and regulations to ensure they are within the District's authority, and are written in a clear and enforceable manner. Attorneys ensure that all legal requirements for noticing, public workshop, CEQA analysis, and socioeconomic analysis of proposed rules are satisfied.

The General Counsel's Office is also responsible for representing the SCAQMD Board and staff in court proceedings and administrative hearings related to matters arising out of staff's performance of official duties as SCAQMD officers and employees.

The Office is responsible for the enforcement of all SCAQMD rules and regulations and applicable state law. In addition, staff attorneys represent the Executive Officer in all matters before the SCAQMD Hearing Board, including variances, permit appeals, and abatement orders. Staff investigators support civil penalty and Hearing Board litigation.

ACCOMPLISHMENTS:

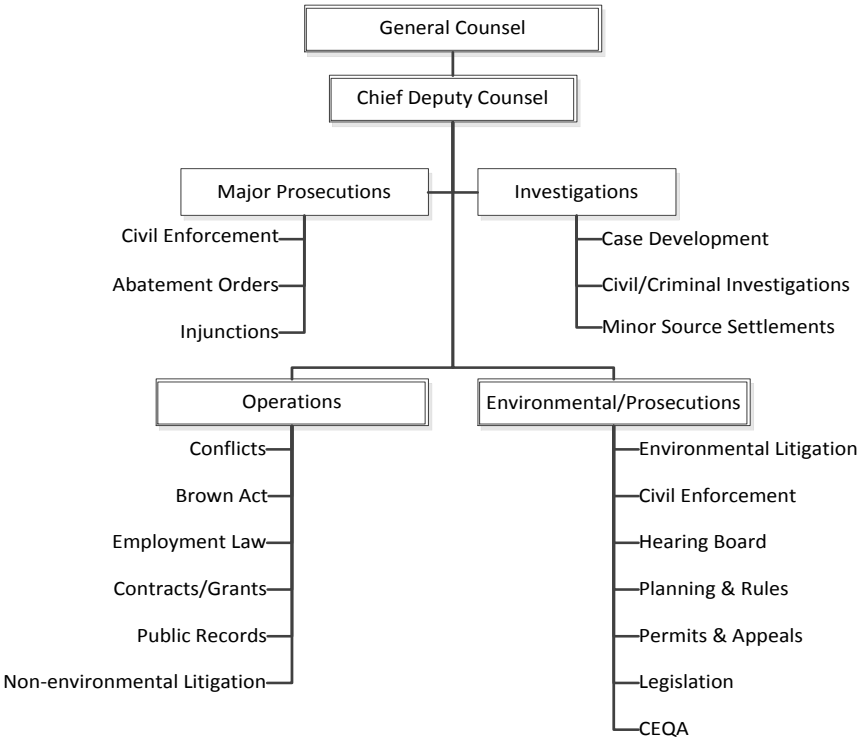
RECENT:

- Successfully handled litigation challenging two SCAQMD rules in state court.
- Representing SCAQMD in challenges to EPA approval of plans and rules (seven ongoing cases).
- Successfully defended two challenges to EPA approval of SCAQMD rule and approval of SIP revision for Sentinel power plant.
- Filed civil action and obtained two abatement orders against a lead acid battery recycling company that was exposing the community to risks from lead and arsenic emissions.
- Settled major civil penalty actions against two refineries and a steel foundry, recovering $8 million, $6 million and $5 million in cash, respectively, plus supplemental environmental projects.
- Obtained abatement order and injunction against a wastewater treatment facility that was causing odor nuisance and violating District permit rules.
- Obtained an abatement order against a chrome finishing facility that showed high monitored levels of chrome 6, bringing emissions levels down and requiring risk reduction plan.

ANTICIPATED:

- Develop high impact enforcement cases to maximize deterrence for air pollution violations.
- Implement training programs to broaden staff knowledge of and ability to handle all types of work handled by the office.
- Provide legal advice concerning the District's priority projects such as air toxics rules, NOx RECLAIM amendments, and expanding use of certain offset exemptions and the use of offsets from the District's internal accounts.

ORGANIZATIONAL CHART:



POSITION SUMMARY: 32 FTEs

Unit	Current (FY 2014-15)	Changes	Proposed (FY 2015-16)
Office Administration	4	-	4
General Counsel	22	-	22
Investigations	6	-	6
Total	32	-	32

STAFFING DETAIL:

2015-16 Requested Staffing

Position	Title
4	Administrative Secretary/Legal
1	Assistant Chief Deputy – Major Prosecutions
1	Chief Deputy Counsel
1	General Counsel
1	Investigations Manager
4	Investigator
3	Legal Secretary
1	Office Assistant
1	Paralegal
4	Principal Deputy District Counsel
8	Senior Deputy District Counsel
1	Senior Office Assistant
1	Senior Paralegal
1	Supervising Investigator
32	Total Requested Positions

Legal Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Revenue Category
1	08	001	Advance Clean Air Technology	I	AB2766/Mob Src/Legal Advice	AB2766 Leg Adv: Trans/Mob Source	0.05		0.05	IX
2	08	003	Advance Clean Air Technology	I	AB2766/MSRC	Legal Advice: MSRC Prog Admin	0.15		0.15	IX
3	08	009	Develop Programs	I	AB 1318 Mitigation	AB 1318 Projects Admn/Impl	0.05		0.05	XVII
4	08	010	Develop Programs	I	AQMP	AQMP Revision/CEQA Review	0.20	0.40	0.60	II,IV,IX
5	08	025	Operational Support	III	Admin/SCAQMD-Legal Research	Legal Research/Staff/Exec Mgmt	1.25	(0.05)	1.20	Ia
6	08	038	Operational Support	III	Admin/Office Management	Attorney Timekeeping/Perf Eval	3.50		3.50	Ib
7	08	071	Operational Support	I	Arch Ctgs - Admin	Rule Dev/TA/Reinterpretations	1.40	(0.90)	0.50	XVIII
8	08	072	Ensure Compliance	I	Arch Ctgs - End User	Case Dispo/Rvw, Track, Prep NOVs	0.05		0.05	XVIII
9	08	073	Ensure Compliance	I	Arch Ctgs - Other	Case Dispo/Rvw, Track, Prep NOVs	0.20	(0.15)	0.05	XVIII
10	08	102	Operational Support	II	CEQA Document Projects	CEQA Review	1.00		1.00	II,III,IX
11	08	115	Ensure Compliance	I	Case Disposition	Trial/Dispo-Civil Case/Injunct	6.00	(1.00)	5.00	II,IV,V,VII,XV
12	08	131	Advance Clean Air Technology	I	Clean Fuels/Legal Advice	Legal Advice: Clean Fuels	0.05		0.05	VIII
13	08	154	Ensure Compliance	I	Compliance/NOV Administration	Review/Track/Prep NOVs/MSAs	1.20		1.20	IV
14	08	185	Ensure Compliance	I	Database Management	Support IM/Dev Tracking System	0.20		0.20	IV
15	08	227	Operational Support	III	Employee/Employment Law	Legal Advice: Employment Law	1.00		1.00	Ia
16	08	235	Ensure Compliance	I	Enforcement Litigation	Maj Prosecutions/Civil Actions	0.00	1.00	1.00	IV
17	08	275	Operational Support	III	Governing Board	Legal Advice:Attend Board/Cmte Mtgs	1.00		1.00	Ia
18	08	366	Ensure Compliance	I	Hearing Board/Legal	Hear/Disp-Varian/Appeal/Rev	2.80	0.20	3.00	IV,V,XV
19	08	380	Ensure Compliance	I	Interagency Coordination	Coordinate with Other Agencies	0.25		0.25	II,V
20	08	401	Operational Support	III	Legal Advice/SCAQMD Programs	General Advice: Contracts	2.00		2.00	Ia
21	08	402	Ensure Compliance	III	Legal Advice/Legislation	Legal Support/Rep on Legal Matter	0.10		0.10	Ia
22	08	403	Ensure Compliance	III	Legal Rep/Litigation	Prep/Hearing/Disposition	3.50		3.50	Ia,II
23	08	404	Customer Service and Business Assistance	I	Legal Rep/Legislation	Draft Legis/SCAQMD Position/Mtgs	0.05		0.05	II,IX,XV
24	08	416	Policy Support	I	Legislative Activities	Lobbying: Supp/Promote/Influence legis/Adm	0.10		0.10	Ia
25	08	457	Advance Clean Air Technology	I	Mob Src/C Moyer/Leg Advice	Moyer/Implem/Program Dev	0.20		0.20	IX
26	08	465	Ensure Compliance	I	Mutual Settlement	Mutual Settlement Program	3.00		3.00	IV,V
27	08	516	Timely Review of Permits	I	Permit Processing/Legal	Legal Advice: Permit Processing	0.15		0.15	III
28	08	565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Rec Requests	0.50	0.50	1.00	Ia
29	08	651	Develop Rules	I	Rules/Legal Advice	Legal Advice: Rules/Draft Regs	1.00		1.00	II
30	08	661	Develop Rules	I	Rulemaking/RECLAIM	RECLAIM Legal Adv/Related Iss	0.05		0.05	II
31	08	681	Customer Service and Business Assistance	III	Small Business/Legal Advice	Legal Advice: SB/Fee Review	0.05		0.05	II,III
32	08	717	Policy Support	II	Student Interns	Gov Board/Student Intern Program	0.20		0.20	Ia
33	08	770	Ensure Compliance	I	Title V	Leg Advice: Title V Prog/Perm Dev	0.05		0.05	II,IV
34	08	772	Timely Review of Permits	I	Title V Permits	Leg Advice: New Source Title V Permit	0.05		0.05	III
35	08	791	Ensure Compliance	I	Toxics/AB2588	AB2588 Legal Advice: Plan & Impl	0.05		0.05	X
36	08	805	Ensure Compliance	III	Training	Continuing Education/Training	0.50		0.50	Ib
37	08	825	Operational Support	III	Union Negotiations	Legal Adv: Union Negotiations	0.05		0.05	Ia
37	08	826	Operational Support	III	Union Steward Activities	Rep Employees in Grievance Act	0.05		0.05	Ia
						Total	32.00	0.00	32.00	

Legal Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 3,635,922	$ 3,560,762	$ 3,560,763	$ 3,749,949	$ 3,630,871
53000-55000	Employee Benefits	1,848,421	1,911,932	1,911,931	2,112,598	1,989,809
Sub-total Salary & Employee Benefits		$ 5,484,343	$ 5,472,694	$ 5,472,694	$ 5,862,547	$ 5,620,680
Services & Supplies						
67250	Insurance	$ -	$ -	$ -	$ -	$ -
67300	Rents & Leases Equipment	-	-	-	-	-
67350	Rents & Leases Structure	-	-	-	-	-
67400	Household	-	-	-	-	-
67450	Professional & Special Services	1,459,297	279,500	1,279,500	1,279,500	279,500
67460	Temporary Agency Services	50,197	15,000	8,500	10,321	12,500
67500	Public Notice & Advertising	1,339	8,000	1,750	1,172	5,000
67550	Demurrage	3,827	10,000	4,150	4,150	7,500
67600	Maintenance of Equipment	-	300	300	-	300
67650	Building Maintenance	-	-	-	-	-
67700	Auto Mileage	436	1,600	1,600	755	1,600
67750	Auto Service	-	-	-	-	-
67800	Travel	6,768	15,000	15,000	14,145	15,000
67850	Utilities	-	-	-	-	-
67900	Communications	3,111	10,300	10,300	3,446	10,300
67950	Interest Expense	-	-	-	-	-
68000	Clothing	276	250	250	214	250
68050	Laboratory Supplies	-	-	-	-	-
68060	Postage	3,983	4,750	4,750	3,983	4,750
68100	Office Expense	5,199	9,520	26,020	23,520	12,520
68200	Office Furniture	-	-	4,100	4,100	5,000
68250	Subscriptions & Books	109,742	100,000	100,000	100,000	102,500
68300	Small Tools, Instruments, Equipment	-	-	-	-	-
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	19,090	25,000	23,000	20,138	22,500
69550	Memberships	1,502	750	750	750	750
69600	Taxes	-	-	-	-	-
69650	Awards	-	-	-	-	-
69700	Miscellaneous Expenses	1,239	1,000	1,000	1,000	1,000
69750	Prior Year Expense	-	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 1,666,006	$ 480,970	$ 1,480,970	$ 1,467,193	$ 480,970
77000	**Capital Outlays**	$ -	$ -	$ -	$ -	$ -
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 7,150,349	$ 5,953,664	$ 6,953,664	$ 7,329,740	$ 6,101,650
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

FINANCE

MICHAEL B. O'KELLY
CHIEF FINANCIAL OFFICER

DESCRIPTION OF MAJOR SERVICES:

Finance provides services to internal and external customers and stakeholders, including fee payers, other divisions, employees, the Mobile Source Air Pollution Reduction Review Committee, the Building Corporation, and the Brain and Lung Tumor and Air Pollution Foundation. These services are provided through three distinct sections: Controller, Financial Services, and Procurement. The Controller is responsible for accounting, financial reporting, accounts payable, payroll, state and federal tax reporting, revenue posting, and asset management. The Financial Services Manager is responsible for budget preparation, budgetary reporting, forecasting, grants management, billing services, and ad-hoc internal financial support. The Procurement Manager is responsible for the procurement of goods and services, contracting, proposal/bid solicitations and advertising, processing supplier deliveries, and controlling/dispensing/reconciling inventory.

ACCOMPLISHMENTS:

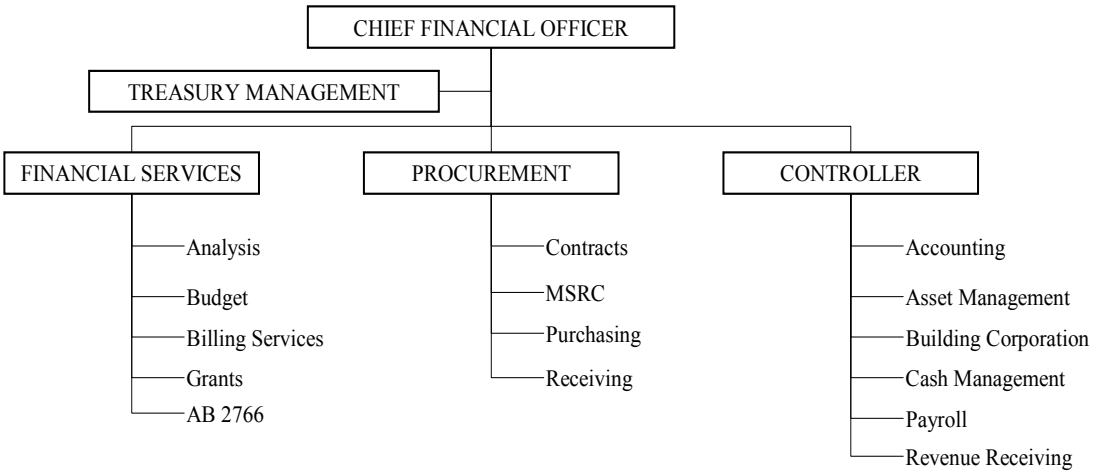
RECENT:

- Completed the implementation of Public Employee Pension Reform Act changes into the payroll system through coordination with other SCAQMD divisions and San Bernardino County Employees' Retirement Association (SBCERA).
- Revised the Treasury Operations Contingency Plan and Procedures and Investment Policy to ensure SCAQMD funds remain safe, liquid (available), and earn a market rate of return.
- Performed cost analysis to determine if various fees are sufficient to cover the activities for which they are collected and implemented necessary revisions to fee schedules.
- Continued to expand electronic payment options, to include Clean Air Award and penalty payments.
- Processed 730 contracts and modifications, issued 2,040 purchase orders, issued 66 Request for Proposals/Quotes, and processed 408 proposals/quotations.
- Received the Government Finance Officer's Association's (GFOA) awards for the Annual Budget, Comprehensive Annual Financial Report (CAFR), and Popular Annual Financial Report (PAFR) for the most recent fiscal year.

ANTICIPATED:

- Implement the new financial reporting requirements, as required by Governmental Accounting Standards Board (GASB) Statement Number 68 "Accounting and Financial Reporting for Pensions", through coordination with SBCERA, Los Angeles County Employees' Retirement Association (LACERA), and external auditors.
- Coordinate payroll system and process changes for the phased-in elimination of employer-paid employee retirement contributions, as agreed to by certain employee groups.
- Continue to receive GFOA Awards for the Annual Budget, CAFR, and PAFR to ensure SCAQMD's financial reports meet the highest professional standards.

ORGANIZATIONAL CHART:



POSITION SUMMARY: 44 FTEs

Unit	Current (FY 2014-15)	Changes	Proposed (FY 2015-16)
Office Administration	3	-	3
Financial Services	13	-	13
Procurement	9	-	9
Controller	20	(1)	19
Total	45	(1)	44

The FTE proposed to be deleted for FY 2015-16 is for a Supervising Payroll Technician that was added in FY 2014-15 to allow for training of the new Supervising Payroll Technician by the retiring Supervising Payroll Technician.

STAFFING DETAIL:

2015-16 Requested Staffing

Position	Title
2	Accounting Technician
1	Chief Financial Officer
2	Contracts Assistant
1	Controller
1	District Storekeeper
3	Financial Analyst
1	Financial Services Manager
6	Fiscal Assistant
2	Payroll Technician
1	Procurement Manager
1	Purchasing Assistant
1	Purchasing Supervisor
2	Secretary
3	Senior Accountant
1	Senior Administrative Secretary
2	Senior Fiscal Assistant
9	Senior Office Assistant
1	Staff Assistant
1	Staff Specialist
1	Stock Clerk
1	Supervising Office Assistant
1	Supervising Payroll Technician
44	Total Requested Positions

Finance Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Revenue Category
1	04	002	Customer Service and Business Assistance	III	AB2766/Mobile Source	Prog Admin: Monitor/Dist/Audit	0.10		0.10	IX
2	04	003	Advance Clean Air Technology	III	AB2766/MSRC	MSRC Program Administration	0.35		0.35	IX
3	04	009	Develop Programs	I	AB 1318 Mitigation	AB 1318 Projects Admn/Impl	0.13		0.13	XVII
4	04	020	Operational Support	III	Admin/SCAQMD Budget	Analyze/Prepare/Impl/Track WP	2.50		2.50	Ia
5	04	021	Operational Support	III	Admin/SCAQMD Contracts	Contract Admin/Monitor/Process	3.20		3.20	Ia
6	04	023	Operational Support	III	Admin/SCAQMD Capital Assets	FA Rep/Reconcile/Inv/Acct	0.70		0.70	Ia
7	04	038	Operational Support	III	Admin/Office Management	Fin Mgmt/Oversee Activities	3.00		3.00	Ib
8	04	045	Operational Support	III	Admin/Office Budget	Office Budget/Prep/Impl/Track	0.05		0.05	Ib
9	04	071	Operational Support	I	Arch Ctgs - Admin	Cost Analysis/Payments	0.04		0.04	XVIII
10	04	083	Policy Support	II	Brain Tumor & Air Poll Foundat	Brain Tumor & Air Poll Foundation Support	0.02		0.02	Ia
11	04	085	Operational Support	III	Building Corporation	Building Corp Acct/Fin Reports	0.02		0.02	Ia
12	04	130	Advance Clean Air Technology	III	Clean Fuels/Contract Admin	Clean Fuels Contract Admin/Monitor	0.15		0.15	VIII
13	04	170	Customer Service and Business Assistance	I	Billing Services	Answer/Resp/Resolv Prob & Inq	8.00		8.00	II,III,IV
14	04	233	Operational Support	III	Employee Relations	Assist HR/Interpret Salary Res	0.10		0.10	Ia
15	04	260	Customer Service and Business Assistance	III	Fee Review	Cmte Mtg/Fee-Related Complaint	0.10		0.10	II,III,IV,XV
16	04	265	Operational Support	III	Financial Mgmt/Accounting	Record Accts Rec & Pay/Rpts	6.20		6.20	Ia
17	04	266	Operational Support	III	Financial Mgmt/Fin Analysis	Fin/SCAQMD Stat Analysis & Audit	0.80		0.80	Ia
18	04	267	Operational Support	III	Financial Mgmt/Treasury Mgmt	Treas Mgt Anlyz/Trk/Proj/Invst	0.90		0.90	Ia
19	04	268	Operational Support	III	Financial Systems	CLASS/Rev/Acct/PR/Sys Analyze	0.10		0.10	Ia
20	04	355	Customer Service and Business Assistance	III	Grants Management	Grant Anlyz/Eval/Negot/Acc/Rpt	1.00		1.00	IV,V,XV
21	04	447	Operational Support	I	Mobile Sources/Accounting	Record Acct Rec & Pay/Special Funds	0.65		0.65	IX
22	04	457	Advance Clean Air Technology	III	Mobile Source/Moyer Adm	Carl Moyer: Contract/Fin Admin	1.02		1.02	IX
23	04	493	Operational Support	II	Outreach/SB/MB/DVBE	Outreach/Incr SB/DVBE Partic	0.05		0.05	Ia
24	04	510	Operational Support	III	Payroll	Ded/Ret Rpts/PR/St & Fed Rpts	4.60	(1.00)	3.60	Ia
25	04	542	Advance Clean Air Technology	I	Prop 1B:Goods Movement	Contracts/Finance Admin	0.50		0.50	IX
26	04	544	Advance Clean Air Technology	I	Prop 1B:Low Emiss Sch Bus	Grants/Finance Admin	0.05		0.05	IX
27	04	565	Customer Service and Business Assistance	I	Public Records Act	Comply w/ Public Rec Requests	0.02		0.02	Ia
28	04	570	Operational Support	III	Purchasing	Purch/Track Svcs & Supplies	2.50		2.50	Ia
29	04	571	Operational Support	III	Purchasing/Receiving	Receive/Record SCAQMD Purchases	1.20		1.20	Ia
30	04	572	Operational Support	III	Purchasing-Receiving/Stockroom	Track/Monitor SCAQMD Supplies	1.00		1.00	Ia
31	04	630	Operational Support	III	Cash Mgmt/Revenue Receiving	Receive/Post Pymts/Reconcile	5.25		5.25	II,III,IV,XI
32	04	631	Customer Service and Business Assistance	III	Cash Mgmt/Refunds	Research/Doc/Prep/Proc Refunds	0.30		0.30	III,IV,XI
33	04	791	Ensure Compliance	III	Toxics/AB2588	AB2588 Toxics HS Fee Collection	0.15		0.15	X
34	04	805	Operational Support	III	Training	Continuing Education/Training	0.20		0.20	Ib
35	04	825	Operational Support	III	Union Negotiations	Official Labor/Mgmt Negotiate	0.02		0.02	Ia
36	04	826	Operational Support	III	Union Steward Activities	Rep Employees in Grievance Act	0.01		0.01	Ia
37	04	855	Operational Support	II	Web Tasks	Create/edit/review web content	0.02		0.02	Ia
						Total	45.00	(1.00)	44.00	

Finance Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 3,161,694	$ 3,041,031	$ 3,041,031	$ 3,334,906	$ 3,158,294
53000-55000	Employee Benefits	1,861,745	1,883,972	1,883,972	2,190,760	1,878,129
Sub-total Salary & Employee Benefits		$ 5,023,439	$ 4,925,003	$ 4,925,003	$ 5,525,665	$ 5,036,422
Services & Supplies						
67250	Insurance	$ -	$ -	$ -	$ -	$ -
67300	Rents & Leases Equipment	-	-	-	-	-
67350	Rents & Leases Structure	-	-	-	-	-
67400	Household	-	900	900	-	900
67450	Professional & Special Services	104,315	148,500	148,500	115,535	141,650
67460	Temporary Agency Services	29,587	58,315	58,315	52,197	62,978
67500	Public Notice & Advertising	5,375	6,500	6,500	5,375	6,500
67550	Demurrage	-	780	780	-	780
67600	Maintenance of Equipment	721	1,070	1,070	1,070	1,200
67650	Building Maintenance	-	-	-	-	-
67700	Auto Mileage	2,108	1,483	3,483	3,121	3,000
67750	Auto Service	-	-	-	-	-
67800	Travel	2,779	6,000	6,000	3,737	6,000
67850	Utilities	-	-	-	-	-
67900	Communications	1,222	9,000	9,000	1,275	9,000
67950	Interest Expense	-	-	-	-	-
68000	Clothing	896	1,200	1,200	896	1,200
68050	Laboratory Supplies	-	-	-	-	-
68060	Postage	99,324	130,350	130,350	99,324	130,050
68100	Office Expense	22,069	35,920	33,920	22,500	36,120
68200	Office Furniture	-	-	-	-	-
68250	Subscriptions & Books	2,364	3,160	3,160	3,160	3,480
68300	Small Tools, Instruments, Equipment	-	-	-	-	-
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	6,174	26,250	26,250	18,564	26,500
69550	Memberships	1,958	2,375	2,375	2,123	2,445
69600	Taxes	-	-	-	-	-
69650	Awards	-	-	-	-	-
69700	Miscellaneous Expenses	2,972	4,125	4,125	4,125	4,125
69750	Prior Year Expense	(12)	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 281,852	$ 435,928	$ 435,928	$ 333,001	$ 435,928
77000	**Capital Outlays**	$ -	$ -	$ -	$ -	$ -
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 5,305,292	$ 5,360,931	$ 5,360,931	$ 5,858,667	$ 5,472,350
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

ADMINISTRATIVE & HUMAN RESOURCES

WILLIAM JOHNSON
ASSISTANT DEPUTY EXECUTIVE OFFICER

DESCRIPTION OF MAJOR SERVICES:

Administrative and Human Resources consists of three sections: Human Resources, Business Services and Building Services. Human Resources is responsible for administering the full range of personnel and employee relations programs to maximize hiring, retention, and development of highly-qualified employees necessary to meet SCAQMD's air quality goals. Business Services oversees the management of the SCAQMD headquarters facility, the maintenance of vehicles, and Print Shop services, including maintenance of walk-up copiers. This section also coordinates and handles SCAQMD's subscription services and incoming and outgoing mail. Building Services is responsible for maintenance and repairs of the SCAQMD headquarters buildings and building equipment, childcare center, field offices, air monitoring stations, meteorological stations, and landscape maintenance. Building Services is also responsible for repairs of kitchen equipment, restroom fixtures, construction projects, roof repairs, temperature control, and performing preventative maintenance on all SCAQMD equipment.

ACCOMPLISHMENTS:

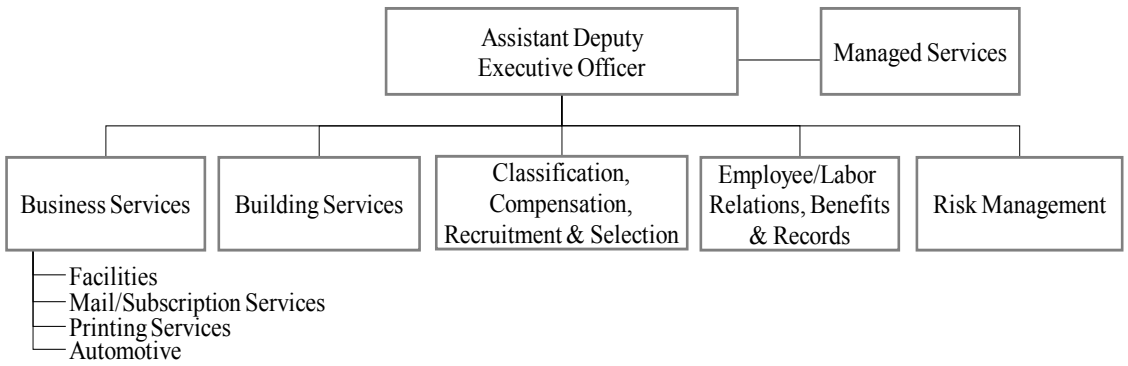
RECENT:

- Implemented and administered effective human resources and administrative support programs that further SCAQMD goals and objectives and conform to best business and management practices.
- Provided support and direction to management and staff with respect to adherence to relevant state and federal laws and SCAQMD policies, procedures and memoranda of understanding.
- Negotiated new 3–year MOU with Technical/Enforcement and Office, Clerical and Maintenance bargaining units, and amended Salary Resolution and Administrative Code for unrepresented employees. Continue to negotiate a successor MOU for the Professional bargaining unit.
- Implemented and supported an Employee Assistance Program for SCAQMD's workforce.
- Continued to ensure personalized workspace evaluations to reduce/eliminate ergonomic risks.

ANTICIPATED:

- Continue to provide support and direction to management and staff with respect to adherence to relevant state and federal laws and SCAQMD policies, procedures and memoranda of understanding.
- Continue negotiating for a successor MOU with the Professional bargaining unit.
- Formalize Succession Planning model utilizing internal and/or external resources.
- Establish a Career Development Internship Program for foster care youth.
- Evaluate and plan for significant turnover of vehicle fleet due to CNG tank expiration.
- Assist the Science and Technology Advancement (STA) Office with establishing an electrical vehicle (EV) charging plaza, including design and implementation of the

OR



POSITION SUMMARY: 36 FTEs

Unit	Current (FY 14-15)	Changes	Proposed (FY 15-16)
Office Administration	2	2	4
Business Services	15	-	15
Building Services	7	-	7
Classification, Compensation, Recruitment & Selection	5	-	5
Employee/Labor Relations, Benefits & Records	3	-	3
Risk Management	2	-	2
Total	34	2	36

STAFFING DETAIL:

2015-16 Requested Staffing

Position	Title
1	Assistant Deputy Executive Officer/Administrative & Human Resources
1	Building Maintenance Manager
1	Building Supervisor
1	Business Services Manager
2	Career Development Interns
1	Facilities Services Technician
1	Fleet Services Supervisor
2	Fleet Services Worker II
4	General Maintenance Worker
4	Human Resources Analyst
2	Human Resources Manager
1	Human Resources Technician
3	Mail Subscription Services Clerk
1	Mail Subscription Services Supervisor
2	Office Assistant
1	Offset Press Operator
2	Print Shop Duplicator
1	Print Shop Supervisor
1	Risk Manager
2	Secretary
1	Senior Administrative Secretary
1	Staff Specialist
36	Total Requested Positions

Administrative & Human Resources
Work Program by Office

#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Revenue Category
1	16	026	Operational Support	III	SCAQMD Mail	Posting/Mailing/Delivery	2.30		2.30	Ia
2	16	038	Operational Support	III	Admin/Office Management	Reports/Proj/Budget/Contracts	2.05	2.40	4.45	Ib
3	16	060	Operational Support	III	Equal Employment Opportunity	Program Dev/Monitor/Reporting	0.10		0.10	Ia
4	16	080	Ensure Compliance	III	Auto Services	Vehicle/Radio Repair & Maint	3.00		3.00	Ia
5	16	090	Operational Support	III	Building Maintenance	Repairs & Preventative Maint	7.00		7.00	Ia
6	16	092	Operational Support	III	Business Services	Building Services Admin/Contracts	2.40		2.40	Ia
7	16	225	Operational Support	III	Employee Benefits	Benefits Analysis/Orient/Records	1.40	0.10	1.50	Ia
8	16	226	Operational Support	III	Classification & Pay	Class & Salary Studies	0.30		0.30	Ia
9	16	228	Operational Support	III	Recruitment & Selection	Recruit Candidates for SCAQMD	3.25		3.25	Ia
10	16	232	Operational Support	III	Position Control	Track Positions/Workforce Analys	0.55		0.55	Ia
11	16	233	Operational Support	III	Employee Relations	Meet/Confer/Labor-Mgmt/Grievance	2.70	(0.50)	2.20	Ia
12	16	255	Operational Support	III	Facilities Services	Phones/Space/Keys/Audio-Visual	1.00		1.00	Ia
13	16	457	Advance Clean Air Technology	I	MS/Carl Moyer Admin	C Moyer/Contractor Compliance	0.50		0.50	IX
14	16	540	Customer Service and Business Assistance	III	Print Shop	Printing/Collating/Binding	4.00		4.00	Ia
15	16	542	Advance Clean Air Technology	I	Prop 1B:Goods Movement	Prop 1B: Goods Movement	0.50		0.50	IX
16	16	565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Rec Requests	0.05		0.05	Ia
17	16	640	Operational Support	III	Risk Management	Liabl/Property/Wk Comp/Selflns	1.00		1.00	Ia
18	16	717	Policy Support	II	Student Interns	Gov Board/Student Intern Program	0.20		0.20	Ia
19	16	720	Customer Service and Business Assistance	I	Subscription Services	Rule & Gov Board Materials	1.70		1.70	IV,XVII
						Total	34.00	2.00	36.00	

Administrative & Human Resources Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 2,469,121	$ 2,495,200	$ 2,495,200	$ 2,473,580	$ 2,772,925
53000-55000	Employee Benefits	1,478,371	1,540,938	1,540,937	1,606,234	1,585,779
Sub-total Salary & Employee Benefits		$ 3,947,492	$ 4,036,137	$ 4,036,137	$ 4,079,815	$ 4,358,704
Services & Supplies						
67250	Insurance	$ -	$ -	$ -	$ -	$ -
67300	Rents & Leases Equipment	85,233	98,348	98,348	90,378	111,902
67350	Rents & Leases Structure	-	-	-	-	-
67400	Household	-	2,305	2,305	-	2,305
67450	Professional & Special Services	161,485	202,750	202,250	161,086	226,750
67460	Temporary Agency Services	16,201	5,000	33,500	33,500	5,000
67500	Public Notice & Advertising	14,320	26,500	8,000	8,000	26,500
67550	Demurrage	-	-	-	-	-
67600	Maintenance of Equipment	42,115	71,762	71,762	61,487	71,762
67650	Building Maintenance	-	-	-	-	-
67700	Auto Mileage	6,271	4,200	4,200	4,200	4,200
67750	Auto Service	308,756	311,047	311,047	311,047	470,000
67800	Travel	2,531	1,440	1,440	1,440	1,440
67850	Utilities	-	-	-	-	-
67900	Communications	9,545	20,900	20,900	10,212	20,900
67950	Interest Expense	-	-	-	-	-
68000	Clothing	7,908	8,180	8,180	8,134	8,848
68050	Laboratory Supplies	-	-	-	-	-
68060	Postage	2,636	11,469	11,469	3,217	11,469
68100	Office Expense	94,658	90,740	90,740	90,740	90,740
68200	Office Furniture	46,122	50,000	40,000	40,000	50,000
68250	Subscriptions & Books	2,715	1,920	2,420	2,420	2,520
68300	Small Tools, Instruments, Equipment	3,867	4,700	4,700	4,300	5,030
68400	Gas and Oil	238,718	372,000	372,000	331,949	372,000
69500	Training/Conference/Tuition/ Board Exp.	14,366	12,817	12,817	16,271	12,817
69550	Memberships	5,320	3,265	3,265	3,265	3,265
69600	Taxes	-	-	-	-	-
69650	Awards	-	-	-	-	-
69700	Miscellaneous Expenses	4,146	12,000	12,000	8,293	12,000
69750	Prior Year Expense	(4,297)	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 1,062,618	$ 1,311,343	$ 1,311,343	$ 1,189,940	$ 1,509,448
77000	**Capital Outlays**	$ -	$ -	$ -	$ -	$ -
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 5,010,110	$ 5,347,480	$ 5,347,480	$ 5,269,754	$ 5,868,152
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

INFORMATION MANAGEMENT

CHRIS MARLIA
ASSISTANT DEPUTY EXECUTIVE OFFICER

DESCRIPTION OF MAJOR SERVICES:

Information Management (IM) provides a wide range of information management systems and services in support of all SCAQMD operations. In addition to IM's administration, which provides for overall planning, administration and coordination of IM's activities, IM is comprised of two Information Technology (IT) sections, and a Special Projects section. Due to the increasing convergence between hardware, software and digital technologies, the work performed by the two IT sections often overlaps and requires close coordination. The two sections are distinguished from each other in their focus. One section is primarily concerned with hardware and network issues (while acquiring and applying software to integrate systems and functions) whereas the other section focuses on system development (while integrating communication functions and the latest computer technologies). Areas where the two sections overlap include workflow automation, imaging, and automatic system messaging (e.g., through email).

ACCOMPLISHMENTS:

RECENT:

- Oil and Gas Well Operation – Provided a fully functional web-based application to implement reporting requirements of recently adopted Rule 1148.2 – Notification and Reporting Requirements for Oil and Gas Wells and Chemical Suppliers. The application includes a public portal for viewing non-confidential reported information.
- Operational Support – Provided rule-mandated enhancements to the web-based application for the Rule 1113 Architectural Coatings, offering external reporting, internal data management and access to the central information repository for all users requiring the information.
- Annual Emission Reporting – Provided a fully functional web-based application system including external reporting, internal data management, and access to the central information repository for all users requesting information.
- Network Operations/Telecommunications – Supported over 7,000 pieces of computer hardware for the SCAQMD; maintained and supported approximately 100 Windows/NT servers; handled approximately 8,300 support line calls for the SCAQMD; accessed and supported approximately 750 SCAQMD remotes lines; installed and upgraded approximately 700 requests for VPN remote access, DMV, EBAM (Cellular Modems), Faxes, AMS (Air Monitoring Stations) telemetry lines; installed and upgraded software in response to approximately 1,800 requests; provided 80 videoconferences for Board

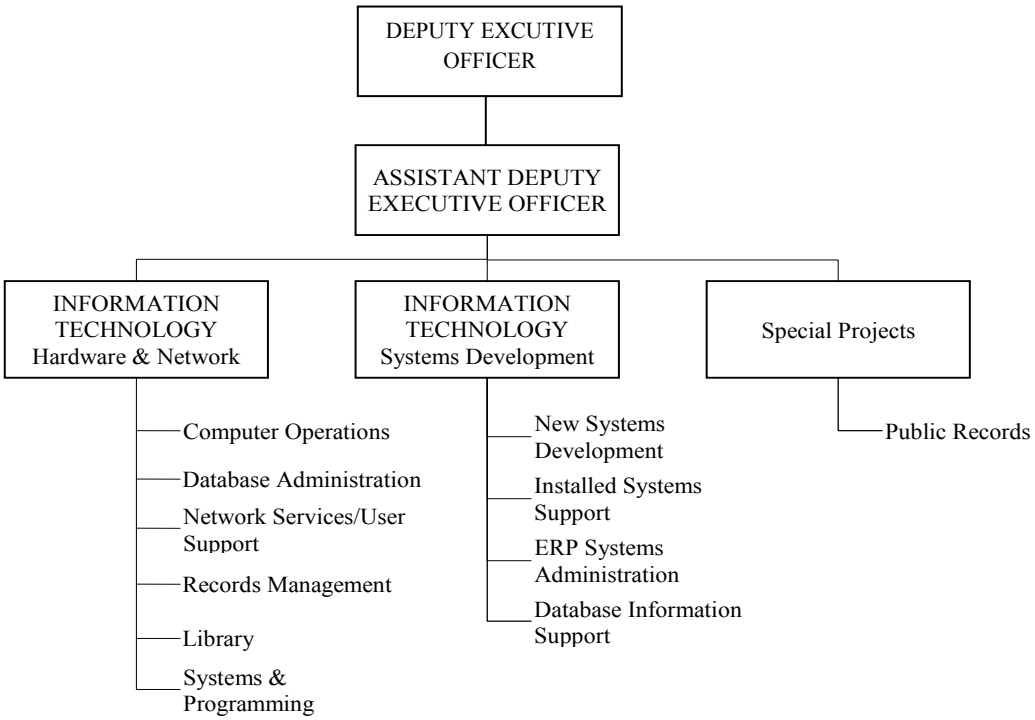
Members, Assistants and the Executive Office; provided approximately 950 internet/intranet access requests for SCAQMD staff.

- Public Records Act – Provided troubleshooting for accuracy for all Public Information Requests that were entered (almost 4,000); provided information for over 3,000 requests for public information and ensured they were provided; provided assistance for over 2,000 records retrieved by Public Records Unit staff and reviewed for confidentiality.
- Web Tasks – Maintained over 10,000 Web pages/support files on SCAQMD's public website; maintained over 1,000 Web pages/support files on AIRNet (SCAQMD's internal website); processed approximately 300 Web requests a month; provided over 12 Board and special meeting agenda packages translated for the web; provided Web training as needed; updated procedural and guidance documents as needed.

PROJECTS IN PROCESS:

- Develop online filing infrastructure
- Implement videoconferencing bridge
- Implement replacement DPO/Enforcement tracking system
- Implement eGovernment infrastructure
- Upgrade all desktops computer operating systems and Office Suite

ORGANIZATIONAL CHART:



POSITION SUMMARY: 49 FTEs

Unit	Current (FY 2014-15)	Changes	Proposed (FY 2015-16)
Office Administration	3	-	3
Hardware & Network	27	-	27
Systems Development	14	-	14
Special Projects	2	-	2
Public Records	3	-	3
Total	49	-	49

STAFFING DETAIL:

2015-16 Requested Staffing

Position	Title
1	Assistant Database Administrator
1	Assistant Deputy Executive Officer/Information Management
1	Audio Visual Specialist
1	Computer Operations Supervisor
4	Computer Operator
1	Database Administrator
1	Deputy Executive Officer/Information Management
4	Office Assistant
1	Principal Office Assistant
1	Public Affairs Specialist
2	Secretary
2	Senior Administrative Secretary
3	Senior Office Assistant
9	Systems Analyst
8	Systems and Programming Supervisor
2	Technology Implementation Manager
2	Telecommunications Supervisor
5	Telecommunications Technician II
49	Total Requested Positions

Information Management Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Revenue Category
1	27	038	Operational Support	III	Admin/Office Management	Overall Direction/Coord of IM	3.00		3.00	Ib
2	27	071	Operational Support	I	Arch Ctgs - Admin	Database Dev/Maintenance	0.25		0.25	XVIII
3	27	160	Operational Support	III	Computer Operations	Oper/Manage Host Computer Sys	5.25		5.25	Ia
4	27	184	Operational Support	III	Database Information Support	Ad Hoc Reports/Bulk Data Update	1.00		1.00	Ia
5	27	185	Operational Support	III	Database Management	Dev/Maintain Central Database	2.25		2.25	Ia
6	27	215	Operational Support	I	Annual Emission Reporting	System Enhancements for GHG	0.50		0.50	II,XVII
7	27	370	Operational Support	III	Information Technology Svcs	Enhance Oper Effic/Productivity	2.75		2.75	Ia
8	27	420	Operational Support	III	Library	General Library Svcs/Archives	0.25		0.25	Ia
9	27	470	Operational Support	III	Network Operations/Telecomm	Operate/Maintain/Implem SCAQMD	9.25		9.25	Ia
10	27	480	Operational Support	III	New System Development	Dev sys for special oper needs	3.00		3.00	II,IV
11	27	481	Customer Service and Business Assistance	III	New System Development	Dev sys in supp of Dist-wide	1.75		1.75	Ia,III
12	27	523	Timely Review of Permits	III	Permit Streamlining	Permit Streamlining	0.25		0.25	III
13	27	565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Req for Info	3.75		3.75	Ia
14	27	615	Operational Support	III	Records Information Mgmt Plan	Plan/Impl/Dir/Records Mgmt plan	1.25		1.25	Ia
15	27	616	Operational Support	III	Records Services	Records/Documents processing	3.75		3.75	Ia,III,IV
16	27	735	Operational Support	III	Systems Maintenance	Maintain Existing Software Prog	4.50		4.50	II,III,IV
17	27	736	Operational Support	III	Systems Implementation/PeopleS	Fin/HR PeopleSoft Systems Impl	1.50		1.50	Ia
18	27	770	Timely Review of Permits	I	Title V	Dev/Maintain Title V Program	1.00		1.00	III
19	27	791	Ensure Compliance	III	Toxics/AB2588	AB2588 Database Software Supp	0.50		0.50	X
20	27	855	Operational Support	II	Web Tasks	Create/edit/review web content	3.25		3.25	Ia
						Total	49.00	0.00	49.00	

Information Management Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 4,764,192	$ 4,542,714	$ 4,567,714	$ 4,762,918	$ 4,669,627
53000-55000	Employee Benefits	2,565,939	2,625,156	2,625,156	2,897,128	2,648,376
Sub-total Salary & Employee Benefits		$ 7,330,131	$ 7,167,870	$ 7,192,870	$ 7,660,046	$ 7,318,003
Services & Supplies						
67250	Insurance	$ -	$ -	$ -	$ -	$ -
67300	Rents & Leases Equipment	-	1,880	686	-	1,880
67350	Rents & Leases Structure	-	-	-	-	-
67400	Household	-	1,250	1,250	-	1,250
67450	Professional & Special Services	1,260,156	982,521	1,006,264	911,070	1,227,121
67460	Temporary Agency Services	220,503	500,320	488,320	423,140	500,320
67500	Public Notice & Advertising	-	-	-	-	-
67550	Demurrage	-	650	650	-	650
67600	Maintenance of Equipment	54,479	82,000	82,000	66,818	88,000
67650	Building Maintenance	-	-	-	-	-
67700	Auto Mileage	2,384	1,250	5,050	5,050	1,250
67750	Auto Service	-	-	-	-	-
67800	Travel	8,164	2,160	4,460	1,645	2,160
67850	Utilities	-	-	-	-	-
67900	Communications	20,317	36,900	36,900	23,080	36,900
67950	Interest Expense	-	-	-	-	-
68000	Clothing	-	-	-	-	-
68050	Laboratory Supplies	-	-	-	-	-
68060	Postage	1,124	5,500	5,500	1,124	5,500
68100	Office Expense	319,345	323,912	401,859	446,859	323,912
68200	Office Furniture	-	-	-	-	-
68250	Subscriptions & Books	9,135	30,000	25,704	16,259	30,000
68300	Small Tools, Instruments, Equipment	-	2,000	2,000	-	2,000
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	52,605	46,575	44,275	45,375	46,575
69550	Memberships	469	1,570	1,570	469	1,320
69600	Taxes	-	1,000	1,000	-	1,000
69650	Awards	-	-	-	-	-
69700	Miscellaneous Expenses	-	-	-	-	-
69750	Prior Year Expense	-	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 1,948,679	$ 2,019,488	$ 2,107,488	$ 1,940,889	$ 2,269,838
77000	**Capital Outlays**	$ 858,741	$ 712,500	$ 859,500	$ 773,550	$ 110,000
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 10,137,552	$ 9,899,858	$ 10,165,358	$ 10,374,485	$ 9,697,841
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

PLANNING, RULE DEVELOPMENT & AREA SOURCES

PHILIP FINE
DEPUTY EXECUTIVE OFFICER

DESCRIPTION OF MAJOR SERVICES:

The Office of Planning, Rule Development and Area Sources (PRDAS) is responsible for the majority of SCAQMD's air quality planning functions, including State Implementation Plan (SIP)-related activities, maintenance plans, reporting requirements and other federal Clean Air Act requirements. PRDAS is also responsible for developing proposals for new rules and amendments to existing rules to implement the SIP obligations and to reduce air toxic emissions/exposures, and for conducting socioeconomic assessments of AQMPs and rulemaking actions. All CEQA functions are part of this office including lead agency, responsible agency, and commenting agency under CEQA. In addition, this office is responsible for developing and implementing the SCAQMD's Clean Communities Plan which is an overall plan for air toxics and includes communities that support the agency's overall goals for environmental justice. The office also conducts air quality evaluations and forecasting, inventories of area sources, and permitting and compliance activities related to area sources. The Transportation Program provides Rule 2202 and AB2766 Subvention fund program assistance and training to the regulated community and local governments.

ACCOMPLISHMENTS:

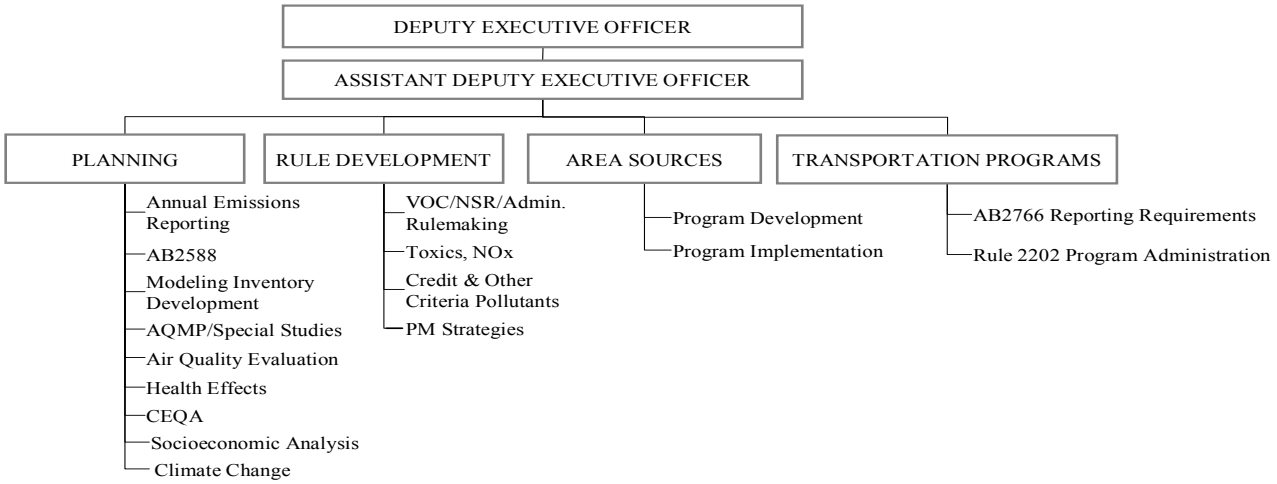
RECENT:

- Completed the 2012 AQMP.
- Thirteen rule amendments were approved by the SCAQMD Board in 2014. Five of these rules were amended as a result of SIP rule implementation issues (e.g., availability of advanced technology) and two of these rules were amended to strengthen public health with more stringent toxic emission requirements. The remaining rule amendments provided administrative revisions.
- Ongoing rulemaking process to amend Regulation XX - RECLAIM and in the preliminary analysis, it was determined the programmatic RECLAIM trading credit shave could range from five to 14 tons per day (tpd) of NOx emissions, thus expecting to meet or exceed the SIP commitment in the 2012 AQMP. Other ongoing rulemaking efforts committed in the 2012 AQMP seek further volatile organic compound (VOC) reductions from sources such as adhesive and sealant applications (Rule 1168), mold release products (Rule 1161) and vacuum trucks (Rule 1188).
- Adopted/amended notification and reporting rule for oil and gas wells and established additional air toxic standards for large lead-acid battery recycling facilities (non-SIP measures).
- Reviewed and commented on over 1,000 CEQA documents prepared by other lead agencies, including the YTI Container Terminal Improvements at the Port of LA and warehouse and distribution centers.
- Continued ongoing implementation of the Clean Communities Plan, including administering programs funded by EPA's Targeted Air Shed Grant.

- Upgraded the objective air quality forecasting program to address the residential burn rule implementation.
- Completed the warehouse/distribution center truck trip rate study.
- Completed MATES IV Sample Collection and analyses. Released draft report for public comment.
- Contracted an audit of the socioeconomic assessments for the AQMP and rule development and reported contractor recommendations to the Governing Board.

ANTICIPATED:

- Continue implementation of 2012 AQMP SIP obligations through development of new and amended VOC, NOx, and PM2.5 rules.
- Initiate development of 2016 AQMP and prepare RACT analysis by July 2014 for submittal to U.S. EPA.
- Develop toxic rule for metal forging operations, strengthen emission standards for large lead-acid battery recycling facilities, develop additional requirements for other lead sources, revise toxic requirements for existing sources (AB2588), and develop new requirements to control odors from rendering facilities.
- Analyze and implement OEHHA's revised risk reduction guidelines, pending OEHHA approval.
- Complete pilot studies for Clean Communities Plan.



POSITION SUMMARY: 111 FTEs

Unit	Current (FY 2014-15)	Changes	Proposed (FY 2015-16)
Office Administration	6	-	6
Planning	66	-	66
Rule Development	12	-	12
Area Sources	12	-	12
Transportation Programs	13	-	13
Health Effects	2	-	2
Total	111	-	111

STAFFING DETAIL:

2015-16 Requested Staffing

Position	Title
2	Administrative Secretary
9	Air Quality Engineer II
4	Air Quality Inspector II
1	Air Quality Inspector III
39	Air Quality Specialist
1	Assistant Deputy Executive Officer
1	Deputy Executive Officer - Planning, Rule Development & Area Sources
1	Director of Strategic Initiatives
1	Health Effects Officer
6	Office Assistant
5	Planning and Rules Manager
19	Program Supervisor
7	Secretary
2	Senior Administrative Secretary
4	Senior Air Quality Engineer
1	Senior Meteorologist
3	Senior Office Assistant
2	Senior Staff Specialist
1	Senior Transportation Specialist
2	Transportation Plan Reviewer
111	Total Requested Positions

Planning, Rule Development, and Area Sources Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Revenue Category
1	26	002	Develop Programs	I	AB2766/Mobile Source	AB2766 Mobile Source Outreach	0.89		0.89	IX
2	26	007	Customer Service and Business Assistance	I	AB2766/MSRC	AB2766 Prov Tech Asst to Cities	1.10		1.10	IX
3	26	009	Develop Programs	I	AB 1318 Mitigation	AB 1318 Projects Admn/Impl	0.00	0.25	0.25	XVII
4	26	010	Develop Programs	I	AQMP	AQMP Special Studies	2.00		2.00	IV,V,IX,XV
5	26	038	Develop Programs	I	Admin/Office Management	Coordinate Off/Admin Activities	0.50		0.50	Ib
6	26	040	Timely Review of Permits	I	Admin/Office Mgmt/AQ Impl	Admin/Modeling/New Legis/Sm Sr	0.42		0.42	Ib
7	26	042	Ensure Compliance	I	Admin/Office Mgmt/Compliance	Admin: Compl w SCAQMD Rules	0.25		0.25	Ib
8	26	044	Timely Review of Permits	I	Admin/Office Mgmt/Permit & Fee	Admin: Resolve Perm/Fee Issues	0.10		0.10	Ib
9	26	046	Ensure Compliance	I	Admin/Office Mgmt/Compliance	Admin: Compl of Existing Source	0.52		0.52	Ib
10	26	048	Policy Support	I	Admin/Prog Mgmt/Policy	Admin: GB/Committee Support	1.00		1.00	Ib
11	26	049	Develop Programs	I	Admin/Prog Mgmt/AQMP	Admin: AQMP Development	0.75		0.75	Ib
12	26	050	Develop Rules	I	Admin/Rule Dev/PRA	Admin: Rule Development	1.00		1.00	Ib
13	26	057	Develop Programs	I	Admin/Transportation Prog Mgmt	Admin: Transportation Programs	0.86		0.86	Ib
14	26	061	Monitoring Air Quality	I	Air Quality Evaluation	Air Quality Evaluation	1.00	0.05	1.05	IX
15	26	068	Develop Programs	II	SCAQMD Projects	Prepare Environmental Assessments	4.70		4.70	II,IV,IX
16	26	071	Develop Rules	I	Arch Ctgs - Admin	Rdev/Aud/DB/TA/SCAQMD/Rpts/AER	0.75	0.25	1.00	XVIII
17	26	072	Ensure Compliance	I	Arch Ctgs - End User	Compliance/Rpts/Rule Implementation	1.00		1.00	XVIII
18	26	073	Ensure Compliance	I	Arch Ctgs - Other	Compliance/Rpts/Rule Implementation	1.00		1.00	XVIII
19	26	076	Ensure Compliance	I	Area Sources/Compliance	Area Source Compliance	3.00	1.00	4.00	III,IV,V,IX,XV
20	26	077	Develop Rules	I	Area Sources/Rulemaking	Dev/Eval/Impl Area Source Prog	4.00		4.00	II,IX
21	26	083	Policy Support	II	Brain Tumor & Air Poll Fdn	Brain Tumor & Air Poll Foundation Support	0.10		0.10	Ia,II,IV
22	26	084	Develop Rules	I	Blk Carbon Stdy EPA	EPA Blck Carbon Climate Study	0.20		0.20	V,XVII
23	26	102	Develop Programs	II	CEQA Document Projects	Review/Prepare CEQA Comments	3.75		3.75	II,IX
24	26	104	Develop Programs	I	CEQA Policy Development	ID/Develop/Impl CEQA Policy	0.50		0.50	IV,IX
25	26	120	Timely Review of Permits	I	Certification/Registration Pro	Certification/Registration Prog	1.80		1.80	III
26	26	128	Develop Programs	I	Cln Communities Pln	Cln Communities Plan Admn/Impl	0.50		0.50	II,IX
27	26	148	Policy Support	I	Climate Change	GHG/Climate Change Policy Development	1.10		1.10	IV,XVII
29	26	165	Develop Rules	I	Conformity	Monitor Transp. Conformity	0.50		0.50	V,IX
30	26	215	Ensure Compliance	I	Annual Emission Reporting	Annl Des/Impl/Emiss Monitor Sys	7.50		7.50	II,V
31	26	216	Customer Service and Business Assistance	I	AER Public Assistance	AER Design/Impl/Monitor Emiss	2.00		2.00	II
32	26	217	Develop Programs	I	Emissions Inventory Studies	Dev Emiss DB/Dev/Update Emiss	2.00		2.00	II,V,IX,XV
33	26	218	Develop Programs	I	AQMP/Emissions Inventory	Dev Emiss Inv: Forecasts/RFPs	2.45	(1.15)	1.30	II,IX
34	26	219	Develop Programs	I	Emissions Field Audit	Emissions Field Audit	0.50		0.50	II
35	26	221	Develop Programs	I	PR2301 ISR Rule Implementation	Mitigate dev growth	1.50		1.50	II,IX
36	26	240	Policy Support	I	EJ-AQ Guidance Document	AQ Guidance Document	0.23		0.23	II,IX
37	26	276	Policy Support	I	Advisory Group/Home Rule	Governing Board Advisory Group	0.30		0.30	Ia
38	26	277	Policy Support	I	Advisory Group/AQMP	Governing Board AQMP Advisory Group	0.05		0.05	II,IX
39	26	278	Policy Support	I	Advisory Group/Sci,Tech,Model	Scientific/Tech/Model Peer Rev	0.05	0.10	0.15	II,IX
40	26	362	Develop Rules	II	Health Effects	Study Health Effect/Toxicology	1.80	0.10	1.90	II,III,IX
41	26	385	Develop Rules	I	Criteria Pollutants/Mob Srcs	Dev/Impl Intercredit Trading	0.75		0.75	IV,IX

Planning, Rule Development, and Area Sources Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Revenue Category
42	26	397	Develop Programs	II	Lead Agency Projects	Prep Envrnmt Assmts/Perm Proj	0.75		0.75	III
43	26	416	Policy Support	I	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.10		0.10	Ia
44	26	439	Monitoring Air Quality	I	MATES IV	MATES IV	0.10	(0.10)	0.00	II,IX
45	26	445	Monitoring Air Quality	I	Meteorology	ModelDev/Data Analysis/Forecast	2.20	(0.05)	2.15	II,V,IX
46	26	460	Develop Rules	I	Regional Modeling	Rule Impact/Analyses/Model Dev	5.45	(0.15)	5.30	II,V,IX
47	26	461	Timely Review of Permits	I	Permit & CEQA Modeling Review	Review Model Permit/Risk Assmt	1.50		1.50	III
49	26	503	Develop Programs	I	PM Strategies	PM10 Plan/Analyze/Strategy Dev	4.00	(0.15)	3.85	II,V,XV
50	26	530	Monitoring Air Quality	I	Photochemical Assessment	Photochemical Assessment	0.25		0.25	II,V
51	26	565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Rec Requests	0.53		0.53	Ia
52	26	600	Develop Programs	I	Credit Generation Programs	Dev RFP/AQMP Ctrl Strats/Inter	1.25	(0.05)	1.20	II,V,IX
53	26	620	Ensure Compliance	I	Refinery Pilot Project	Refinery Pilot Project	0.25		0.25	II
54	26	643	Timely Review of Permits	I	Rule 222 Filing Program	Rule 222 Filing Program	0.20		0.20	IV
55	26	645	Ensure Compliance	I	Rule 1610 Plan Verification	Rule 1610 Plan Verification	0.50		0.50	V,IX
56	26	654	Develop Rules	I	Rulemaking/NOX	Rulemaking/NOx	2.00	0.20	2.20	II,IV,XV
57	26	655	Develop Rules	I	NSR/Adm Rulemaking	Amend/Develop NSR & Admin Rules	3.00		3.00	II,IV,V,XV
58	26	656	Develop Rules	I	Rulemaking/VOC	Dev/Amend VOC Rules	7.50		7.50	II,IV,XV
59	26	659	Develop Rules	I	Rulemaking/Toxics	Develop/Amend Air Toxic Rules	5.00		5.00	II,XV
60	26	661	Develop Rules	I	Rulemaking/RECLAIM	RECLAIM Amend Rules/Related Is	2.20	(1.10)	1.10	II
61	26	685	Develop Programs	I	Socio-Economic	Apply econ models/Socio-econ	3.45	(0.20)	3.25	II,IV
62	26	716	Ensure Compliance	I	Spec Monitoring/R403	Rule 403 Compliance Monitoring	1.00	0.05	1.05	III,IV,IX,XV
63	26	717	Policy Support	II	Student Interns	Gov Bd/Student Intern Program	0.01		0.01	Ia
64	26	738	Advance Clean Air Technology	I	Target Air Shed EPA	Targeted Air Shed Admin/Impl	0.25		0.25	V,XVII
65	26	745	Develop Programs	I	Rideshare	Dist Rideshare/Telecommute Prog	0.65		0.65	IX
66	26	794	Ensure Compliance	I	Toxics/AB2588	AB2588 Core, Tracking, IWS	8.50	0.95	9.45	X
67	26	805	Operational Support	III	Training	Training	0.05		0.05	Ib
68	26	816	Develop Programs	I	Transportation Regional Progs	Dev AQMP Meas/Coord w/Reg Agn	0.60		0.60	V,IX
69	26	825	Operational Support	III	Union Negotiations	Official Labor/Mgmt Negotiate	0.01		0.01	Ia
70	26	826	Operational Support	III	Lead Agency Projects	Rep Employees in Grievance Act	0.01		0.01	Ia
71	26	833	Customer Service and Business Assistance	II	Rule 2202 ETC Training	Rule 2202 ETC Training	1.30		1.30	XI
72	26	834	Develop Programs	I	Rule 2202 Implement	Rule 2202 Proc/Sub Plans/Tech Eval	3.07		3.07	XI
73	26	836	Develop Programs	I	Rule 2202 Support	R2202 Supt/CmptrMaint/WebSubmt	2.80		2.80	V,XI
74	26	855	Operational Support	II	Web Tasks	Create/edit/review web content	0.10		0.10	Ia
						Total	111.00	0.00	111.00	

Planning, Rule Development & Area Sources Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 9,204,164	$ 10,187,633	$ 10,187,633	$ 9,175,917	$ 10,524,261
53000-55000	Employee Benefits	4,267,904	5,136,667	5,136,668	4,763,123	5,234,407
Sub-total Salary & Employee Benefits		$ 13,472,069	$ 15,324,301	$ 15,324,301	$ 13,939,040	$ 15,758,668
Services & Supplies						
67250	Insurance	$ -	$ -	$ -	$ -	$ -
67300	Rents & Leases Equipment	50	1,000	1,200	-	500
67350	Rents & Leases Structure	5,962	5,000	43,050	21,901	1,000
67400	Household	-	-	-	-	-
67450	Professional & Special Services	607,260	519,000	677,000	677,000	1,122,000
67460	Temporary Agency Services	24,546	50,000	50,000	33,626	50,000
67500	Public Notice & Advertising	62,716	100,000	100,000	61,487	100,000
67550	Demurrage	710	500	500	355	500
67600	Maintenance of Equipment	10,214	12,000	80,700	45,017	8,000
67650	Building Maintenance	18,352	1,000	8,300	6,815	1,000
67700	Auto Mileage	2,633	4,000	4,000	3,719	4,000
67750	Auto Service	-	-	-	-	-
67800	Travel	23,547	45,000	48,000	26,285	45,000
67850	Utilities	-	-	-	-	-
67900	Communications	36,313	30,000	53,000	39,942	40,000
67950	Interest Expense	-	-	-	-	-
68000	Clothing	216	600	1,300	1,300	800
68050	Laboratory Supplies	-	-	-	-	-
68060	Postage	36,825	20,000	20,150	20,082	50,000
68100	Office Expense	122,652	150,000	159,300	124,005	150,000
68200	Office Furniture	-	-	-	-	-
68250	Subscriptions & Books	1,260	5,000	5,000	1,260	2,000
68300	Small Tools, Instruments, Equipment	125	-	1,100	229	-
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	8,771	21,500	27,500	13,164	18,000
69550	Memberships	758	2,000	6,075	6,075	6,000
69600	Taxes	-	-	-	-	-
69650	Awards	-	-	-	-	-
69700	Miscellaneous Expenses	22,370	28,000	23,925	23,925	25,000
69750	Prior Year Expense	(1,163)	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 984,115	$ 994,600	$ 1,310,100	$ 1,106,186	$ 1,623,800
77000	**Capital Outlays**	$ 280,395	$ 150,000	$ 150,000	$ 135,000	$ 332,500
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 14,736,579	$ 16,468,901	$ 16,784,401	$ 15,180,227	$ 17,714,968
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

LEGISLATIVE & PUBLIC AFFAIRS

LISHA B. SMITH
DEPUTY EXECUTIVE OFFICER

DESCRIPTION OF MAJOR SERVICES:

Legislative and Public Affairs' (LPA) primary responsibilities include all legislative matters at the federal and state levels, community and local government relations, creation and production of collateral materials to support all District departments and programs, and staffing the 1-800-CUT-SMOG phone line. The Public Advisor, also within the LPA office, is responsible for keeping open lines of communication and coordination with the public, elected officials at all levels, the business community, as well as local residents. LPA is also the primary point of contact for the SCAQMD's Speakers Bureau and Visiting Dignitary program, oversees the Air Quality Institute, and provides assistance to small businesses within SCAQMD jurisdiction.

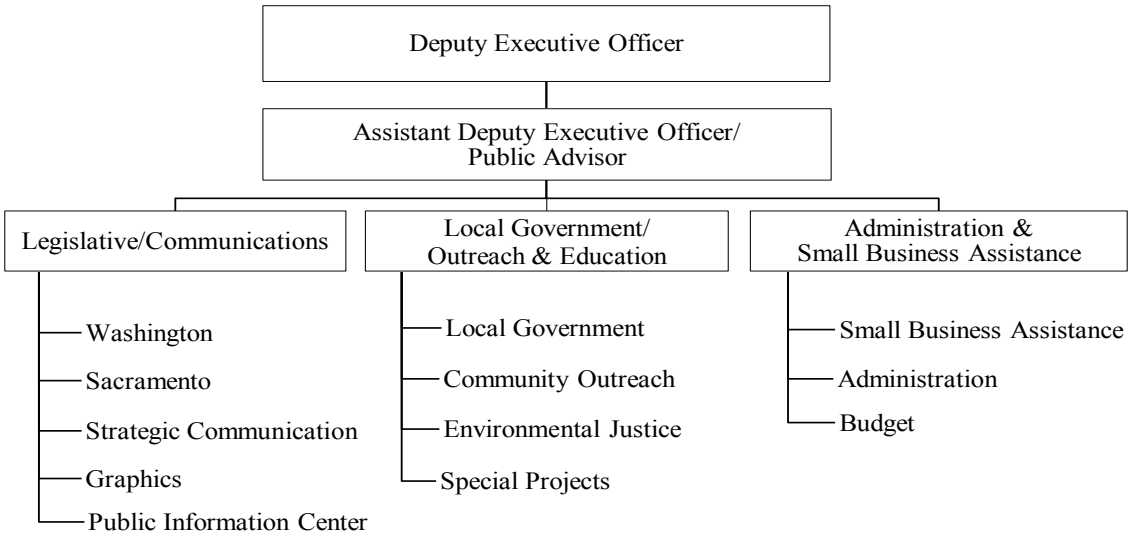
ACCOMPLISHMENTS:

RECENT:

- During the last legislative session, the District's legislative team did an effective job advocating the District legislative goals.
    - At the state level, the Governor signed eight of nine bills that the District supported and actively worked to secure their passage through the Legislature. The District defeated legislation that sought to undermine SCAQMD regulatory authority or to be detrimental to clean air. All eight bills that the District opposed were defeated during the legislative process.
    - At the federal level, LPA continued to advance the agency's legislative agenda and made significant inroads with the U.S. Department of Energy, positioning the SCAQMD in a more favorable position for technology partnerships. Staff effectively initiated relationships with federal offices outside of our jurisdictional delegation (Chicago, IL, Santa Barbara, CA) to create regional and national alliance/partnerships promoting clean technologies and clean air goals.
- Staff coordinated 18 workshops and town hall meetings to address air quality concern in several communities in our jurisdiction.
- The Small Business Assistance Team responded to 2,046 requests for Permit Application Assistance, conducted 17 on-site consultations, processed 102 Fee Review Requests and issued 237 Clearance Letters.
- Staff improved the District's educational outreach through the design and production of collateral materials, including brochures, flyers, web pages, PowerPoint presentations, videos, and signage, for meetings, conferences and the annual Clean Air Awards program.

ANTICIPATED:

- Develop and implement a Crisis Communication Plan to improve the agency's interaction with the public during incidents that generate high volume calls to the 1-800-CUT-SMOG line. The plan will implement protocols to provide callers with timely information through our radio telephone operators, recorded messages, and social media.
- Launch a comprehensive school education and outreach effort that includes a sports campaign component to increase public awareness of the SCAQMD and efforts to protect public health.
- Provide a quarterly legislative update to elected officials by generating an electronic publication highlighting the most current information pertaining to SCAQMD activities for distribution to local, state, and federal elected officials and their staff.
- Improve communication with the Business Community in the area of small business outreach to increase awareness of available programs and services, and provide information that enables business owners and operators to understand and comply with SCAQMD's rules and regulations.
- Continue to move the SCAQMD's legislative agenda at the state and federal levels.



POSITION SUMMARY: 41 FTEs

Unit	Current (FY 2014-15)	Changes	Proposed (FY 2015-16)
Office Administration	5	-	5
Legislative/Communications	20	-	20
Local Government/Outreach & Education	7	-	7
Administration & Small Business Assistance	9	-	9
Total	41	-	41

STAFFING DETAIL:

2015-16 Requested Staffing

Position	Title
2	Air Quality Engineer II
2	Air Quality Inspector II
1	Assistant Deputy Executive Officer/Public Affairs
2	Community Relations Manager
1	Deputy Executive Officer/Public Affairs
4	Graphic Arts Illustrator II
1	Office Assistant
1	Program Supervisor
1	Public Affairs Specialist
7	Radio/Telephone Operator
2	Secretary
2	Senior Administrative Secretary
1	Senior Office Assistant
1	Senior Public Affairs Manager
10	Senior Public Information Specialist
1	Senior Staff Specialist
1	Staff Assistant
1	Supervising Radio/Telephone Operator
41	Total Requested Positions

Legislative & Public Affairs
Work Program by Office

#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	FTEs +/-	FTEs FY 2015-16	Revenue Category
1	35	046	Customer Service and Business Assistance	III	Admin/Prog Mgmt	Admin Office/Units/SuppCoord Staff	3.02		3.02	Ib
2	35	111	Ensure Compliance	II	Call Center/CUT SMOG	Smoking Vehicle Complaints	8.00		8.00	IX,XV
3	35	126	Customer Service and Business Assistance	II	Clean Air Connections	Coord of region-wide community group	1.00		1.00	II,IX
4	35	205	Customer Service and Business Assistance	II	Environmental Education	Curriculum Dev/Project Coord	0.25		0.25	II,IX,XV
5	35	240	Customer Service and Business Assistance	I	Environmental Justice	Impl Board's EJ Pgrms/Policies	2.00		2.00	II,IV
6	35	260	Customer Service and Business Assistance	III	Fee Review	Cmte Mtg/Fee-Related Complaint	0.50		0.50	II,III,IV,XV
7	35	280	Policy Support	I	Advisory Group/Ethnic Comm	GB Ethnic Comm Advisory Group	0.40		0.40	II,IX
8	35	281	Policy Support	I	Advisory Group/Small Business	SBA Advisory Group Staff Support	0.50		0.50	IV,IX
9	35	283	Policy Support	I	Governing Board Policy	Brd sup/Respond to GB req	0.55		0.55	Ia
10	35	345	Policy Support	II	Goods Mvmt&Financial Incentive	Goods Movement & Financial Incentives Progr	1.00		1.00	IX
11	35	350	Operational Support	III	Graphic Arts	Graphic Arts	2.00		2.00	Ia
12	35	381	Customer Service and Business Assistance	III	Interagency Liaison	Interact Gov Agns/Promote SCAQMD	0.15		0.15	Ia,XV
13	35	390	Customer Service and Business Assistance	I	Intergov/Geographic Deployment	Dev/Impl Local Govt Outreach	9.50		9.50	II,IX
14	35	412	Policy Support	I	Legislation/Federal	Lobbying/Analyses/Tracking/Out	0.25		0.25	Ia
15	35	413	Policy Support	I	Legislation/Exec Office Suppor	Coord Legis w/ EO, EC, Mgmt	0.25		0.25	Ia
16	35	414	Policy Support	I	Legislation-Effects	Lobbying/Analyses/Tracking/Out	0.80		0.80	Ia,IX
17	35	416	Policy Support	I	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.50		0.50	Ia
18	35	491	Customer Service and Business Assistance	II	Outreach/Business	Chambers/Business Meetings	1.00		1.00	II,IV
19	35	492	Customer Service and Business Assistance	II	Public Education/Public Events	Pub Events/Conf/Rideshare Fair	1.00		1.00	II,V,IX,XV
20	35	494	Policy Support	I	Outreach/Collateral Developmen	Edits,Brds,Talk shows,Commercl	0.60		0.60	Ia
21	35	496	Customer Service and Business Assistance	II	Outreach/Visiting Dignitary	Tours/Briefings-Dignitary	0.25		0.25	Ia
22	35	514	Customer Service and Business Assistance	I	Permit: Expired Permit Program	Assist w Permit Reinstatement	0.30		0.30	IV
23	35	555	Customer Service and Business Assistance	II	Public Information Center	Inform public of unhealthy air	1.00		1.00	II,V,IX
24	35	560	Develop Programs	I	Public Notification	Public notif of rules/hearings	0.50		0.50	II,IV,IX
25	35	565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Req for Info	0.10		0.10	Ia
26	35	679	Customer Service and Business Assistance	III	Small Business Assistance	Small Business/Financial Assistance	1.00		1.00	III
27	35	680	Timely Review of Permits	I	Small Business/Permit Streamln	Asst sm bus to comply/SCAQMD req	3.95		3.95	II,III,IV,V,XV
28	35	710	Customer Service and Business Assistance	I	Speakers Bureau	Coordinate/conduct speeches	0.10		0.10	Ia
29	35	717	Policy Support	II	Student Interns	Student Interns	0.10		0.10	Ia
30	35	791	Customer Service and Business Assistance	I	Toxics/AB2588	Outreach/AB 2588 Air Toxics	0.01		0.01	X
31	35	825	Operational Support	III	Union Negotiations	Official Labor/Mgmt Negotiate	0.01		0.01	Ia
32	35	826	Operational Support	III	Union Steward Activities	Union Steward Activities	0.01		0.01	Ia
33	35	855	Operational Support	II	Web Tasks	Create/edit/review web content	0.40		0.40	Ia
						Total	41.00	0.00	41.00	

Legislative & Public Affairs Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 3,262,098	$ 3,275,613	$ 3,295,613	$ 3,265,059	$ 3,384,658
53000-55000	Employee Benefits	1,761,154	1,827,549	1,827,548	1,887,354	1,880,875
Sub-total Salary & Employee Benefits		$ 5,023,252	$ 5,103,161	$ 5,123,161	$ 5,152,413	$ 5,265,534
Services & Supplies						
67250	Insurance	$ -	$ -	$ -	$ -	$ -
67300	Rents & Leases Equipment	4,893	6,500	6,500	4,893	6,500
67350	Rents & Leases Structure	5,394	9,000	9,000	6,575	9,000
67400	Household	-	-	-	-	-
67450	Professional & Special Services	999,960	1,145,316	1,385,316	1,360,316	1,395,316
67460	Temporary Agency Services	43,097	78,000	78,000	63,426	78,000
67500	Public Notice & Advertising	69,413	26,600	24,600	49,600	26,600
67550	Demurrage	-	-	-	-	-
67600	Maintenance of Equipment	-	9,000	9,000	-	9,000
67650	Building Maintenance	-	-	-	-	-
67700	Auto Mileage	10,486	23,800	23,800	10,486	23,800
67750	Auto Service	-	-	-	-	-
67800	Travel	58,837	43,200	43,200	40,815	43,200
67850	Utilities	-	-	-	-	-
67900	Communications	54,421	45,000	45,000	45,000	45,000
67950	Interest Expense	-	-	-	-	-
68000	Clothing	-	-	-	-	-
68050	Laboratory Supplies	-	-	-	-	-
68060	Postage	122,004	136,800	110,800	110,082	136,800
68100	Office Expense	77,548	41,800	41,800	41,800	41,800
68200	Office Furniture	-	-	-	-	-
68250	Subscriptions & Books	10,587	16,700	16,700	10,587	16,200
68300	Small Tools, Instruments, Equipment	-	-	-	-	-
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	19,829	8,000	10,000	10,000	8,000
69550	Memberships	52,949	25,500	51,500	51,500	25,500
69600	Taxes	-	-	-	-	-
69650	Awards	64,614	49,681	49,681	49,681	49,681
69700	Miscellaneous Expenses	42,988	41,500	41,500	41,500	41,500
69750	Prior Year Expense	(1,780)	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 1,635,239	$ 1,706,397	$ 1,946,397	$ 1,896,260	$ 1,955,897
77000	**Capital Outlays**	$ -	$ -	$ -	$ -	$ -
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 6,658,491	$ 6,809,558	$ 7,121,058	$ 7,048,673	$ 7,221,431
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

SCIENCE & TECHNOLOGY ADVANCEMENT

MATT MIYASATO
DEPUTY EXECUTIVE OFFICER

DESCRIPTION OF MAJOR SERVICES:

Science and Technology Advancement (STA) is responsible for three key areas of operation: monitoring and analysis; technology research, development and implementation; and mobile source policy and regulatory analysis. The Monitoring and Analysis Division (MAD) maintains the SCAQMD's air monitoring network, operates the analytical laboratory and conducts source tests and evaluation, and responds to local community monitoring requests, including meteorological and sampling services as part of the SCAQMD's emergency response program. The Technology Advancement Office (TAO) implements the Clean Fuels Program to commercialize advanced engine control technologies and funds incentive programs such as the Carl Moyer, Lower Emission School Bus, and Proposition 1B Programs. Lastly, the Mobile Source Division (MSD) oversees the implementation of the SCAQMD Clean Fleet Vehicle Rules, provides support in the development of the mobile source control strategy for the Air Quality Management Plan (AQMP), and provides input and comment on state and federal regulatory activities.

ACCOMPLISHMENTS:

RECENT:

- Continued the implementation of the Carl Moyer, Surplus Off-Road Opt-In for NOx (SOON), Lower-Emission School Bus, and the Proposition 1B-Goods Movement Programs with total funding exceeding $150 million annually. Implemented the Voucher Incentive Program (VIP) for replacement of on-road trucks on a first-come-first-served basis. Completed implementation of shore power projects at 25 berths at the Ports of Los Angeles, Long Beach, and Hueneme for $59 million.
- Continued the Clean Fuels Program, which is the research, development, demonstration and early deployment program for the SCAQMD. Executed over $14.3 million in contracts with $64.7 million in total project costs (1:5 leveraging). Projects in key technical areas include heavy-duty electric drive technologies, in-use emissions testing of heavy-duty trucks, and refueling infrastructure for alternative fuels (natural gas, electricity and hydrogen).
- Developed the mobile source strategies for the Final 2012AQMP. Continued the implementation of the SCAQMD Fleet Vehicle Rules, and implementation of incentive programs for old vehicle scrapping, off-road equipment repowers and replacement; replacement of Tier 0 locomotives with Tier 4 locomotives.
- To assess ambient air quality in the Basin, operated and maintained 40 air monitoring sites resulting in 70,000 valid pollutant data points per month, collection and analysis of 3,800 canisters for ambient Volatile Organic Compounds (VOCs) and toxics and over 15,000 filters for components including mass, ions, carbon and metals in support of federal programs including those for National Air Toxics Trends Stations (NATTS),

Photochemical Assessment Monitory System (PAMS), National Core (NCORE) and PM2.5 Speciation.

- Continued special monitoring efforts to respond to community concerns and better characterize emissions from oil reclamation activities, metal finishing, metal forging and recycling, battery recycling facilities, hydraulic fracturing operations and odors from a hot-sauce manufacturing operation. Deployed additional near road monitors. Continued air monitoring in support of Rule 444. Deployed PM2.5 monitor to assess potential impacts from CPV Sentinel power plant in Coachella Valley and continued the hydrogen sulfide monitoring efforts near the Salton Sea. To support and verify compliance with current rules and regulations, analyzed over 2,100 samples for asbestos from demolition sites and glass plates set out based on complaints concerns about fallout (deposition), including the extensive asbestos sampling conducted at a school district; analyzed approximately 500 products for VOC and Hazardous Air Pollutants (HAP) content; and conducted over 1,800 Source Test (ST) protocol and report evaluations, CEMS certifications, Laboratory Approval Program (LAP) application reviews and ST observations.
- Performed audit of laboratory test methods in support of federal programs including those for NATTS, PAMS and PM2.5 Speciation; performed field audit of monitoring stations in support of federal programs including those for NCORE, NATTS, PAMS, Criteria Pollutants, and PM2.5 Speciation; Performed 2011 data certification and review; and approved Criteria and PM2.5 Quality Assurance Project Plans (QAPPs).
- Expanded SCAQMD's audit program to improve quality assurance by including "in-house" audits for air toxics, Total Suspended Particulate (TSP), PM10 and PM2.5 performed by SCAQMD staff.
- Initiated implementation of Board-approved enhancements comprised of instrument/vehicle upgrades and additions to significantly improve SCAQMD's deployment, monitoring and analysis capabilities for air toxics.
- Began deployment of the Board-approved Air Quality Sensor Performance Evaluation Center (AQ-SPEC) to test low-cost sensors. In collaboration with California Air Pollution Control Officers Association (CAPCOA), organized and held the air quality sensor workshop.
- In an effort to help SCAQMD acquire fence-line/remote sensing monitoring capabilities, initiated an in-depth monitoring study to experiment with and assess capabilities of several next generation optical remote sensing technologies.

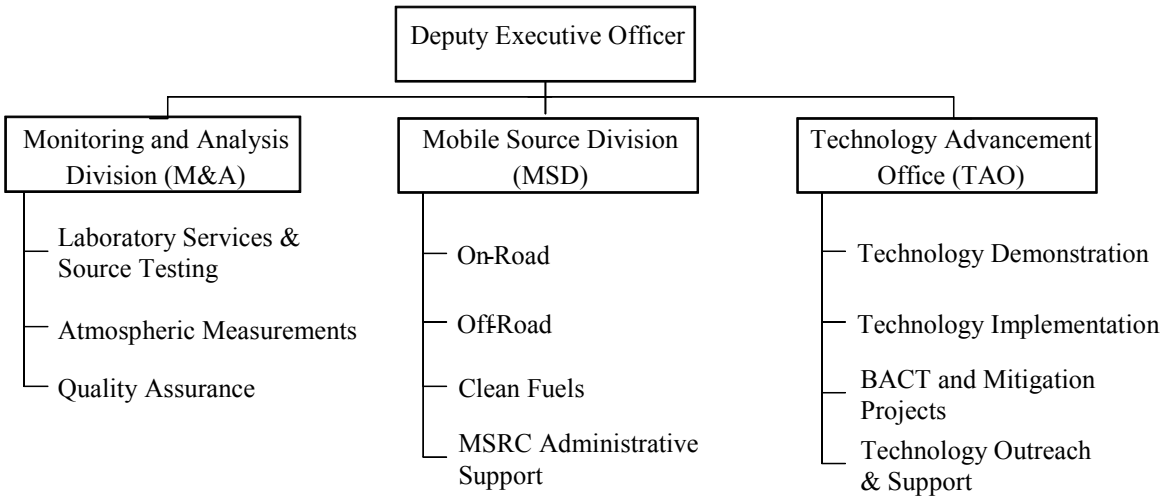
ANTICIPATED:

- Continue the development and demonstration of heavy-duty zero emission cargo transport trucks, and initiate the development and demonstration a zero emission goods movement corridor utilizing overhead catenary to power heavy-duty hybrid electric trucks near the Ports.
- Continue the implementation of the VIP on a first-come-first-served basis; and solicit for heavy-duty on- and off-road projects under the "Year 17" Carl Moyer and Proposition 1B-Goods Movement Programs. Also, issue a new solicitation for the school bus replacement and retrofit program.
- Increase deployment of cleaner construction equipment, locomotives, and on-road heavy-duty vehicles through the continued implementation of funding incentives

programs, compliance with SCAQMD Clean Fleet Vehicle Rules, and identification of future mobile source strategies for the development of the 2016 AQMP.

- Continue with the implementation of routine and special monitoring and analyses efforts critical to the SCAQMD operations, including compliance verification efforts.
- Enhance and modernize the District's telemetry system and data management system that receives and validates the incoming data from the air monitoring stations and special monitoring locations.
- Conduct 5-Year Network Assessment to assess the representation and adequacy of the SCAQMD air monitoring network in support of National Ambient Air Quality Standards (NAAQS) and other air quality objectives.
- Continue source test protocol and report evaluations, CEMS certifications, LAP application reviews and ST observations.
- Improve operational integrity, efficiency and quality assurance by initiating implementation of monthly internal audits of laboratory and field monitoring stations.
- Develop hydrogen fuel testing protocols to assure that hydrogen fuel quality meets the requirements of fuel cell powered vehicles.
- Deploy and fully implement the newly established testing center, AQ-SPEC, including both the laboratory and field testing components and development of a website to communicate results to the public.
- Continue with the implementation of the remote sensing technology projects and experimentation with other next generation monitoring technologies and formulate appropriate recommendations for the Board on how to best integrate such monitoring tools into the SCAQMD's current arsenal.
- Work with other air districts through CAPCOA for the reauthorization of the AB 923 funds for the Carl Moyer Program until December 31, 2023, with the adoption of SB 11 and AB 8.

ORGANIZATIONAL CHART:



POSITION SUMMARY: 167 FTEs

Unit	Current (FY 2014-15)	Changes	Proposed (FY 2015-16)
Office Administration	6	2	8
Monitoring & Analysis	108	3	111
Mobile Source	14	-	14
Technology Advancement	36	(2)	34
Total	164	3	167

STAFFING DETAIL:

2015-16 Requested Staffing

Position	Title
25	Air Quality Chemist
10	Air Quality Engineer II
2	Air Quality Inspector II
20	Air Quality Instrument Specialist I
15	Air Quality Instrument Specialist II
14	Air Quality Specialist
3	Assistant Deputy Executive Officer/Science & Technology Advancement
1	Atmospheric Measurement Manager
1	Clean Fuels Officer
1	Community Relations Manager
5	Contracts Assistant
1	Deputy Executive Officer/Science & Technology Advancement
4	Laboratory Technician
1	Meteorologist Technician
5	Office Assistant
3	Planning and Rules Manager
3	Principal Air Quality Chemist
3	Principal Air Quality Instrument Specialist
13	Program Supervisor
1	Quality Assurance Manager
5	Secretary
4	Senior Administrative Secretary
6	Senior Air Quality Chemist
3	Senior Air Quality Engineer
8	Senior Air Quality Instrument Specialist
1	Senior Enforcement Manager
1	Senior Public Information Specialist
1	Senior Office Assistant
1	Senior Staff Specialist
2	Staff Assistant
3	Staff Specialist
1	Supervising Air Quality Engineer
167	Total Requested Positions

Science & Technology Advancement Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	+/-	FY 2015-16	Revenue Category
1	44	003	Advance Clean Air Technology	I	AB2766/MSRC	Mob Src Review Comm Prog Admin	1.00		1.00	IX
2	44	004	Advance Clean Air Technology	I	AB2766/MSRC/Contract Admin	AB2766 Admin Discretionary Prog	3.00		3.00	IX
3	44	009	Develop Programs	I	AB 1318 Mitigation	AB 1318 Projects Admn/Impl	0.75		0.75	XVII
4	44	012	Advance Clean Air Technology	I	AQMP/Control Tech Assessment	Tech Supp: Quantify Cost Effec	0.10		0.10	VIII
5	44	015	Ensure Compliance	I	Acid Rain Program	Acid Rain CEMS Eval/Cert	0.50		0.50	II,IV
6	44	038	Monitoring Air Quality	I	Admin/Office Mgmt/Monitoring	Overall Program Mgmt/Coord	0.90		0.90	Ib
7	44	039	Advance Clean Air Technology	I	Admin/Office Mgt/Tech Adv	Admin Support/Coordination	0.77		0.77	VIII
8	44	041	Policy Support	I	Admin/Office Mgmt/Policy Supp	Overall Policy Supp/Mgmt/Coord	0.49		0.49	Ib
9	44	042	Ensure Compliance	I	Admin/Office Mgmt/Compliance	Compliance: Assign/Manage/Supp	0.37		0.37	Ib
10	44	043	Develop Rules	I	Admin/Office Mgmt/Rules	Rules: Assign/Manage/Supp	0.15		0.15	Ib
11	44	046	Monitoring Air Quality	I	Admin/Program Management	STA Program Administration	2.00		2.00	Ib
12	44	048	Advance Clean Air Technology	I	Admin/Prog Mgmt/Tech Advance	Overall TA Program Mgmt/Coord	1.55		1.55	VIII
13	44	052	Operational Support	I	Admin/Prog Mgmt/Mob Src	Admin: Mobile Source	1.80		1.80	Ib
14	44	063	Monitoring Air Quality	I	Ambient Air Analysis	Analyze Criteria/Tox/Pollutants	11.91	(4.00)	7.91	II,V,IX
15	44	064	Monitoring Air Quality	I	Ambient Network	Air Monitoring/Toxics Network	18.85		18.85	II,IV,V,IX
16	44	065	Monitoring Air Quality	I	Air Quality Data Management	AM Audit/Validation/Reporting	1.00		1.00	II,V,IX
17	44	066	Advance Clean Air Technology	I	AQIP Marine SCR DPF	AQIP Marine SCR DPF/Admin/Impl	0.15		0.15	IX
18	44	067	Monitoring Air Quality	II	Ambient Lead Monitoring	Lead Monitoring/Analysis/Reporting	0.50		0.50	IV
19	44	069	Develop Programs	I	AQIP Evaluation	AQIP Contract Admin/Evaluation	0.65		0.65	IX
20	44	072	Ensure Compliance	I	Arch Ctgs - End User	Sample Analysis/Rpts	1.00	4.00	5.00	XVIII
21	44	073	Monitoring Air Quality	I	Arch Ctgs - Other	Sample Analysis/Rpts	2.00		2.00	XVIII
22	44	079	Monitoring Air Quality	II	AQ SPEC	AQ SPEC	0.00	3.00	3.00	XVII
23	44	081	Monitoring Air Quality	I	Air Filtration EPA	Air Filtration EPA/Admn/Impl	0.25		0.25	V
24	44	082	Monitoring Air Quality	I	Air FItration Other	Air Filtration Other/Admn/Impl	0.50		0.50	XVII
25	44	084	Monitoring Air Quality	I	Blk Carbon Stdy EPA	EPA Blck Carbon Climate Study	0.20		0.20	XVII
26	44	095	Advance Clean Air Technology	I	CA Natural Gas Veh Partnership	CA Natural Gas Veh Partnership	0.05		0.05	VIII
27	44	105	Ensure Compliance	I	CEMS Certification	CEMS Review/Approval	6.15		6.15	II,III,VI
28	44	130	Advance Clean Air Technology	I	Clean Fuels/Contract Admin	Admin/Project Supp for TA Cont	3.40		3.40	VIII
29	44	132	Advance Clean Air Technology	I	Clean Fuels/Mobile Sources	Dev/Impl Mobile Src Proj/Demo	5.10		5.10	VIII
30	44	134	Advance Clean Air Technology	I	Clean Fuels/Stationary Combust	Dev/Demo Clean Combustion Tech	0.70		0.70	VIII
31	44	135	Advance Clean Air Technology	I	Clean Fuels/Stationary Energy	Dev/Demo Alt Clean Energy	0.70		0.70	VIII
32	44	136	Advance Clean Air Technology	I	Clean Fuels/Tech Transfer	Disseminate Low Emiss CF Tech	1.45		1.45	VIII
33	44	175	Ensure Compliance	I	DB/Computerization	Develop Systems/Database	0.44		0.44	II,IV,VI
34	44	187	Advance Clean Air Technology	I	DERA Sch Bus Repl	DERA Sch Bus Repl Admin/Impl	0.00	0.03	0.03	V
35	44	188	Advance Clean Air Technology	I	DERA FY 13 Veh Repl	DERA Vehicle Repl Admin/Impl	0.20		0.20	XVII
36	44	190	Advance Clean Air Technology	I	Diesel Projects EPA	Diesel Projects EPA/Admin/Impl	0.11		0.11	V
37	44	240	Monitoring Air Quality	I	Environmental Justice	Implement Environmental Justice	0.45		0.45	II,IX
38	44	276	Policy Support	I	Advisory Group/Technology Adva	Tech Adv Advisory Group Supp	0.10		0.10	VIII
39	44	361	Advance Clean Air Technology	I	HD Trucks DOE ARRA	DOE HD Trucks Admin (ARRA)	2.00		2.00	V,XVII
40	44	396	Develop Programs	I	Lawnmower Exchange	Lawn Mower Admin/Impl/Outreach	0.30		0.30	XVII

Science & Technology Advancement Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	+/-	FY 2015-16	Revenue Category
41	44	410	Policy Support	I	Legislation	Support Pollution Reduction thru Legislatio	0.50		0.50	IX
42	44	424	Advance Clean Air Technology	I	LNG Trucks CEC	LNG Trucks Admin CEC	1.00		1.00	V,IX
44	44	448	Develop Programs	I	Mobile Src Strategies-Off Road	CARB Off-Road Mob Src ctrl strategy for SIP	1.00		1.00	XVII
45	44	449	Develop Rules	I	Mob Src/SCAQMD Rulemaking	Prepare SCAQMD Mob Src rulemaking proposals	2.00		2.00	VIII,IX
46	44	450	Ensure Compliance	I	Microscopic Analysis	Asbestos/PM/Metals Analysis	3.00		3.00	VI
47	44	451	Develop Programs	I	Mob Src/CARB/EPA Monitoring	CARB/US EPA Mob Src Fuel Policies	1.50		1.50	IX
48	44	452	Develop Programs	I	Mob Src/CEC/US DOE Monitoring	CEC/US DOE Mob Src rulemaking proposals	1.00		1.00	IX,XVII
49	44	453	Advance Clean Air Technology	I	Mob Src: Emiss Inven Method	Rvw CARB/US EPA emissions inven methodology	1.50		1.50	VIII,IX
50	44	454	Policy Support	I	Mob Src:Greenhs Gas Reduc Meas	Provide comments on mob src portion of AB32	1.39	(0.50)	0.89	XVII
51	44	456	Develop Rules	I	MS & AQMP Control Strategies	AQMP Control Strategies	0.30		0.30	VIII
52	44	457	Advance Clean Air Technology	I	Mob Src/C Moyer Adm/Outreach	Carl Moyer: Impl/Admin Grant	5.65		5.65	IX
53	44	458	Develop Programs	I	Mobile Source Strategies	Implement Fleet Rules	1.00		1.00	VIII
54	44	459	Advance Clean Air Technology	I	Mob Src/C Moyer/Impl/Prg Dev	Moyer/Implem/Program Dev	2.80		2.80	IX
55	44	460	Advance Clean Air Technology	I	VIP Admin	VIP Admin/Outreach/Impl	0.80		0.80	IX
56	44	468	Monitoring Air Quality	I	NATTS(Natl Air Tox Trends Sta)	NATTS (Natl Air Tox Trends)	1.50		1.50	II,V,IX
57	44	469	Monitoring Air Quality	I	Near Roadway Mon	Near Roadway Monitoring	1.50		1.50	IV,V,IX
58	44	497	Advance Clean Air Technology	I	Plug-in Hybrid EV DOE ARRA	DOE Plug-in Hybrid EV Admin (ARRA)	0.75		0.75	V
59	44	500	Ensure Compliance	I	PM2.5 Program	Est/Operate/Maint PM2.5 Network	11.30		11.30	II,V,IX
60	44	505	Monitoring Air Quality	I	PM Sampling Program (EPA)	PM Sampling Program - Addition	10.60		10.60	V
61	44	507	Monitoring Air Quality	I	PM Sampling Spec	PM Sampling Special Events	0.10		0.10	V
62	44	530	Monitoring Air Quality	I	Photochemical Assessment	Photochemical Assess & Monitor	3.00		3.00	V,IX
63	44	533	Advance Clean Air Technology	I	POLB AMECS Demo	POLB AMECS Demo-Admin/Impl	0.00	0.47	0.47	XVII
64	44	542	Develop Programs	I	Prop 1B:Goods Movement	Prop 1B:Goods Movement	5.70		5.70	IX
65	44	544	Develop Programs	II	Prop 1B:Low Emiss Sch Bus	Prop 1B:Low Emiss Sch Bus	0.50		0.50	IX
66	44	545	Timely Review of Permits	I	Protocols/Reports/Plans	Eval Test Protocols/Cust Svc	0.10		0.10	III,IV
67	44	546	Timely Review of Permits	I	Protocols/Reports/Plans	Eval Test Protocols/Compliance	6.15		6.15	IV,VI
68	44	565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Req for Info	0.17		0.17	Ia
69	44	585	Monitoring Air Quality	I	Quality Assurance	Quality Assurance Branch	3.00		3.00	II,V,IX
70	44	653	Develop Rules	I	Rulemaking/BACT	Dev/Amend BACT Guidelines	2.00		2.00	II
71	44	657	Develop Rules	I	Rulemaking/Support PRA	Assist PRA w/ Rulemaking	0.05		0.05	II
72	44	663	Monitoring Air Quality	I	Salton Sea Monit	Mon/Analyze Hydrogen Sulfide	0.25		0.25	XVII
73	44	677	Advance Clean Air Technology	I	School Bus/Lower Emission Prog	School Bus Program Oversight	0.70		0.70	IX
74	44	700	Ensure Compliance	I	Source Testing/Compliance	Conduct ST/Prov Data/Compl	2.25		2.25	VI
75	44	701	Customer Service and Business Assistance	I	Source Testing/Customer Svc	Conduct ST/Prov Data/Cust Svc	0.05		0.05	VI
76	44	702	Develop Programs	I	ST Methods Development	Eval ST Methods/Validate	0.95		0.95	II
77	44	704	Ensure Compliance	I	ST/Sample Analysis/Compliance	Analyze ST Samples/Compliance	4.00		4.00	VI
78	44	705	Develop Programs	I	ST Sample Analysis/Air Program	Analyze ST Samples/Air Prgms	0.25		0.25	II
79	44	706	Develop Rules	I	ST Sample Analysis/Air Program	Analyze ST Samples/Rules	0.25		0.25	II
80	44	707	Ensure Compliance	I	VOC Sample Analysis/Compliance	VOC Analysis & Rptg/Compliance	7.00		7.00	IV,XV
81	44	708	Develop Rules	I	VOC Sample Analysis/Rules	VOC Analysis & Rptg/Rules	0.25		0.25	II,XV

Science & Technology Advancement Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	+/-	FY 2015-16	Revenue Category
82	44	709	Customer Service and Business Assistance	I	VOC Sample Analysis/SBA/Other	VOC Analysis & Reptg/Cust Svc	0.50		0.50	VI
83	44	715	Monitoring Air Quality	II	Spec Monitoring/Emerg Response	Emergency Response	0.50		0.50	II
84	44	716	Ensure Compliance	I	Special Monitoring	Rule 403 Compliance Monitoring	2.20		2.20	III,IV,IX,XV
85	44	725	Timely Review of Permits	I	Permit Processing/Support EAC	Assist EAC w/ Permit Process	0.05		0.05	III
86	44	738	Advance Clean Air Technology	I	Target Air Shed EPA	Targeted Air Shed Admin/Impl	0.15		0.15	V,XVII
87	44	740	Advance Clean Air Technology	I	Tech Adv/Commercialization	Assess CFs/Adv Tech Potential	0.25		0.25	VIII
88	44	741	Advance Clean Air Technology	I	Tech Adv/Non-Combustion	Dev/Demo Non-Combustion Tech	0.10		0.10	VIII
89	44	794	Ensure Compliance	I	Toxics/AB2588	Eval Protocols/Methods/ST	1.25		1.25	X
90	44	795	Ensure Compliance	I	Toxics/Engineering	R1401 Toxics/HRA Prot/Rpt Eval	0.05		0.05	VI,X
91	44	816	Advance Clean Air Technology	I	Transportation Research	Transport Research/Adv Systems	0.50		0.50	VIII
92	44	821	Monitoring Air Quality	II	TraPac Air Filt Prg	Admin/Tech Suppt/Reptg/Monitor	1.00		1.00	XVII
93	44	825	Operational Support	III	Union Negotiations	Labor/Mgmt Negotiations	0.05		0.05	Ia
94	44	826	Operational Support	III	Union Steward Activities	Rep Employees in Grievance Act	0.05		0.05	Ia
						Total	164.00	3.00	167.00	

Science & Technology Advancement Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 13,877,700	$ 13,924,124	$ 14,266,639	$ 14,219,760	$ 14,841,049
53000-55000	Employee Benefits	6,711,001	7,207,167	7,207,167	$ 7,494,255	7,637,560
Sub-total Salary & Employee Benefits		$ 20,588,702	$ 21,131,291	$ 21,473,806	$ 21,714,015	$ 22,478,609
Services & Supplies						
67250	Insurance	$ 26,363	$ -	$ 38,374	$ 38,374	$ -
67300	Rents & Leases Equipment	186,147	16,800	78,803	78,803	36,800
67350	Rents & Leases Structure	170,597	150,900	158,000	151,906	169,000
67400	Household	475	500	500	500	500
67450	Professional & Special Services	719,984	80,000	1,126,123	719,505	80,000
67460	Temporary Agency Services	741,679	141,600	608,555	608,555	141,600
67500	Public Notice & Advertising	63,208	37,000	54,080	53,866	37,000
67550	Demurrage	71,450	40,000	79,330	71,030	55,000
67600	Maintenance of Equipment	350,799	180,000	395,670	357,371	200,000
67650	Building Maintenance	70,528	20,000	158,950	70,528	50,000
67700	Auto Mileage	85,501	3,909	157,621	82,942	3,909
67750	Auto Service	401	-	2,561	2,561	-
67800	Travel	83,165	48,403	89,953	80,910	48,403
67850	Utilities	1,843	-	25,000	1,843	-
67900	Communications	209,486	189,636	212,136	212,136	231,000
67950	Interest Expense	-	-	-	-	-
68000	Clothing	7,367	4,000	8,112	8,112	4,000
68050	Laboratory Supplies	513,481	270,000	464,787	449,350	295,000
68060	Postage	44,437	22,318	38,057	37,317	22,318
68100	Office Expense	112,675	31,393	123,250	127,611	41,393
68200	Office Furniture	21,072	-	-	-	-
68250	Subscriptions & Books	849	1,527	2,527	1,405	1,527
68300	Small Tools, Instruments, Equipment	216,022	35,000	200,620	205,120	130,000
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	15,219	9,000	21,850	16,558	9,000
69550	Memberships	98,513	7,250	105,220	100,422	2,250
69600	Taxes	1,539	7,000	28,141	2,770	2,000
69650	Awards	2,362	-	-	-	-
69700	Miscellaneous Expenses	6,632	2,600	17,000	11,730	2,600
69750	Prior Year Expense	(27,592)	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 3,794,199	$ 1,298,836	$ 4,195,220	$ 3,491,225	$ 1,563,300
77000	**Capital Outlays**	$ 849,130	$ -	$ 2,430,950	$ 2,187,855	$ -
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 25,232,030	$ 22,430,127	$ 28,099,976	$ 27,393,095	$ 24,041,909
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

SOUTH COAST

AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING & COMPLIANCE

MOHSEN NAZEMI
DEPUTY EXECUTIVE OFFICER

DESCRIPTION OF MAJOR SERVICES:

Engineering & Compliance (E&C) is primarily responsible for processing applications for Permits to Construct & Operate, compliance inspections and special services. The permit processing activities involve over 400 major facilities that have been issued Title V Federal Operating permits, almost 300 facilities in the RECLAIM program, and over 27,000 large and small business operations. The compliance staff conducts routine unannounced field inspections to verify compliance with SCAQMD, State and Federal rules and regulations, and responds to air quality complaints received. In addition, staff also participate in Emergency Response activities with other agencies, conduct training classes, assist with Economic Development and Business Retention programs, and evaluate and implement Permit Streamlining activities.

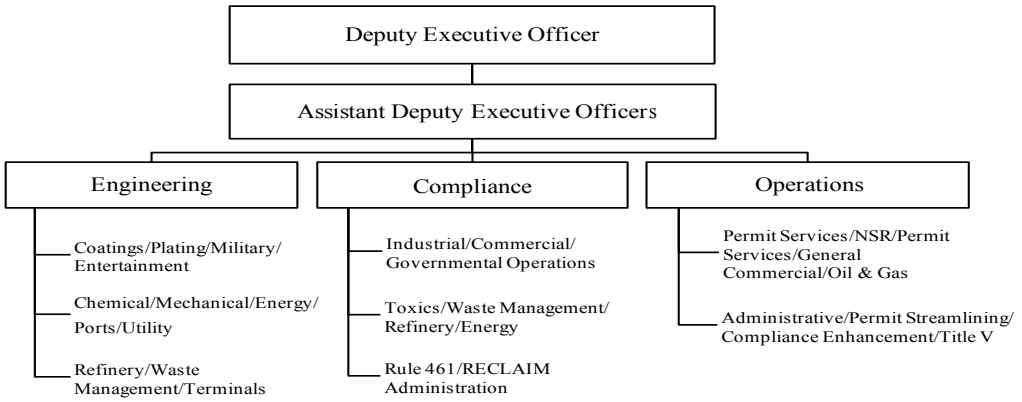
ACCOMPLISHMENTS

RECENT:

- Processed 8,925 applications for Permits, Plans, ERCs, and timely renewal of TV permits.
- Conducted 25,568 site inspections for compliance determination.
- Conducted 4,098 inspections for equipment registered pursuant to Portable Equipment Registration Program (PERP) and 1,082 asbestos inspections.
- Conducted 72 training classes for businesses, public, and SCAQMD's staff.
- Received and processed 8,730 air quality complaints.

ANTICIPATED:

- Process 8,800 applications for Permits, Plans, ERCs, and timely renewal of TV permits.
- Conduct 22,000 site inspections for compliance determination.
- Conduct 3,500 equipment registered pursuant to Portable Equipment Registration Program (PERP) and 2,200 asbestos inspections.
- Conduct 40 training classes for businesses, public, and SCAQMD's staff.
- Timely response to all air quality complaints.



POSITION SUMMARY: 307 FTEs

	Current (FY 2014-15)	Change	Proposed (FY 2015-16)
Administration	13	1	14
Engineering	104	-	104
Compliance	158	-	158
Operations	31	-	31
Total	306	1	307

STAFFING DETAIL:

2015-16 Requested Staffing

Position	Title
15	Air Quality Analysis and Compliance Supervisor
91	Air Quality Engineer II
89	Air Quality Inspector II
14	Air Quality Inspector III
2	Air Quality Specialist
2	Assistant Deputy Executive Officer/Engineering & Compliance
2	Data Technician
1	Deputy Executive Officer/Engineering & Compliance
12	Office Assistant
1	Principal Office Assistant
7	Secretary
2	Senior Administrative Secretary
19	Senior Air Quality Engineer
3	Senior Air Quality Engineering Manager
4	Senior Enforcement Manager
20	Senior Office Assistant
5	Staff Specialist
17	Supervising Air Quality Inspector
1	Supervising Office Assistant
307	Total Requested Positions

Engineering & Compliance Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	+/-	FY 2015-16	Revenue Category
1	50	038	Customer Service and Business Assistance	I	Admin/Office Management	Dev/Coord Goals/Policies/Overs	4.00	1.00	5.00	Ib
2	50	047	Customer Service and Business Assistance	I	Admin/Operations Support	Budget/Contracts/Reports/Projects	5.00		5.00	Ib
3	50	070	Ensure Compliance	I	CARB PERP Program	CARB Audits/Statewide Equip Reg	7.00		7.00	XIX
4	50	071	Ensure Compliance	I	Arch Ctgs - Admin	Report Review	0.10		0.10	XVIII
5	50	072	Ensure Compliance	I	Arch Ctgs - End User	Compliance/Rpts/RuleImpmenta	0.10		0.10	XVIII
6	50	073	Ensure Compliance	I	Arch Ctgs - Other	Compliance/Rpts/Rule Implementation	4.50		4.50	XVIII
7	50	148	Policy Support	I	Climate Change	GHG/Climate Change Support	0.50		0.50	II,IX
8	50	152	Ensure Compliance	III	Compliance/IM Related Activiti	Assist IM: Design/Review/Test	0.50		0.50	II
9	50	155	Ensure Compliance	I	Compliance Guidelines	Procedures/Memos/Manuals	0.50		0.50	II
10	50	156	Ensure Compliance	I	Perm Proc/Info to Compliance	Prov Permit Info to Compliance	3.00		3.00	III,IV,XV
11	50	157	Ensure Compliance	I	Compliance/Special Projects	Prog Audits/Data Req/Board Supp	5.00		5.00	IV
12	50	158	Ensure Compliance	I	Compliance Testing	R461/Combustion Equip Testing	1.00		1.00	II
13	50	200	Customer Service and Business Assistance	I	Economic Dev/Bus Retention	Perm Proc/Public Participation	0.10		0.10	III
14	50	210	Monitoring Air Quality	II	Emergency Response	Emerg Tech Asst to Public Saf	0.25		0.25	II,XV
15	50	253	Timely Review of Permits	I	ERC Appl Processing	Process ERC Applications	3.50		3.50	III
16	50	260	Customer Service and Business Assistance	III	Fee Review	Fee Review Committee	0.45		0.45	II,III,IV
17	50	276	Policy Support	I	Board Committees	Admin/Stationary Source Committees	0.25		0.25	Ia
18	50	365	Ensure Compliance	I	Hearing Bd/Variances	Variances/Orders of Abatement	1.50		1.50	VII
19	50	367	Timely Review of Permits	I	Hearing Board/Appeals	Appeals: Permits & Denials	0.50		0.50	III
20	50	375	Ensure Compliance	I	Inspections	Compliance/Inspection/Follow-up	79.20		79.20	IV,V,XV
21	50	377	Ensure Compliance	I	Inspections/RECLAIM Audits	Audit/Compliance Assurance	23.80		23.80	II,IV
22	50	416	Policy Support	I	Legislative Activities	Legislative Activities	0.25		0.25	Ia
23	50	425	Customer Service and Business Assistance	I	Lobby Permit Services	Supp Perm Proc/Customer Svc	1.00		1.00	III
24	50	475	Timely Review of Permits	I	NSR Implementation	Implement NSR/Allocate ERCs	2.50		2.50	II,III,V,XV
25	50	476	Timely Review of Permits	I	NSR Data Clean Up	Edit/Update NSR Data	0.50		0.50	II
26	50	515	Timely Review of Permits	I	Perm Proc/Non TV/Non RECLAIM	PP: Non TitlV/TitlIII/RECLAIM	55.30		55.30	III,XV
27	50	517	Timely Review of Permits	I	Permit Services	Facility Data-Create/Edit	12.50		12.50	III,XV
28	50	518	Timely Review of Permits	I	RECLAIM Non-Title V	Process RECLAIM Only Permits	4.50		4.50	III,IV,XV
29	50	519	Timely Review of Permits	I	Perm Proc/Title III (Non TV)	Process Title III Permits	1.00		1.00	III
30	50	520	Customer Service and Business Assistance	I	Perm Proc/Pre-Appl Mtg Outreac	Pre-App Mtgs/Genl Prescreening	4.00		4.00	III
31	50	521	Timely Review of Permits	I	Perm Proc/Expedited Permit	Proc Expedited Permits (301OT)	0.50		0.50	III
32	50	523	Timely Review of Permits	I	Permit Streamlining	Permit Streamlining	3.75		3.75	III
33	50	538	Ensure Compliance	I	Port Comm AQ Enforcement	Port Comm AQ Enforcement	0.50		0.50	IX
34	50	542	Ensure Compliance	I	Prop 1B:Goods Movement	Prop 1B: Gds Mvmnt/Inspect	0.30		0.30	IX
35	50	550	Ensure Compliance	II	Public Complaints/Breakdowns	Compltresp/Invflwup/Resolutn	10.00		10.00	II,IV,V,XV
36	50	565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Req for Info	0.50		0.50	Ia
37	50	605	Ensure Compliance	I	RECLAIM/Admin Support	Admin/Policy/Guidelines	10.00		10.00	II,III,IV,XV
38	50	607	Timely Review of Permits	I	RECLAIM & Title V	Process RECLAIM & TV Permits	12.40		12.40	III
39	50	650	Develop Rules	I	Rulemaking	Dev/Amend/Impl Rules	0.50		0.50	II,XV
40	50	657	Develop Rules	I	Rulemaking/Support PRA	Provide Rule Development Supp	0.50		0.50	II,XV
41	50	678	Ensure Compliance	I	School Siting	Identify Haz. Emission Sources near Schools	1.00		1.00	II

Engineering & Compliance Work Program by Office										
#	Program Code		Program Category	Goal	Program	Activities	FTEs FY 2014-15	+/-	FTEs FY 2015-16	Revenue Category
42	50	680	Ensure Compliance	I	Small Business Assistance	Asst sm bus w/ Permit Process	0.50		0.50	III,IV
43	50	690	Customer Service and Business Assistance	I	Source Education	Prov Tech Asst To Industries	2.80		2.80	III,IV,V,XV
44	50	728	Timely Review of Permits	I	Perm Proc/IM Programming	Assist IM: Design/Review/Test	2.00		2.00	II,III,IV
45	50	751	Ensure Compliance	I	Title III Inspections	Title III Comp/Insp/Follow Up	0.50		0.50	IV
46	50	752	Develop Rules	I	Title III Rulemaking	Title III Dev/Implement Rules	0.25		0.25	II,V,XV
47	50	771	Ensure Compliance	I	Title V Inspections	Title V Compl/Inspect/Follow Up	11.00		11.00	II,IV
48	50	773	Develop Rules	I	Title V & NSR Rulemaking-Supp	Title V Rules Dev/Amend/Impl	0.25		0.25	II
49	50	774	Timely Review of Permits	I	TV/Non-RECLAIM	Process Title V Only Permits	18.00		18.00	III
50	50	775	Timely Review of Permits	I	Title V – Admin	Title V Administration	1.00		1.00	III
51	50	791	Ensure Compliance	I	Toxics/AB2588	AB2588 Rev Rprts/Risk Redplans	0.25		0.25	X
52	50	805	Operational Support	III	Training	Dist/Org Unit Training	6.00		6.00	Ib
53	50	825	Operational Support	III	Union Negotiations	Official Labor/Mgmt Negotiate	0.10		0.10	Ia
54	50	826	Operational Support	III	Union Steward Activities	Rep Employees in Grievance Act	0.10		0.10	Ia
55	50	850	Ensure Compliance	I	VEE Trains	Smoking Trains-Compl/Inspec/FU	0.50		0.50	IX,XV
56	50	855	Operational Support	II	Web Tasks	Creation/Update of Web Content	0.50		0.50	Ia
						Total	306.00	1.00	307.00	

Engineering & Compliance Line Item Expenditure						
Major Object / Account # **/** Account Description		**FY 2013-14 Actuals**	**FY 2014-15 Adopted Budget**	**FY 2014-15 Amended Budget**	**FY 2014-15 Estimate ***	**FY 2015-16 Proposed**
Salary & Employee Benefits						
51000-52000	Salaries	$ 25,442,987	$ 26,267,107	$ 26,267,107	$ 24,745,348	$ 27,135,885
53000-55000	Employee Benefits	11,894,325	12,995,189	12,995,189	11,981,982	13,413,267
Sub-total Salary & Employee Benefits		$ 37,337,312	$ 39,262,296	$ 39,262,296	$ 36,727,329	$ 40,549,152
Services & Supplies						
67250	Insurance	$ -	$ -	$ -	$ -	$ -
67300	Rents & Leases Equipment	-	-	-	-	-
67350	Rents & Leases Structure	100,264	92,706	92,706	92,706	101,706
67400	Household	-	-	-	-	-
67450	Professional & Special Services	1,320	5,000	874,195	874,195	16,000
67460	Temporary Agency Services	36,369	50,000	34,000	36,369	30,000
67500	Public Notice & Advertising	78,814	65,000	90,000	65,000	80,000
67550	Demurrage	-	500	500	-	500
67600	Maintenance of Equipment	8,583	21,500	21,500	17,607	21,500
67650	Building Maintenance	-	-	-	-	-
67700	Auto Mileage	12,403	12,000	12,000	12,000	15,000
67750	Auto Service	-	1,000	1,000	-	1,000
67800	Travel	26,259	38,110	29,110	29,824	35,110
67850	Utilities	-	-	-	-	-
67900	Communications	154,525	136,590	136,590	136,590	163,590
67950	Interest Expense	-	-	-	-	-
68000	Clothing	8,607	13,320	13,320	13,320	13,320
68050	Laboratory Supplies	2,085	5,000	5,000	4,663	5,000
68060	Postage	37,096	40,000	40,000	35,119	40,000
68100	Office Expense	134,592	99,594	99,594	70,377	72,594
68200	Office Furniture	-	2,500	2,500	2,500	2,500
68250	Subscriptions & Books	256	800	800	256	800
68300	Small Tools, Instruments, Equipment	16,338	23,460	23,460	16,338	23,460
68400	Gas and Oil	-	-	-	-	-
69500	Training/Conference/Tuition/ Board Exp.	16,883	9,900	9,900	9,900	9,900
69550	Memberships	-	1,500	1,500	-	1,500
69600	Taxes	-	-	-	-	-
69650	Awards	-	-	-	-	-
69700	Miscellaneous Expenses	6,500	10,000	10,000	3,528	10,000
69750	Prior Year Expense	(101)	-	-	-	-
69800	Uncollectable Accounts Receivable	-	-	-	-	-
89100	Principal Repayment	-	-	-	-	-
Sub-total Services & Supplies		$ 640,792	$ 628,480	$ 1,497,675	$ 1,420,291	$ 643,480
77000	**Capital Outlays**	$ 68,392	$ 50,000	$ 50,000	$ 45,000	$ 50,000
79050	**Building Remodeling**	$ -	$ -	$ -	$ -	$ -
Total Expenditures		$ 38,046,496	$ 39,940,776	$ 40,809,971	$ 38,192,620	$ 41,242,632
* Estimates based on July 2014 through February 2015 actual expenditures and budget amendments.						

SCAQMD Quick Facts

- Created by the 1977 Lewis Air Quality Management Act; amended by 1988 Lewis-Presley Air Quality Management Act (Health & Safety Code §40400-40540).
    - Regional governmental agency (Special District)
- Jurisdiction for comprehensive air pollution control over all of Orange County, all of Los Angeles County except for the Antelope Valley, the non-desert portion of western San Bernardino County and the western and Coachella Valley portion of Riverside County
    - 10,743 Square Miles
    - Boundaries are Pacific Ocean to the west; San Gabriel, San Bernardino and San Jacinto Mountains to the north and east, and the San Diego County line to the south
    - Population - 16,538,490
    - Vehicle Registrations - 12,657,980
- Responsibilities include:
    - Monitoring air quality - 40 air monitoring stations
    - Planning, implementing, and enforcing programs to attain and maintain state and federal ambient air quality standards
        - Developing air quality rules and regulations that regulate stationary source emissions from such facilities as oil refineries, power plants, paint spray booths, incinerators, manufacturing plants, dry cleaners, and service stations
        - Establishing permitting requirements and issuing permits for stationary sources (27,298 operating locations with 74,603 permits)
- Decision-making body is a 13 member Governing Board
    - Total of 10 elected officials with four appointed by the Board of Supervisors from each of the four counties and six appointed by cities within the District
    - Three officials appointed by the Governor, the Speaker of the State Senate, and the Rules Committee of the State Senate

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Operating Indicators by Function
Last Nine Fiscal Years

Program Category	2006	2006	2006	2006	2010	2011	2012	2013	2014
Advance Clean Air Technology									
Contracts awarded	180	304	295	292	530	526	556	938	523
Total Funding awarded	$ 79,893,504	$133,603,750	$ 91,309,725	$ 89,421,125	$180,669,515	$ 131,399,287	$ 82,536,619	$ 207,181,573	$ 216,085,526
Ensure Compliance with Clean Air Rules									
Inspections	35,161	35,039	33,742	40,558	33,735	33,560	34,191	32,535	29,501
Notices of Violations	1,759	1,407	1,321	1,908	1,530	1,254	1,211	965	956
Hearing Board Orders for Abatement	61	49	30	36	35	47	93	51	46
Hearing Board Appeals	12	12	22	19	20	2	7	3	7
Customer Service									
Public Information Requests	4,956	4,651	3,528	4,962	3,821	3,410	3,543	3,460	4,505
Community/Public Meetings attended	118	182	145	198	202	190	274	294	264
Small Business Assistance Contacts	1,812	2,289	2,680	2,662	2,578	2,497	2,574	2,266	1,850
Develop Programs to Achieve Clean Air									
Transportation Plans processed	1,426	1,502	1,534	1,412	1,372	1,385	1,392	1,371	1,333
Emission Inventory Updates	229	284	439	586	703	521	530	408	460
Develop Rules to Achieve Clean Air									
Rules Developed	35	24	29	32	15	40	8	20	24
Monitoring Air Quality									
Samples Analyzed by the Laboratory	37,889	14,683	31,530	25,400	29,685	28,915	29,520	32,520	29,340
Source Testing Analyses/Evaluations/Reviews	598	830	794	718	740	1,030	952	1,035	968
Timely Review of Permits									
Applications Processed	9,747	9,481	9,599	11,564	9,627	13,044	12,225	14,153	13,217
Applications Received-Small Business	-	-	-	627	694	798	732	615	514
Applications Received-All Others	9,222	8,261	9,297	10,954	10,941	10,769	11,682	11,709	11,156
Policy Support									
News releases	48	44	51	76	69	64	57	61	62
Media Calls	n/a	643	684	334	313	252	520	1,131	774
Media Inquiries Completed	268	604	684	334	313	252	520	1,131	774

FINANCIAL POLICIES

SCAQMD is required to follow specific sections of the California Health & Safety Code, which guide SCAQMD's overall financial parameters. The Governing Board also provides financial direction to SCAQMD staff through the adoption of various financial-related policies. In addition, the Executive Officer's Administrative Policies and Procedures offer further financial guidance. Below is an overview of the guidelines and procedures for the applicable financial-related policies.

California Health & Safety Code (CA H&SC)

- District Budget Adoption – CA H&SC §40130

  The District shall prepare, and make available to the public at least 30 days prior to public hearing, a summary of its budget and any supporting documents, including, but not limited to, a schedule of fees to be imposed by the district to fund its programs. The district shall notify each person who was subject to fees imposed by the district in the preceding year of the availability of information. The district shall notice and hold a public hearing for the exclusive purpose of reviewing the budget and of providing the public with the opportunity to comment upon the proposed district budget.

- Fees Assessed on Stationary Sources – CA H&SC §40500.1

  Fees assessed on stationary sources shall not exceed, for any fiscal year, the actual costs of district programs for the immediately preceding fiscal year with an adjustment not greater than the change in the California Consumer Price Index (CPI), for the preceding calendar year, from January 1 of the prior year to January 1 of the current year. Unless specifically authorized by statute, the total amount of all of the fees collected from stationary sources of emissions in the 1995-96 fiscal year, and in each subsequent fiscal year, shall not exceed the level of expenditure in the 1993-94 fiscal year, except that the total fee amount may be adjusted annually by not more than the percentage increase in the California CPI. Any new state or federal mandate that is applicable to the SCAQMD on and after January 1, 1994 shall not be subject to this section.

- Limitation on Increase in Permit Fees – CA H&SC §40510.5

  Existing permit fees shall not increase by a percentage greater than any percentage increase in the California CPI for the preceding calendar year, unless the board makes a finding, based upon relevant information in a rulemaking record, that the fee increase is necessary and will result in an apportionment of fees that is equitable. Any fee increase above CPI shall be phased in over a period of at least two years.

SCAQMD Governing Board Policy

- Rule 320 - Automatic Fee Adjustment

  Rule 320 provides that all Regulation III fees, with specified exceptions, are automatically adjusted July 1 of each year by the California Consumer Price Index for the preceding calendar year unless the Governing Board decides not to implement a fee adjustment, or to implement a different adjustment for a given year, either for all fees or for a specified fee or fees. The Executive Officer is directed to prepare annually a socioeconomic impact of the effect of the fee adjustment for review by stakeholders and the Governing Board and to hold a public hearing on the automatic fee adjustment to receive any public comments. Public comments and any responses, along with recommendations by the Budget Advisory Committee, are to be forwarded to the Governing Board by April 15 of each year.

- Unreserved Fund Balance Policy

  The Unreserved Fund Balance Policy, originally adopted by the Board in June 2005 and adjusted in June 2014, states that the Unreserved Fund Balance in the General Fund should be maintained at a minimum of 20 percent of revenues. GFOA Recommended Best Practices prescribe a minimum 17% reserve amount plus an additional amount based on the organization's reliance on revenue over which it has no control. The 20% reserve amount is derived from the minimum 17% plus an additional 3% to account for SCAQMD's reliance on state subvention ($4M), U.S. EPA Section 103/105 grants ($5M), and one-time penalties and settlements ($5M).

- Annual Investment Policy

  The Annual Investment Policy sets forth the investment guidelines for all general, special revenue, trust, agency and enterprise funds of the South Coast Air Quality Management District (SCAQMD). The purpose of this policy is to ensure all of SCAQMD's funds are prudently invested to preserve principal and provide necessary liquidity, while earning a market average rate of return. The SCAQMD Annual Investment Policy conforms to the California Government Code as well as customary standards of prudent investment management.

  The objectives of the policy, in priority order, are Safety of Principal, Liquidity, and Market Rate of Return. The policy establishes and defines investable funds, authorized instruments, credit quality requirements, maximum maturities and concentrations, collateral requirements, and qualifications of brokers, dealers, and financial institutions doing business with or on behalf of the SCAQMD.

The policy provides the Governing Board, the Treasurer, the Chief Financial Officer, and the Investment Oversight Committee with set duties and responsibilities to execute the policy.

- Treasury Operations Contingency Plan and Procedures

  The Treasury Operations Contingency Plan and Procedures states the course of action that may be implemented by the SCAQMD to protect the safety and liquidity of the SCAQMD funds and to protects SCAQMD from disruptions to ongoing operations if: 1) the financial stability of Los Angeles County may jeopardize SCAQMD funds invested through the Los Angeles County Treasurer; and/or 2) the Los Angeles County Treasurer, as Treasurer of SCAQMD, can no longer provide the treasury services currently provided in a satisfactory manner.

  Under authority granted by Resolution 97-32, the Executive Officer, upon recommendation of the Chief Financial Officer and concurrence of the Administrative Committee, can appoint either the Chief Financial Officer or Controller as Acting Treasurer to immediately begin implementing the defined procedures to safeguard SCAQMD funds.

- Budget Advisory Committee

  Established by the SCAQMD Governing Board, the Budget Advisory Committee serves in an advisory capacity to the SCAQMD on budgeting and financial planning matters. The committee, made up of members from the business and environmental community, provides additional insight during the annual budget process by reviewing and commenting on the proposed draft budget.

- Administrative Code

  The Administrative Code of Rules and Procedures prescribes the responsibilities, conduct and specified reimbursements of SCAQMD employees and SCAQMD Board members. Sections include, but are not limited to, mileage reimbursement, travel expenses, tuition reimbursement, professional licenses and memberships, and bilingual pay.

- Procurement Policy and Procedure

  The Procurement Policy and Procedure provides the guidelines for the contracting and/or purchasing of services, material, equipment, supplies and fixed assets (i.e. capital outlays) by the SCAQMD under the direction of the Procurement Manager. These guidelines include, but are not limited to, purchasing methods, bidding procedures, signature authorization levels, fixed asset acquisition and disposition, and publication requirements for advertised procurements.

Procedures are in place to ensure that all businesses including minority business enterprises, women business enterprises, disabled veteran business enterprises and small businesses have a fair and equitable opportunity to compete for and participate in SCAQMD contracts and that SCAQMD utilizes, when necessary, the most highly qualified outside consultants/contractors to carry out the organization's responsibilities. SCAQMD Executive Officer, Deputy/Assistant Deputy Executive Officers, Legal Counsel, the Procurement Section, and staff all have responsibilities to execute the Procurement Policy and Procedure.

Executive Officer Administrative Policies and Procedures

- Travel

  The Travel Policy provides guidance on allowable travel expenses, travel advances, and documentation requirements.

- Fixed Assets and Controlled Items

  The Fixed Assets and Controlled Items policy provides guidance on the receipt, transfer, inventory, accountability, and disposal of fixed assets and controlled items.

- Purchasing of Non-Consultant Services and Supplies

  The Purchasing of Non-Consultant Services and Supplies policy provides guidance in implementing the purchase of non-consultant services and supplies as addressed in Section IV of the SCAQMD Procurement Policy and Procedure document.

BUDGET GLOSSARY

Adopted Budget	The annual budget for the General Fund that has been approved by SCAQMD's Governing Board.
Amended Budget	The adopted budget plus any modifications approved by SCAQMD's Governing Board during the fiscal year.
Appropriation	A specific amount of money authorized by SCAQMD's Governing Board which permits the SCAQMD to incur obligations and to make expenditures of resources.
Budget Advisory Committee	A committee made up of representatives from the business and environmental communities who review and provide feedback on SCAQMD's financial performance and proposed draft budget.
Budgetary Basis of Accounting	A form of accounting used in the budget where encumbered amounts are recognized as cash expenditures.
Balanced Budget	A budget in which planned expenditures do not exceed planned revenues.
Capital Asset	Tangible asset with an initial individual cost of $5,000 or more and a useful life of at least three years or intangible assets with an individual cost of $5,000 or more and a useful life of at least one year.
Capital Outlays	Expenditures for capital assets; A Major Object, or classification of expenditures, within SCAQMD's budget.
CPI-Based Fee Increase	Increases to fees (emission, annual operating, permit processing, Hot Spots, area sources, transportation, source test/analysis, and Hearing Board) based on the change in the Consumer Price Index for the preceding calendar year as reported for California Department of Finance–All Urban Consumer Series. This is in accordance with the California Health and Safety Code §40510.5.
Debt Service	The cost to cover the repayment of interest and principal on a debt for a particular period of time.
Debt Structure	The make-up of long-term debt. SCAQMD's long-term debt has been taken on to fund building and pension obligations.
Designation	Undesignated Fund Balance that has been set aside for specific purposes by actions of SCAQMD's Governing Board.
Encumbrance	An amount of money committed for the payment of goods and services that have not yet been received or paid for.

BUDGET GLOSSARY

Expenditures	Charges incurred for goods and services.
Fee Schedule	The State Legislature has authorized air districts to levy fees to support industry related programs which improve air quality. The schedule of fees levied by SCAQMD is approved by SCAQMD's Governing Board as part of the annual budget process. (Also see Regulation III.)
Fiscal Year	A period of 12 consecutive months selected to be the budget year. SCAQMD's fiscal year runs from July 1 to June 30.
FTE	Full Time Equivalent; A measure of the level of staffing. One FTE equates to 2,080 hours of paid time within a 12 month period.
Fund Balance	The accumulation of revenues less expenditures within a fund for a specific year. SCAQMD's fund balance is broken out into Reserves, Designations and Undesignated Fund Balance. In accordance with GASB-54, the fund balance is further defined as Committed, Nonspendable, and Assigned.
General Fund	The primary operating fund for SCAQMD where costs and revenues associated with the daily operations of SCAQMD are accounted for.
Grant	A sum of money given by an organization for a particular purpose. SCAQMD's grants which provide funding to the General Fund are primarily received from the Environmental Protection Agency (EPA), the Department of Homeland Security (DHS), and the Department of Energy (DOE).
Major Object	A term representing the classification of SCAQMD's annual budget into three categories: Salary and Employee Benefits, Services and Supplies, and Capital Outlays.
Mobile Source Revenues	Revenues received from motor vehicle registrations and from the administration of motor vehicle programs aimed at reducing air pollution from motor vehicles.
Pension Obligation Bonds (POBs)	A method of financing used by SCAQMD to refinance its obligations to its employees' pension fund.
Proposed Draft Budget	The annual budget that has been developed by SCAQMD and made available to the public for review but not yet presented to its Governing Board for approval.

BUDGET GLOSSARY

Regulation III	The rule that establishes the fee rates and schedules associated with permitting, annual renewals, emissions and other activities that help fund most of SCAQMD's regulatory programs and services. (Also see Fee Schedule.)
Reserves	Funding within the Fund Balance that is set aside for a specific future use and not available for any other purpose.
Revenue	Monies the SCAQMD receives as income. SCAQMD's revenue is mainly from fees charged to control or regulate emissions.
SBCERA	San Bernardino County Employment Retirement System manages the retirement plan for SCAQMD employees.
Salaries and Employee Benefits	Expenditures for Salary expenses and employee, retirement and insurance benefits. It is a Major Object, or classification of expenditures, within SCAQMD's budget.
Services and Supplies	Expenditures for items and services needed for the daily operations of the SCAQMD including professional services, utilities, office expenses, maintenance, and debt service. It is a Major Object, or classification of expenditures, within SCAQMD's budget.
Special Revenue Fund	A fund used to account for revenues and expenditures from specific sources earmarked for specific purposes. SCAQMD's main operating fund is its General Fund. All other funds are designated as Special Revenue Funds. The SCAQMD does not adopt a budget for Special Revenue Funds.
State Subvention	Assistance provided by the state for a specific purpose. The state of California provides assistance to air districts in recognition that they perform mandated functions such as compliance assistance, planning, and rule development that should be covered by state funding sources.
Stationary Source Fees	Revenues collected from emission fees, permit fees, and annual operating fees to support activities for improving air quality.
Transfer In/Out	A transfer of funds between different funds within SCAQMD. A transfer of cash from the General Fund to a Special Revenue Fund would be a Transfer Out for the General Fund and a Transfer In for the Special Revenue Fund.
Undesignated Fund Balance	Unreserved Fund Balance that is not designated for a specific purpose and can only be used upon approval of SCAQMD's Governing Board.

Work Programs Activities carried out by SCAQMD staff. Work Programs are classified into nine Work Program Categories according to the nature of the activity being performed.

Air Quality Historical Timeline

Photo courtesy of Los Angeles Times Collection, Department of Special Collections, UCLA Library

First recognized episodes of smog occur in Los Angeles in the summer of 1943.

1943

1947

Los Angeles County Air Pollution Control District (APCD) established–the first of its kind in the nation.

1950

Orange County APCD established.

1957

San Bernardino and Riverside County APCDs formed.

1966

California adopts first automobile tailpipe emission standards in the nation.

1968

California Air Resources Board (CARB) holds its first meeting with Dr. Arie J. Haagen-Smit as its first chairman.

1970

Federal Clean Air Act is enacted, establishing the basic U.S. program for controlling air pollution.

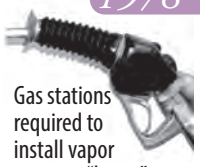
1971

U.S. EPA, created in 1970,adopts first national air quality standards.

1977

SCAQMD formed through merger of Los Angeles, Orange, Riverside and San Bernardino APCDs.

1978



Gas stations required to install vapor recovery "boots" on gas nozzles.

1984

California's Smog Check program takes effect.

1987

1989

SCAQMD adopts first Air Quality Management Plan to show attainment of clean air standards.

1990

Federal Clean Air Act Amendments of 1990 enacted. Established new programs aimed at curbing urban ozone, toxic emissions, and vehicle emissions.

1993

RECLAIM (REgional CLean Air Incentives Market) emissions trading program adopted.

1998

The Carl Moyer Program established to reduce mobile source emissions.

2002

SCAQMD adopts the nation's first phase-out of the toxic chemical perchloroethylene (or "perc") used at dry cleaners.

2003

SCAQMD Mow Down Air Pollution Electric Lawnmower Exchange Program begins.

2006

California Global Warming Solutions Act of 2006 (AB 32) enacted to establish first ever comprehensive program to reduce greenhouse gases.

2008

SCAQMD adopts Climate Change Policy.

2011

Federal agencies and the State of California establish single timeframe for corporate average fuel economy (CAFE) and greenhouse gas standards for the next generation of cars and light-duty trucks.

2014-2027

Projected achievement of current air quality health standards in South Coast air basin.

South Coast
Air Quality Management District

21865 Copley Drive
Diamond Bar, CA 91765-4178

www.aqmd.gov

CHAPTER III
CLEAN FUELS ANNUAL REPORT FOR 2014/2015

[An independent report to the Legislature on the Clean Fuels Program is required by March 31 of each year pursuant to Health and Safety Code 40448.5.1. The Clean Fuels Annual Report is included here as Chapter III.]

Clean Fuels Program

2014 Annual Report and 2015 Plan Update

Technology Advancement Office

leading the way to zero emission technologies

March 2015

South Coast
Air Quality
Management District

South Coast AQMD

South Coast Air Quality Management District

Governing Board

Chairman

William A. Burke, Ed.D.
Assembly Speaker Appointee

County Representatives

Michael D. Antonovich
Supervisor, Los Angeles County

Shawn Nelson
Supervisor, Orange County

Janice Rutherford*
Supervisor, San Bernardino County

John J. Benoit**
Supervisor, Riverside County

State Representatives

Dr. Clark E. Parker, Sr.
Senate Rules Committee Appointee

Joseph K. Lyou, Ph.D.
Governor's Appointee

Vice Chairman

Dennis R. Yates*
Mayor, City of Chino
San Bernardino County Cities

Cities Representatives

Joe Buscaino*
Councilmember, City of Los Angeles
City of Los Angeles

Michael Cacciotti
Councilmember, City of South Pasadena
Los Angeles County, Eastern Region

Judith Mitchell*
Councilmember, City of Rolling Hills Estates
Los Angeles County, Western Region

Miguel A. Pulido*
Mayor, City of Santa Ana
Orange County Cities

Ben Benoit
Mayor, City of Wildomar
Riverside County Cities

Executive Officer
Barry R. Wallerstein, D.Env.

*Technology Committee Members **Technology Committee Chairman

South Coast Air Quality Management District
Technology Advancement Office

Matt Miyasato, Ph.D., Deputy Executive Officer, Science & Technology Advancement
Henry Hogo, Assistant Deputy Executive Officer, Mobile Sources
Laki T. Tisopulos, Ph.D., P.E., Assistant Deputy Executive Officer, Source Testing, Ambient Monitoring & Laboratory Analysis
Fred Minassian, Assistant Deputy Executive Officer, Technology Advancement Office
Lourdes Cordova Martinez, Community Relations Manager

Al Baez, Program Supervisor
Connie Day, Program Supervisor
Ranji George, Program Supervisor
Joseph Impullitti, Program Supervisor
Lisa Mirisola, Program Supervisor
Vicki White, Program Supervisor

Vasken Yardemian, Sr. Staff Specialist

Walter Shen, Staff Specialist

Brian Choe, Air Quality Specialist
Mark Coleman, Air Quality Specialist
Patricia Kwon, Air Quality Specialist
Von Loveland, Air Quality Specialist
Ashkaan Nikravan, Air Quality Specialist
Shashi Singeetham, Air Quality Specialist
Greg Ushijima, Air Quality Specialist
Mei Wang, Air Quality Specialist
Andrew Yoon, Air Quality Specialist
Greta Grier, Air Quality Inspector II
Arun Kumar, Air Quality Inspector II

Drue Hargis, Senior Public Information Specialist

Laurie Diton, Senior Administrative Secretary
Pat Krayser, Senior Administrative Secretary
Penny Shaw Cedillo, Administrative Secretary
Marjorie Eaton, Secretary
Donna Vernon, Secretary
Lani Montojo, Staff Assistant
Michelle White, Staff Assistant
Benigna Taylor, Contracts Assistant
Ana Troccoli, Contracts Assistant
Deanna Doerr, Senior Office Assistant
Lizette Acosta, Office Assistant

Other Staff Contributors
Philip Barroca, Air Quality Specialist
Lori Berard, Air Quality Specialist
Richard Carlson, Air Quality Specialist
David Coel, Program Supervisor
Wei Li, Air Quality Specialist
Frank Motavassel, Air Quality Specialist
Adewale Oshinuga, Program Supervisor
Jean Ospital, Ph.D., Health Effects Officer, Planning, Rule Development & Area Sources
Randall Pasek, Ph.D., Off-Road Mobile Source Manager
Dean Saito, On-Road Mobile Source Manager

Table of Contents

Figures

Tables

EXECUTIVE SUMMARY

Introduction

The South Coast Air Quality Management District (SCAQMD) is the air pollution control agency for all of Orange County and the urban portions of Los Angeles, Riverside and San Bernardino counties. This region, which encompasses all of the South Coast Air Basin plus small portions of the Mojave Desert and Salton Sea Air Basins, historically experiences the worst air quality in the nation due to the natural geographic and atmospheric conditions of the region coupled with the high population density and associated mobile and stationary source emissions. Recognizing this challenge, in 1988 the state established the SCAQMD's Clean Fuels Program (Program), along with the SCAQMD's Technology Advancement Office (TAO). The Clean Fuels Program affords the SCAQMD the ability to fund the development, demonstration and accelerated deployment of clean fuels and transportation technologies. For over 20 years, using funding received through a $1 motor vehicle registration fee, the Clean Fuels Program has encouraged, fostered and supported clean fuels and transportation technologies such as hydrogen and fuel cells, natural gas engines and infrastructure, battery electric vehicles, plug-in hybrid electric vehicles and related fueling infrastructure. A key strategy of the Program is its implementation as a public-private partnership in conjunction with private industry, technology developers, academic institutions, research institutions and government agencies. The SCAQMD Clean Fuels Program has traditionally supported a portfolio of technologies, in different stages of maturity, to provide a continuum of emission reductions and health benefits over time.

Health & Safety Code (H&SC) 40448.5.1 requires the SCAQMD to annually prepare, and submit to the Legislative Analyst each year, a Clean Fuels Annual Report and Plan Update. The Clean Fuels Annual Report looks at what the Program accomplished in the prior calendar year (CY) and the Clean Fuels Plan Update looks ahead at proposed expenditures for the next CY, essentially re-calibrating the technical direction of the Program. This document comprises both the 2014 Clean Fuels Annual Report and the 2015 Plan Update.

The overall strategy of the SCAQMD's Clean Fuels Program is based in large part on technology needs identified through the Air Quality Management Plan (AQMP) process and the SCAQMD Board's directives to protect the health of residents in Southern California, which encompasses approximately 16.8 million people (nearly half the population of California). The AQMP is the long-term "blueprint" that defines:

- the basin-wide emission reductions needed to achieve federal ambient air quality standards;
- the regulatory measures to achieve those reductions;
- the timeframes to implement these proposed measures; and
- the technologies required to meet these future proposed regulations.

The 2012 AQMP identified the need for 200 tons/day oxides of nitrogen (NO_x) reductions to be adopted by 2020 for full implementation by 2023 and in large part focused control measures on transportation technologies and cleaner fuels. These emission reduction needs are further identified in a joint SCAQMD, California Air Resources Board (CARB) and San Joaquin Air Pollution Control District effort, "Vision for Clean Air: A Framework for Air Quality and Climate Control Planning."[1] Moreover, the SCAQMD is currently only one of two regions in the nation recognized as an extreme ozone nonattainment area (the other is San Joaquin Valley). Ozone (smog) is created by a chemical reaction between NO_x and volatile organic compounds (VOC) emissions at ground level. This is especially noteworthy because the largest contributor to ozone is NO_x emissions, and mobile sources

[1] http://www.arb.ca.gov/planning/vision/docs/vision_for_clean_air_public_review_draft.pdf

(on- and off-road as well as aircraft and ships) contribute to more than three-fourths of the NO_x emissions in this region.

The daunting challenge to reduce ozone and NO_x requires the Clean Fuels Program to encourage and accelerate advancement of transformative fuel and transportation technologies, leading the way for commercialization of progressively lower-emitting fuels and vehicles. If this region hopes to meet the 8-hour ozone standard (80 ppb) by 2023, it is projected that a 65% reduction in NO_x is required. The NO_x and VOC emission sources of greatest concern to this region are heavy-duty on-road and off-road vehicles as well as to a lesser extent light- and medium-duty on-road vehicles. In addition to NO_x and VOCs, fine particulate matter ($PM_{2.5}$) produced from mobile sources must also be reduced. . Given the relationship between NO_x, ozone and $PM_{2.5}$, the 2015 Plan Update must emphasize emission reductions in these areas.

In recent years, it has become increasingly clear that the effect of containers through the Ports of Los Angeles and Long Beach and the subsequent movement of goods throughout the region not only have a dramatic impact on air quality but also the quality of life to the communities along the major goods movement corridors. In recognition of these impacts, the SCAQMD has initiated a concerted effort in the last couple of years to actively develop and demonstrate zero and near-zero emissions goods movement technologies, such as electric trucks, plug-in hybrid trucks with all-electric range, zero emission container transport technologies, trucks operating from wayside power including catenary technology and heavy-duty technologies.

The prioritization of these types of projects is emphasized in the 2015 Plan Update portion of the report. The 2014 Annual Report highlights the projects contracted during the previous calendar year and reflects the current status of the program.

2014 Annual Report

During CY 2014 the SCAQMD executed 65 new contracts, projects or studies and modified 7 continuing projects adding additional dollars toward research, development, demonstration and deployment (RDD&D) of alternative fuel and clean fuel technologies. Table 2 (page 28) lists these 72 projects or studies, which are further described in this report. The SCAQMD Clean Fuels Program contributed approximately $14.3 million in partnership with other governmental organizations, private industry, academia and research institutes, and interested parties, with total project costs of nearly $64.7 million. Table 3 (page 31) provides information on outside funding received into the Clean Fuels Fund (almost $6 million in 2014) as cost-share passed through the SCAQMD for the contracts executed in CY 2014. Table 4 (page 32) provides a comprehensive summary of federal and state revenue awarded to the SCAQMD during CY 2014 (nearly $20 million) for projects to be included within the Clean Fuels Program or which align well with and are complementary to the Clean Fuels Program.

The projects or studies executed in 2014 addressed a wide range of issues and opportunities with a diverse mix of advanced technologies. The following core areas of technology advancement for 2014 executed projects (in order of funding percentage) include:

- Electric and Hybrid Vehicle Technologies and Related Infrastructure (emphasizing electric and hybrid electric trucks and zero emission container transport technologies)
- Engine Systems (particularly heavy-duty natural gas engines for truck and rail applications)
- Fueling Infrastructure and Deployment (predominantly compressed and liquid natural gas)
- Hydrogen and Mobile Fuel Cell Technologies and Infrastructure
- Health Impacts Studies

- Fuels and Emission Studies
- Outreach and Technology Transfer

During CY 2014, the SCAQMD supported a variety of projects and technologies, ranging from near-term to long-term research, development, demonstration and deployment activities. This "technology portfolio" strategy provides the SCAQMD the ability and flexibility to leverage state and federal funding while also addressing the specific needs of the South Coast Air Basin (Basin). Projects executed in CY 2014 included continued development and demonstration of electric and hybrid technologies with an emphasis on zero emission goods movement technologies, development and demonstration of heavy-duty natural gas engines and vehicles, natural gas fueling infrastructure, and development and demonstration of hydrogen technologies and infrastructure.

As of January 1, 2015, there were 121 open contracts in the Clean Fuels Program; these are summarized in Appendix B.

Forty research, development, demonstration and deployment projects or studies and six technology assessment and transfer contracts were completed in 2014, as listed in Table 5 (page 61). Appendix C comprises two-page summaries of the technical projects completed in 2014. In accordance with California Health and Safety Code Section 40448.5.1(d), this report must be submitted to the state legislature by March 31, 2015, after approval by the SCAQMD Governing Board.

2015 Plan Update

Every year TAO staff re-evaluates the Clean Fuels Program to craft a Plan Update which essentially serves to re-calibrate the compass. The Program continually seeks to support the deployment of lower-emitting technologies. The design and implementation of the Program Plan must balance the needs in the various technology sectors with technology readiness, emissions reduction potential and co-funding opportunity. As the state and federal governments have turned a great deal of their attention to climate change, the SCAQMD has remained committed to developing, demonstrating and commercializing zero and near-zero emission technologies. Fortunately many, if not the majority, of technology sectors that address our need for NO_x reductions also garner greenhouse gas (GHG) reductions. Due to these "co-benefits," the SCAQMD has been successful in partnering with the state and federal government. To identify project or technology opportunities in which its available funding can make a significant difference in deploying progressively cleaner technologies in the Basin, the SCAQMD employs a number of outreach and networking activities. These range from intimate involvement with state and federal collaboratives, partnerships and industrial coalitions to issuing Program Opportunity Notices to essentially throw out a wide net to solicit project ideas and concepts and Requests for Information to determine the state of various technologies and what is needed to advance those technologies.

As mentioned, the overall strategy is based in large part on technology needs identified in the SCAQMD's AQMP and the SCAQMD Governing Board's directives to protect the health of residents in the Basin. The NO_x, VOC and PM emission sources of greatest concern are heavy-duty on-road vehicles, light-duty on-road vehicles and off-road equipment.

The Plan Update includes projects to develop, demonstrate and commercialize a variety of technologies, from near term to long term, that are intended to provide solutions to the emission control needs identified in the 2012 AQMP. While modest NO_x and $PM_{2.5}$ reductions will be needed to meet the federal $PM_{2.5}$ standard in 2015, significant NO_x and $PM_{2.5}$ reductions will be necessary to meet the federal 8-hour ozone standards by 2023 and 2032, in addition to the 1-hour ozone standard of 0.125 ppm by 2022 (which must be met as a result of a 2012 court case even though EPA had previously revoked this standard) and the newly revised federal annual $PM_{2.5}$ standard of 12 $\mu g/m^3$. Given the need for these significant reductions over the next 10-20 year timeframe, mid- and longer-

term alternative fuels, hybrid, electric and fuel cell based technologies are emphasized. Several of the technology areas of focus include:

- reducing emissions from port-related activities, such as cargo handling equipment and container movement technologies, including demonstration and deployment of zero emission cargo container movement systems;
- mitigating criteria pollutant increases from renewable fuels, such as low-blend ethanol and high-blend biodiesel;
- increased activities in electric, hybrid, battery and plug-in hybrid technologies across light-, medium- and heavy-duty platforms; and
- production of transportation fuels and energy from renewable biowaste sources.

Table 6 lists the potential projects across the core technologies identified in this report. Potential projects for 2015 total more than $16.4 million, with anticipated leveraging of approximately $79 million. The proposed projects may also be funded by revenue sources other than the Clean Fuels Program, especially VOC and incentive projects.

CLEAN FUELS PROGRAM
Background & Overview

Program Background

The Basin, which comprises all of Orange County and the urban portions of Los Angeles, San Bernardino and Riverside Counties, has the worst air quality in the nation due to a combination of factors, including high vehicle population, high vehicle miles traveled within the Basin and geographic and atmospheric conditions favorable for photochemical oxidant (smog) formation. Due to these challenges, the state legislature enabled the SCAQMD to implement the Clean Fuels Program to accelerate the implementation and commercialization of clean fuels and advanced technologies in the Basin. In 1999, state legislation was passed which amended and extended the Clean Fuels Program. Specifically, as stated in the California Health and Safety Code (H&SC) section 40448.5.1(d), the SCAQMD must submit to the Legislature, on or before March 31 of each year, an annual report that includes:

1. A description of the core technologies that the SCAQMD considers critical to ensure attainment and maintenance of ambient air quality standards and a description of the efforts made to overcome barriers to commercialization of those technologies;
2. An analysis of the impact of the SCAQMD's Clean Fuels Program on the private sector and on research, development and commercialization efforts by major automotive and energy firms, as determined by the SCAQMD;
3. A description of projects funded by the SCAQMD, including a list of recipients, subcontractors, co-funding sources, matching state or federal funds and expected and actual results of each project advancing and implementing clean fuels technology and improving public health;
4. The title and purpose of all projects undertaken pursuant to the Clean Fuels Program, the names of the contractors and subcontractors involved in each project and the amount of money expended for each project;
5. A summary of the progress made toward the goals of the Clean Fuels Program; and
6. Funding priorities identified for the next year and relevant audit information for previous, current and future years covered by the project.

Furthermore, H&SC section 40448.5.1(a)(2) requires the SCAQMD to find that the proposed program and projects funded as part of the Clean Fuels Program will not duplicate any other past or present program or project funded by the state board and other government and utility entities. This finding does not prohibit funding for programs or projects jointly funded with another public or private agency where there is no duplication. The following section describes the panel of external experts that helps review the Clean Fuels Program.

Program Review

In 1990, the SCAQMD initiated an annual review of its technology advancement program by an external panel of experts. That external review process has evolved, in response to SCAQMD policies and legislative mandates, into two external advisory groups. The Technology Advancement Advisory Group (one of six standing Advisory Groups that make up the SCAQMD Advisory Council) is made up of stakeholders representing industry, academia, regulatory agencies, the scientific community and environmental impacts. The Technology Advancement Advisory Group serves to:

- Coordinate the SCAQMD program with related local, state and national activities;
- Review and assess the overall direction of the program; and
- Identify new project areas and cost-sharing opportunities.

In 1999, the second advisory group was formed as required by SB 98 (Alarcon). Under H&SC Section 40448.5.1(c), this advisory group must comprise 13 members with expertise in clean fuels technology and policy or public health and appointed from the scientific, academic, entrepreneurial, environmental and public health communities. This legislation further specified conflict-of-interest guidelines prohibiting members from advocating expenditures towards projects in which they have professional or economic interests. The objectives of the SB 98 Clean Fuels Advisory Group are to make recommendations regarding projects, plans and reports, including approval of the required annual report prior to submittal to the SCAQMD Governing Board. Also in 1999, in light of the formation of the Clean Fuels Advisory Group, the SCAQMD also revisited the charter and membership of the Technology Advancement Advisory Group to ensure their functions would complement each other.

On an as-needed basis, changes to the composition of the Clean Fuels Advisory Group are reviewed by the SCAQMD Board while changes to the Technology Advancement Advisory Group are reviewed by the SCAQMD Board‘s Technology Committee. Current membership changes to both advisory groups, if required, will be considered by the SCAQMD Board and its Technology Committee, respectively, as part of consideration of the 2014 Annual Report and 2015 Plan Update. The current members of the SB 98 Clean Fuels Advisory Group and Technology Advancement Advisory Group are listed in Appendix A, with any proposed changes, subject to SCAQMD Board approval, duly noted.

The review process of the Clean Fuels Program now includes at least two full-day retreats of the two Advisory Groups, typically in the summer and winter, review by other technical experts, review by the Technology Committee of the SCAQMD Governing Board, a public hearing of the Annual Report and Plan Update before the full SCAQMD Governing Board, along with adoption of a resolution finding that the proposed program and projects funded as part of the Clean Fuels Program will not duplicate any other past or present program or project funded by the state board and other government and utility entities, as required by the H&SC, and finally submittal of the Annual Report and Plan Update to the Legislature by March 31 of every year.

The Need for Advanced Technologies & Clean Fuels

Achieving federal and state clean air standards in Southern California will require emission reductions from both mobile and stationary sources beyond those expected using current technologies. The need for advanced technologies and clean fuels is best illustrated by Figure 1 below, which identifies NO_x emissions by category and identifies just how far those emissions must be reduced to meet federal standards by 2023 and 2032.

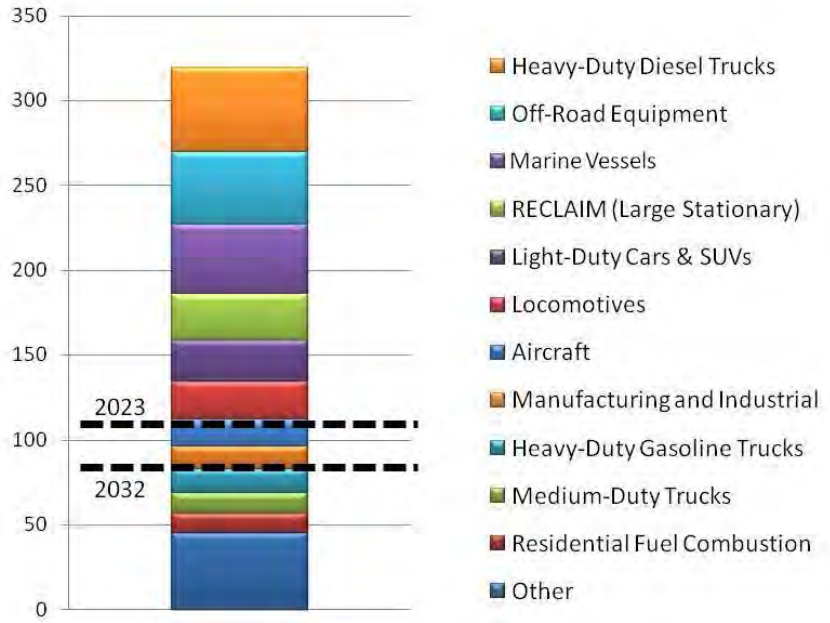


Figure 1: 2023 NO_x Emissions by Category

Additionally, the following piechart reflects NO_x contributors by sector, sharply illustrating the impact of mobile sources on air quality and why the 2012 AQMP calls for the reduction of 200 tons/day of NO_x by 2020 as well as why this region is recognized as an extreme ozone nonattainment area.

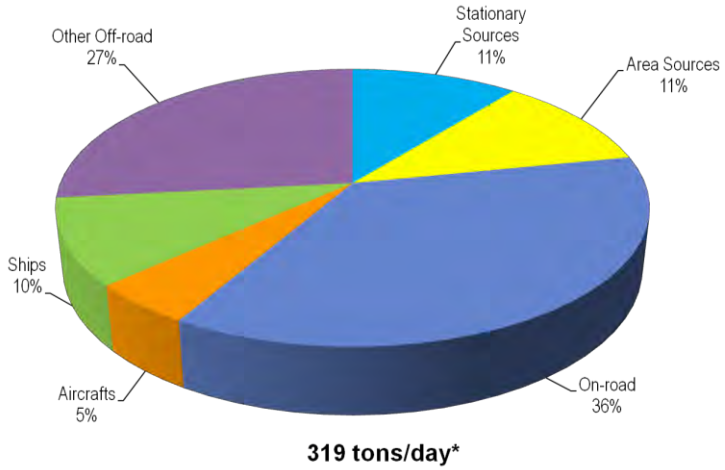


Figure 2: NO_x Contributors by Sector

Finally, the following piechart reflects the relative contribution of $PM_{2.5}$ by source category to the 2023 emission inventory for an average annual day. A supplement to the 24-hour $PM_{2.5}$ SIP will address further PM reductions since preliminary 2014 data indicates that the 24-hour $PM_{2.5}$ standard was not attained in 2014 due to extreme drought conditions but attainment is anticipated in 2015.

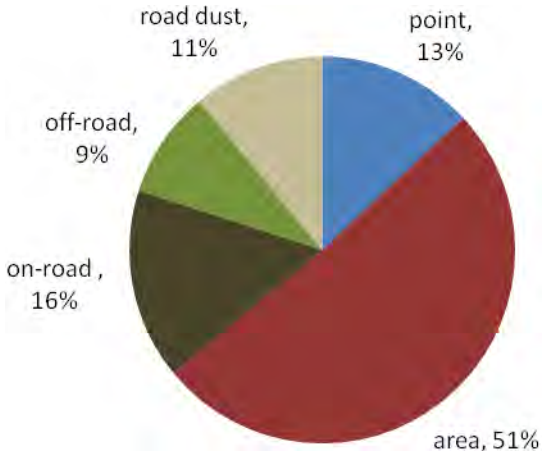


Figure 3: Directly Emitted PM2.5 Emissions (71 tons/day)

To fulfill long-term emission reduction targets, the 2012 AQMP relies on a mix of currently available technology as well as the expedited development and demonstration of advanced technologies that are not yet ready for commercial use. Significant reductions are anticipated from implementation of advanced control technologies for both on-road and off-road mobile sources. In addition, the air quality standards for ozone (80 ppb, 8-hour average) and fine particulate matter, promulgated by the U.S. Environmental Protection Agency (U.S. EPA) in 1997 and 2006, are projected to require additional long-term control measures for both NO_x and VOC. The 2012 AQMP's estimate of needed NO_x reductions, as well as the 2016 AQMP currently being drafted to meet federal ozone standards, will require the SCAQMD Clean Fuels Program to encourage and accelerate advancement of cleaner, transformative transportation technologies that can be used as control strategies in the AQMP.

Recent health studies also indicate a greater need to reduce NO_x emissions and toxic air contaminant emissions. More importantly, the CARB listed diesel exhaust emissions as a toxic air contaminant in 1998. Subsequently, in 1999, the SCAQMD completed the Multiple Air Toxics Exposure Study (MATES-II) and found that diesel combustion sources (primarily from heavy-duty vehicles) contribute approximately 70 percent to the estimated potential cancer risk from air toxics in the Basin. A follow-on study, MATES-III, in which air quality sampling was initiated in spring 2004 and ended in 2006, was undertaken to evaluate air toxic exposure trends, expand the list of known air toxics and assess local impacts from industrial, commercial and mobile sources. The results showed a decrease in stationary emitted air toxics and gasoline related air toxics, but continued high levels of emissions from diesel engine sources. The MATES-III report was finalized in spring 2008. Although results showed an overall decrease in toxics exposures throughout the basin, there were localized areas that had increased risk, most notably around the Ports of Los Angeles and Long Beach. This increased risk is likely a result of uncontrolled diesel emissions from goods movement activities, specifically emissions from trucks and cargo handling equipment, locomotives and marine vessels. A MATES IV study was launched in 2012. While the goal of MATES IV, like the prior studies, was to assess air toxic levels, update risk characterization, and determine gradients from selected sources, MATES IV added ultrafine PM and black carbon monitoring components as well. A draft report on the findings was released for public review in October 2014. The study found a dramatic decrease in ambient levels of diesel particulate matter and other air toxics. Diesel PM was still the major driver of air toxics health

risks. While the levels and exposures decreased, a revision to the methods used to estimate cancer risk from toxics developed by the California Office of Health Hazard Identification will increase the calculated risk estimates from these exposures by a factor of up to three.

There are many federal and state activities, most of which focus on energy security and GHG reductions, which complement and amplify the Clean Fuels Program. For example, the federal government has launched several programs (EV Everywhere Grand Challenge and Zero Emission Cargo Transport or ZECT Program) to investigate and develop increased efficiency and alternative fuel (including hydrogen) technologies. Independently, the State has adopted goals to reduce long-term dependence on petroleum-based fuels (AB 2076) and the transition to alternative fuels based on life-cycle analyses (AB 1007).

The 2007 Low Carbon Fuel Standard (LCFS) required producers of petroleum-based fuels to reduce their product‘s carbon intensity, beginning in 2011 and culminating in a 10 percent total reduction by 2020. However, CARB is currently revising the LCFS regulation and proposed provisions are designed to foster investments in the production of low carbon intensity fuels. Hopefully, this will accelerate research into alternatives to oil and traditional fuels. In September 2008, SB 375 was adopted requiring CARB to set regional targets reducing GHG‘s from cars and light trucks by 2020 and 2035 and directing regional planning agencies to develop land-use strategies to meet the targets. While the landmark Global Warming Solutions Act of 2006 (AB 32) required California‘s greenhouse gas emissions to be capped at 1990 levels by 2020, in 2012 California Governor Brown also set a California target for reductions of GHG emissions from the transportation sector of 80 percent less than 1990 levels by 2050 and called for establishment of benchmarks for the penetration of zero emission vehicles and infrastructure for 2015, 2020 and 2025.

Also in 2011 the Federal government adopted fuel economy and GHG emissions standards for medium- and heavy-duty vehicles for MYs 2014-2018 and propose to move forward with Tier 3 levels for light- and medium-duty trucks and tighter criteria pollutant standards for passenger vehicles.

In 2012, CARB adopted a LEV III program for Model Year (MY) 2015 to 2025 light- and medium-duty vehicles, amended the Zero Emission Vehicle Regulation and amended the Clean Fuels Outlet requirements. These tighter standards for passenger cars and light- and medium-duty trucks will require reduced tailpipe emissions and nearly no evaporative emissions. CARB also proposed new requirements for zero emission vehicles lowering the threshold requirement, which means automakers must begin producing zero emission vehicles by 2016. To achieve the Governor‘s Executive Order, CARB envisions that 80 percent of vehicles must be all electric, battery electric, hydrogen and/or fuel cell by 2050. The Governor followed up his 2012 Executive Order by issuing a ZEV Action Plan in early 2013 to establish milestones to reach his goal of 1.5 million ZEVs in California by 2025.

In early January 2015, Governor Brown‘s state-of-the-state address included ambitious goals to help meet California climate targets for 2030 and beyond, including increasing the amount of electricity generated from renewable sources from 33 to 50 percent and reducing the use of petroleum in cars and trucks by up to 50 percent from today‘s levels.

In summary, advanced, energy efficient and renewable technologies are needed not only for attainment, but also to protect the health of those who reside within the SCAQMD‘s jurisdiction; to reduce long-term dependence on petroleum-based fuels; and to support a more sustainable energy future. Conventional strategies and traditional supply and consumption need to be retooled

in order to achieve the federal air quality goals. To help meet this need for advanced, clean technologies, the SCAQMD Governing Board continues to aggressively carry out the Clean Fuels Program and promote alternative fuels through its Technology Advancement Office (TAO).

The Clean Fuels Program is intended to assist in the rapid development and deployment of progressively lower-emitting technologies and fuels through innovative public-private partnership. Since its inception, SCAQMD's TAO has co-funded projects in cooperative partnerships with private industry, technology developers, academic and research institutions and local, state and federal agencies. The following sections describe program funding, provide a 2014 overview and describe core technologies of the Clean Fuels Program.

Program Funding

The Clean Fuels Program is established under California H&SC Sections 40448.5 and 40512 and Vehicle Code Section 9250.11. This legislation establishes mechanisms to collect revenues from mobile and stationary sources to support the program objectives and identifies the constraints on the use of funds. In 2008, these funding mechanisms were reauthorized under SB 1646 (Padilla), which removed the funding sunset of January 1, 2010, and established the five percent administrative cap instead of the previous cap of two-and-half percent.

The Program is funded through a $1 fee on motor vehicles registered in the SCAQMD. Revenues collected from these motor vehicles must be used to support mobile source projects. Stationary source projects are funded by an emission fee surcharge on stationary sources emitting more than 250 tons of pollutants per year within the SCAQMD. For CY 2014 the funds available through each of these mechanisms were as follows:

- Mobile sources (DMV revenues) $12,742,599
- Stationary sources (emission fee surcharge) $345,016

The SCAQMD Clean Fuels Program also receives grants and cost-sharing revenue contracts from various agencies, on a project-specific basis, that supplement the SCAQMD program. Historically, such cooperative project funding revenues have been received from CARB, the CEC, the U.S. EPA, the U.S. Department of Energy (DOE) and the U.S. Department of Transportation (DOT). These supplemental revenues depend in large part on the originating agency, its budgetary and planning cycle and the specific project or intended use of the revenues. Table 3 (page 31) lists supplemental grants and revenues totaling nearly $6 million for contracts executed in CY 2014. Table 4 (page 32) lists federal and state revenue totaling nearly $20 million awarded to the SCAQMD in 2014 for projects that will be part of the Clean Fuels Program or align well and will complement the Clean Fuels Program.

The final and perhaps most significant funding source can best be described as an indirect source, i.e., funding not directly received by the SCAQMD. This indirect source is the cost-sharing provided by private industry and other public and private organizations. Historically, the Technology Advancement Office has been successful in leveraging its available public funds with $3 to $4 of outside funding for each $1 of SCAQMD funding. For 2014, the Clean Fuels Program leveraged each $1 to approximately $5 of outside funding. Through these public-private partnership, the SCAQMD has shared the investment risk of developing new technologies along with the benefits of expedited development and commercial availability, increased end-user acceptance, reduced emissions from the demonstration projects and ultimately increased use of clean technologies in the Basin. The SCAQMD's Clean Fuels Program has also avoided

duplicative efforts by coordinating and jointly funding projects with major funding agencies and organizations. The major funding partners for 2014 are listed in Table 1 (page 16).

2014 Overview

This report summarizes the progress of the SCAQMD Clean Fuels Program for CY 2014. The SCAQMD Clean Fuels Program co-sponsors projects to develop and demonstrate zero, near-zero and low emission clean fuels and advanced technologies and to promote commercialization and deployment of promising or proven technologies in Southern California. These projects are conducted through public-private partnerships with industry, technology developers, academic and research institutes and local, state and federal agencies.

This report also highlights achievements and summarizes project costs of the SCAQMD Clean Fuels Program in this period. During the period between January 1 and December 31, 2014, the SCAQMD executed 65 new contracts, projects or studies and modified 7 continuing projects adding additional dollars during CY 2014 that support clean fuels and advanced zero, near-zero and low emission technologies. The SCAQMD Clean Fuels Program contribution for these projects was approximately $14.3 million, inclusive of nearly $6 million received into the Clean Fuels Program as cost-share for contracts executed in this reporting period, with total project costs of nearly $64.7 million. These projects address a wide range of issues with a diverse technology mix. The report not only provides information on outside funding received into the Clean Fuels Fund as cost-share for contracts executed in this period (summarized in Table 3), but also funds awarded to the SCAQMD for projects to be included in the Clean Fuels Program or which align well and are complementary to the Clean Fuels Program ($20 million in 2014). More details on this financial summary can be found later in this report. The SCAQMD will continue to pursue federal and state funding opportunities in 2015 to amplify leverage, while acknowledging that support of a promising technology is not contingent on outside cost-sharing.

Core Technologies

Given the diversity of sources that contribute to the air quality problems in the Basin, there is no single technology or "Silver Bullet" that can solve all of the problems. A number of technologies are required and these technologies represent a wide range of applications, with full emissions benefit "payoffs," i.e., full commercialization and mass deployment occurring at different times. The broad technology areas of focus – the "Core Technologies" – for the Clean Fuels Program are as follows:

- Electric and Hybrid Vehicle Technologies and Infrastructure (emphasizing electric and hybrid electric trucks and zero emission container transport technologies)
- Engine Systems (particularly heavy-duty natural gas engines for truck and rail applications)
- Infrastructure and Deployment (predominantly compressed and liquid natural gas)
- Hydrogen and Fuel Cell Technologies and Infrastructure
- Emissions, Fuels and Health Impacts Studies
- Stationary Clean Fuels Technologies
- Emission Control Technologies
- Outreach and Technology Transfer

The SCAQMD continually seeks to support the deployment of lower-emitting technologies. The Clean Fuels Program is shaped by two basic factors:

1. Low, near-zero and zero emission technologies needed to achieve clean air standards in the Basin; and
2. Available funding to support technology development within the constraints imposed by that funding.

The SCAQMD strives to maintain a flexible program to address dynamically evolving technologies and the latest progress in the state of the technology while balancing the needs in the various technology sectors with technology readiness, emissions reduction potential and co-funding opportunities. Although the SCAQMD program is significant, national and international activities affect the direction of technology trends. As a result, the SCAQMD program must be flexible in order to leverage and accommodate these changes in state, national and international priorities. Nonetheless, while the state and federal governments have turned a great deal of their attention to climate change, the SCAQMD has remained committed to developing, demonstrating and commercializing zero and near-zero emission technologies. Fortunately many, if not the majority, of technology sectors that address our need for NO_x reductions also garner greenhouse gas (GHG) reductions. Due to these "co-benefits," the SCAQMD has been successful in partnering with the state and federal government. The ultimate challenge for the SCAQMD is to identify project or technology opportunities in which its available funding can make a difference in achieving progressively cleaner air in the Basin. To do this, the SCAQMD employs a number of outreach and networking activities. These range from intimate involvement with state and federal collaboratives, partnerships and industrial coalitions to issuing Program Opportunity Notices to essentially throw out a wide net to solicit project ideas and concepts and Requests for Information to determine the state of various technologies and what is needed to advance those technologies. While employing a number of creative outreach and networking activities to try to overcome these challenges, SCAQMD's Technology Advancement Office annually develops a comprehensive plan to encourage and accelerate the development and demonstration of cleaner technologies. Every year TAO staff re-evaluates the Clean Fuels Program to craft a comprehensive plan (referred to as the 2015 Plan Update within this document) essentially re-calibrating the compass for the Clean Fuels Program for the upcoming year.

Historically, mobile source projects have targeted low emission developments in automobiles, transit buses, medium- and heavy-duty trucks and non-road applications. These vehicle-related efforts have focused on advancements in engine design, electric power-trains and energy storage/conversion devices (e.g., fuel cells and batteries); and implementation of clean fuels (e.g., natural gas, propane and hydrogen) including their infrastructure development. Stationary source projects have included a wide array of advanced low NO_x technologies and clean energy alternatives such as fuel cells, solar power and other renewable energy systems. The focus on recent years has been on zero and near-zero emission technologies to reduce emissions from mobile sources, which contribute to more than three-fourths of the NO_x emissions in this region. And while mobile sources include both on- and off-road vehicles as well as aircraft and ships, only the federal government has the authority to regulate emissions from aircraft and ships. As previously mentioned, however, in 2011, CARB adopted amendments to low-sulfur marine fuel requirements to extend the nautical zone out from the ports.

Specific projects are selected for co-funding from competitive solicitations, cooperative agency agreements and unsolicited proposals. Criteria considered in project selection include emissions reduction potential, technological innovation, potential to reduce costs and improve cost effectiveness, contractor experience and capabilities, overall environmental impacts or benefits, commercialization and business development potential, cost sharing and consistency with program goals and funding constraints. The core technologies for the SCAQMD programs that

meet both the funding constraints as well as 2012 AQMP needs for achieving clean air are briefly described below.

Electric and Hybrid Vehicle Technologies and Infrastructure

There has been an increased level of activity and attention on electric and hybrid vehicles due to a confluence of factors, including the highly successful commercial introductions of hybrid passenger vehicles and more recently electric vehicles by almost all of the automakers, volatility in oil prices and increased public attention on global warming. There are alternative strategies allowed to comply with the ZEV regulation, including producing battery electric vehicles, plug-in hybrid electric vehicles (PHEVs), and hydrogen-fueled internal combustion engine (ICE) vehicles.

As a result, there is now a window of opportunity to leverage state and federal activities in the development and deployment of technologies that can accelerate advanced electric and hybrid technologies, including PHEV, medium- and heavy-duty hybrid vehicle deployment, energy storage technologies, development of medium- and heavy-duty hybrid emission certification cycles, battery durability testing and establishment of driver use patterns. Such technology developments, if successful, are considered *enabling* because they can be applied to a variety of fuels (e.g., gasoline, natural gas, ethanol and hydrogen) and propulsion systems (e.g., ICEs and fuel cells). Electric and hybrid technologies are also being explored to address one of the SCAQMD‘s 2014-15 Goals and Priority Objectives, which is to continue demonstration and deployment of projects achieving zero tailpipe emissions for container transport.

Engine Systems

Medium- and heavy-duty on-road vehicles contributed approximately 36 percent of the Basin‘s NO_x based on 2007 AQMP data. More importantly, on-road heavy-duty diesel engines contributed almost 60 percent of the on-road mobile source $PM_{2.5}$, which has known toxic effects. These figures notably do not include the significant contribution from off-road mobile sources. In fact, CARB‘s off-road 2006 emission model estimates that diesel-powered off-road construction equipment alone emits 120 tons per day of NO_x and 7.5 tons per day of PM emissions in the Basin. Furthermore, while MATES IV found a dramatic decrease in ambient levels of diesel PM and other air toxics, diesel PM is still the major driver of air toxics health risks. Clearly, significant emission reductions will be required from mobile sources, especially from the heavy-duty sector, to attain the federal clean air standards.

The use of alternative fuels in heavy-duty vehicles can provide significant reductions in NO_x and particulate emissions. The current NO_x emissions standard for heavy-duty engines is 0.2 g/bhp-hr. The SCAQMD, along with various local, state and federal agencies, continues to support the development and demonstration of alternative fueled low-emission heavy-duty engine technologies, using compressed natural gas (CNG) and liquefied natural gas (LNG), for applications in heavy-duty transport trucks, transit and school buses, rail operations, and refuse collection and delivery vehicles to meet future federal emission standards.

Infrastructure and Deployment (NG)

A key element for the widespread acceptance and resulting increased use of alternative fueled vehicles is the availability of the supporting refueling infrastructure. The refueling infrastructure for gasoline and diesel fuel is well established and accepted by the driving public. Alternative, clean fuels such as alcohol-based fuels, propane, hydrogen, hydrogen-natural gas mixtures and

even electricity are much less available or accessible, whereas natural gas has recently become more readily available in light of fracking technologies being employed to access the abundant shale gas deposits throughout North America. Having said that, there is a concern that falling oil prices may cause a resurgence in diesel fuel desirability and movement away from natural gas use. Nonetheless, to realize emissions reduction benefits, alternative fuel infrastructure must be developed in tandem with the growth in alternative fueled vehicles. The objectives of the SCAQMD are to expand the infrastructure to support zero and near-zero emission vehicles through the development, demonstration and installation of alternative fuel vehicle refueling technologies. However, this category is predominantly targeted at compressed and liquid natural gas infrastructure and deployment, with the related infrastructure for electric and hybrid and hydrogen and fuel cell included within their technology category.

Hydrogen and Fuel Cell Technologies and Infrastructure

Most of the automobile manufacturers have conceded that mass commercial introduction of fuel cell vehicles (FCVs) are likely to be delayed due to the cost, durability and infrastructure issues associated with hydrogen fueling. AB 8 requires CARB to annually assess current and future FCVs and hydrogen stations in the marketplace. Their findings dated June 2014 report that there are 125 FCVs registered with DMV, and major automakers estimate there will be approximately 6,650 FCVs by 2017 and 18,500 by the end of 2020. CARB further finds that a total of 51 stations will be operational statewide by the end of 2015, but that another 49 will be needed to meet the expected vehicles out to 2020. Clearly, the SCAQMD must continue to support the infrastructure required to refuel the demonstration fuel cell vehicles, but is also actively engaged in finding alternatives to the costly and potential longer term fuel cell power plant technology. As mentioned previously, plug-in hybrid technology could help enable fuel cells by reducing the capacity, complexity and cost of the fuel cell vehicle system. Further bridging technologies being investigated are hybrid or plug-in hybrid hydrogen ICE vehicles and hydrogen-CNG blended ICE vehicles.

Emissions, Fuels and Health Impacts Studies

The monitoring of pollutants in the Basin is extremely important, especially when focused on (1) a particular sector of the emissions inventory (to identify the responsible technology) or (2) exposure to pollution (to assess the potential health risks). Recent studies indicate that smoggy areas can produce irreversible damage to children‘s lungs. This information highlights the need for further emissions and health studies to identify the emissions from high polluting sectors as well as the health effects resulting from these technologies.

Over the past few years, the SCAQMD has funded emission studies to evaluate the impact of tailpipe emissions of biodiesel and ethanol fueled vehicles mainly focusing on criteria pollutants and greenhouse gas (GHG) emissions. These studies showed that biofuels, especially biodiesel because of the methyl ester compound contained in the hydrocarbon chain, can contribute to higher NO_x emissions while reducing other criteria pollutant emissions. Renewable diesel, on the other hand, may achieve reductions in NO_x because of its different composition. Additionally, despite recent advancements in toxicological research related to air pollution, the relationship between particle chemical composition and health effects is still not completely understood, especially for biofuels. Therefore, a couple of years ago the SCAQMD funded studies to investigate the physical and chemical composition and toxicological potential of tailpipe PM emissions from biodiesel and ethanol fueled vehicles to better understand their impact on public health. Studies continued in 2014 to further investigate the toxicological potential of emissions, such as ultrafine particles and vapor phase substances, and to determine whether or not other substances such as volatile or semi-volatile organic compounds are being emitted in lower mass

emissions that could pose harmful health effects. Given CARB's recent Alternative Diesel Fuel regulation, new biofuel blends may come into the marketplace and the SCAQMD should not only be part of the discussion surrounding commercialization of these fuels, but continue to assess their impact on criteria pollutants and air quality in this region.

Stationary Clean Fuel Technologies

Given the limited funding available to support low emission stationary source technology development, this area has historically been limited in scope. To gain the maximum air quality benefits in this category, higher polluting fossil fuel-fired electric power generation needs to be replaced with clean renewable energy resources or other advanced near zero-emission technologies, such as solar, wind, geo-thermal energy, bio-mass conversion and stationary fuel cells. Although combustion sources are lumped together as stationary, the design and operating principles vary significantly and thus also the methods and technologies for control of their emissions. Included in the stationary category are boilers, heaters, gas turbines and reciprocating engines. Boilers and heaters vary in size, heat input, process conditions and operating ranges. Gas turbines vary greatly in size and application and are typically natural gas-fired with add-on controls to clean up the flue gas. Stationary ICEs can be either rich-burn or lean-burn. The core technologies for this category focus on using advanced combustion processes, development of catalytic add-on controls, alternative fuels and technologies and stationary fuel cells in novel applications.

Emission Control Technologies

This broad category refers to technologies that could be deployed on existing mobile sources, aircraft, locomotives, marine vessels, farm and construction equipment, cargo handling equipment, industrial equipment, and utility and lawn-and-garden equipment. The in-use fleet comprises the majority of emissions, especially the older vehicles and non-road sources, which are typically uncontrolled and unregulated, or controlled to a much lesser extent than on-road vehicles. The authority to develop and implement regulations for retrofit on-road and non-road mobile sources lies primarily with the U.S. EPA and CARB and to a lesser extent with the SCAQMD.

Low emission and clean-fuel technologies that appear promising for on-road mobile sources should be effective at reducing emissions from a number of non-road sources. For example, immediate benefits are possible from particulate traps, selective catalytic reduction (SCR) and emulsified fuels that have been developed from diesel applications. Clean fuels such as natural gas, propane, hydrogen and hydrogen-natural gas mixtures may also provide an effective option to reduce emissions from some non-road applications. Reformulated gasoline, ethanol and alternative diesel fuels, such as biodiesel and gas-to-liquid (GTL), also show promise when used in conjunction with advanced emissions controls and new engine technologies.

Outreach and Technology Transfer

Since the value of the Clean Fuels Program depends on the deployment and adoption of the demonstrated technologies, outreach and technology transfer efforts are essential to its success. This core area encompasses assessment of advanced technologies, including retaining outside technical assistance as needed, efforts to expedite the implementation of low emission and clean fuels technologies, coordination of these activities with other organizations and information dissemination to educate the end user. Technology transfer efforts include support for various clean fuel vehicle incentive programs as well.

CLEAN FUELS PROGRAM
Barriers, Scope and Impact

Overcoming Barriers

Commercialization and implementation of advanced technologies come with a variety of challenges and barriers. A combination of real-world demonstrations, education, outreach and regulatory impetus and incentives is necessary to catalyze new, clean technologies. To reap the maximum emissions benefits from any technology, widespread deployment and thus end-user acceptance must occur. The product manufacturers must overcome technical and market barriers to ensure a competitive and sustainable business. Barriers include project-specific issues as well as general technology concerns.

Technology Implementation Barriers

- Viable commercialization path
- Technology price/performance parity with conventional technology
- Consumer acceptance
- Fuel availability/convenience issues
- Certification, safety and regulatory barriers
- Quantifying emissions benefits
- Sustainability of market and technology

Project-Specific Issues

- Identifying a committed demonstration site
- Overall project cost and cost-share using public monies
- Securing the fuel
- Identifying and resolving real & perceived safety issues
- Quantifying the actual emissions benefits
- Viability of the technology provider

Other barriers include reduced or shrinking research budgets, infrastructure and energy uncertainties and risks, sensitivity to multi-media environmental impacts and the need to find balance between environmental needs and economic constraints. The SCAQMD seeks to address these barriers by establishing relationships through unique public-private partnerships with key stakeholders; e.g., industry, end-users and other government agencies with a stake in developing clean technologies. Partnerships that involve all the key stakeholders have become essential to address these challenges in bringing advanced technologies from development to commercialization.

Each of these stakeholders and partners contributes more than just funding. Industry, for example, can contribute technology production expertise as well as the experience required for compatibility with process operations. Academic and research institutes bring state-of-the-technology knowledge and testing proficiency. Governmental and regulatory agencies can provide guidance in identifying sources with the greatest potential for emissions reduction, assistance in permitting and compliance issues, coordinating of infrastructure needs and facilitation of standards setting and educational outreach. Often, there is considerable synergy in developing technologies that address multiple goals of public and private bodies regarding the environment, energy and transportation.

Scope and Benefits of the Clean Fuels Program

Since the time needed to overcome barriers can be long and the costs high, both manufacturers and end-users tend to be discouraged from considering advanced technologies. The Clean Fuels Program addresses these needs by co-funding research, development, demonstration and deployment projects to share the risk of emerging technologies with their developers and eventual users.

Figure 4 provides a conceptual design of the wide scope of the Clean Fuels Program. As mentioned in the Core Technologies section, various stages of technology projects are funded not only to provide a portfolio of emissions technology choices but to achieve emission reduction benefits in the nearer as well as over the longer term.

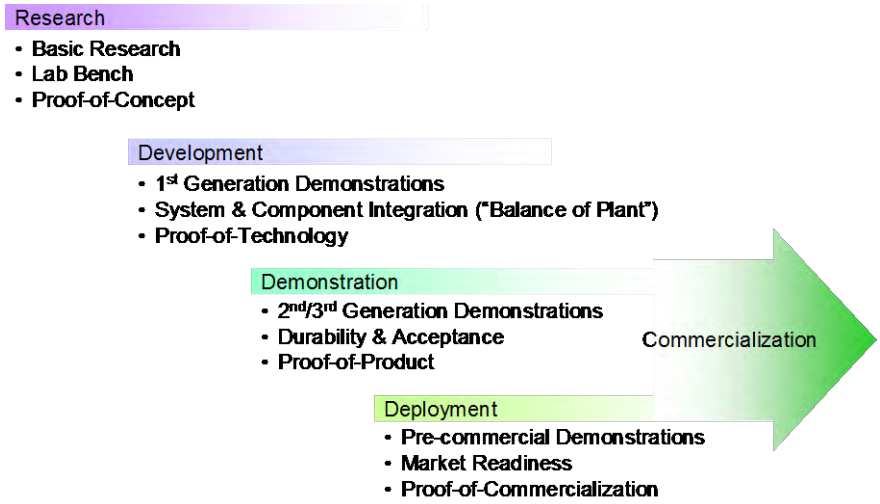


Figure 4: Stages of Clean Fuels Program Projects

Due to the nature of these advanced technology research, development, demonstration and deployment projects, the benefits are difficult to quantify since their full emission reduction potential may not be realized until sometime in the future, or perhaps not at all if displaced by superior technologies. Nevertheless, a good indication of the impact and benefits of the Clean Fuels Program overall is provided by this selective list of sponsored projects that have resulted in commercialized products or helped to advance the state-of-the-technology.

- CNG Engine Development for Heavy-Duty Vehicles
  - Emission Solutions: 7.6L (NG)
  - Cummins Westport: C8.3L (CNG, LNG), B5.9L (CNG) L10 (CNG), ISL G 8.9L (CNG, LNG)
  - Westport Power: ISX 15L (LNG), Westport GX 15 L (dual fuel)
  - Detroit Diesel: Series 60G (CNG/LNG), Series 50G (CNG/LNG);
  - John Deere: 6068 (CNG), 6081 (CNG);
  - Mack: E7-400G (LNG); and
  - Clean Air Partners/Power Systems (Caterpillar): 3126B (Dual Fuel), C-10 (Dual Fuel), C-12 (Dual Fuel).
- Fuel Cell Development and Demonstrations
  - Ballard Fuel Cell Bus (first of its kind);
  - ISE/ThunderPower Fuel Cell Bus;
  - SunLine Transit Agency Advanced Fuel Cell Bus projects;

- Commercial Stationary Fuel Cell Demonstration with UTC and SoCalGas (first of its kind); and
- Orange County Sanitation District hydrogen and combined heat and power generation from biogas using molten carbonate fuel cell technology (as well as their renewable hydrogen station).

➢ Electric and Hybrid Electric Vehicle Development and Demonstrations

- EPRI hybrid vehicle evaluation study;
- Hybrid electric vehicle demonstrations with SCE, UC Davis and AC Propulsion;
- Plug-in Hybrid Electric Van with EPRI, DaimlerChrysler and SCE;
- Hybrid electric delivery trucks with Azure Dynamics, NREL and FedEx;
- Plug-in hybrid work truck with Odyne Systems;
- Proterra battery electric transit bus and fast charging system;
- Municipal battery electric utility truck;
- South Bay City Council of Governments' electric vehicle project;
- EVI/UPS electric truck; and
- TransPower battery electric heavy-duty truck

➢ Aftertreatment Technologies for Heavy-Duty Vehicles

- Johnson Matthey and Engelhard trap demonstrations on buses and construction equipment; and
- Johnson Matthey SCRT and SCCRT NO_x and PM reduction control devices on heavy-duty on-road trucks.

SCAQMD played a leading or major role in the development of these technologies, but their benefits could not have been achieved without all stakeholders (i.e., manufacturer, end-users and government) working collectively to overcome the technology, market and project-specific barriers encountered at every stage of the research, development, demonstration and deployment process.

Strategy and Impact

In addition to the feedback and input detailed in Program Review (pages 1-2), the SCAQMD actively seeks additional partners for its program through participation in various working groups, committees and task forces. This participation has resulted in coordination of the SCAQMD program with a number of state and federal government organizations, including CARB, CEC, U.S. EPA and U.S. DOE and several of its national laboratories. Coordination also includes the AB 2766 Discretionary Fund Program administered by the Mobile Source Air Pollution Reduction Review Committee (MSRC), various local air districts, National Association of Fleet Administrators (NAFA), major local transit districts and local gas and electric utilities. The list of organizations with which the SCAQMD coordinates research and development activities also includes organizations specified in H&SC Section 40448.5.1(a)(2).

In addition, the SCAQMD holds periodic meetings with several organizations specifically to review and coordinate program and project plans. For example, the SCAQMD staff meets with CARB staff to review research and development plans, discuss project areas of mutual interest, avoid duplicative efforts and identify potential opportunities for cost-sharing. Periodic meetings are also held with industry-oriented research and development organizations, such as the California Fuel Cell Partnership (CaFCP), the California Stationary Fuel Cell Collaborative, the California Natural Gas Vehicle Partnership (CNGVP), the California Plug-In Electric Vehicle (PEV) Collaborative, the Electric Power Research Institute (EPRI), the West Coast Collaborative, which is part of the National Clean Diesel Campaign, and the Manufacturers of Emission

Controls Association (MECA). The coordination efforts with these various stakeholders have resulted in a number of cosponsored projects.

Descriptions of some of the key contracts executed in CY 2014 are provided in the next section of this report. It is noteworthy that most of the projects are cosponsored by various funding organizations and include the active involvement of original equipment manufacturers. Such partnerships are essential to address commercialization barriers and to help expedite the implementation of advanced low emission technologies. Table 1 below lists the major funding agency partners and manufacturers actively involved in SCAQMD projects for this reporting period. It is important to note that, although not listed, there are many other technology developers, small manufacturers and project participants who make important contributions critical to the success of the SCAQMD program. These partners are identified in the more detailed 2014 Project Summaries (beginning page 28) contained within this report.

Table 1: SCAQMD Major Funding Partners in CY 2014

Research Funding Organizations	Major Manufacturers/Providers
California Air Resources Board	Ports of Los Angeles & Long Beach
California Energy Commission	Southern California Gas Company
National Renewable Energy Laboratory	University of California Riverside/ CE-CERT
U.S. Department of Energy	Other California Universities (Davis, Irvine, LA)
U.S. Environmental Protection Agency	Siemens Industry Inc.
	Transportation Power Inc.

The following two subsections broadly address the SCAQMD‘s impact and benefits by describing specific examples of accomplishments and commercial—or near-commercial—products supported by the Clean Fuels Program in CY 2014. Such examples are provided in the following sections on the Technology Advancement Office‘s Research, Development and Demonstration projects and Technology Deployment and Commercialization efforts.

Research, Development and Demonstration

Important examples of the impact of the SCAQMD research and development coordination efforts include: (a) development and demonstration of a catenary zero emissions goods movement system in conjunction with development and demonstration of diesel catenary hybrid electric trucks; (b) development of Class 8 zero emission electric trucks; (c) development of a plug-in hybrid electric retrofit system for Class 6-8 trucks; (b) development, integration and demonstration of ultra-low emission natural gas engines for heavy-duty vehicle applications; and (e) a health study to develop quantitative cellular assays for use in understanding the chemical basis of air pollutant toxicity.

Develop and Demonstrate Catenary Zero Emissions Goods Movement System

The SCAQMD has identified the development and deployment of zero-emissions goods movement transportation systems as one of the agency‘s top priorities in order to attain federal air quality standards. Zero-emission transportation and goods movement technologies are also being proposed in SCAG‘s 2012 Goods Movement Appendix to the Regional Transportation Plan as

well as the joint CARB, SCAQMD and SJVAPCD ―Vision for Clean Air: A Framework for Air Quality and Climate Planning". Zero-emission truck lanes are also being considered for the I-710 freeway expansion, which is an approximately 20 mile north-south trade corridor.

The primary goal of this project is to promote the implementation of zero-emission goods movement technologies, and the secondary goal is to demonstrate the most viable technology to be adopted for a future, regional zero-emissions corridor. Although this project is for a one-mile demonstration, the potential next phase is to build out the remaining route from the ports to the near-dock rail yard which is approximately 5 miles. Subsequent phases would be to initiate the design and build the same or similar technology for the I-710 expansion and an east-west trade corridor for containers going to the Inland Empire warehouses.

Siemens Industry Inc. (Siemens) has designed and demonstrated a catenary truck technology, eHighway, in Germany on a European truck chassis. For this project, Siemens proposes to bring the eHighway technology to southern California with their partner Volvo and to develop and demonstrate a catenary plug-in hybrid electric truck technology. The hybrid drive system will extend the operating range of the truck beyond the all-electric range of the catenary system, enabling the truck to perform regional drayage operations and bridge gaps in catenary infrastructure as it is deployed on a regional level. Siemens and Volvo propose to develop and integrate a Mack Granite Vision diesel hybrid electric class 8 truck configured to operate on the catenary system. The vehicle will use Volvo's current hybrid 150 kW electro-mobility propulsion system, upgraded with a pantograph to operate on the eHighway system. The Siemens' pantograph system will allow for seamless connection and detachment from the catenary power source. When entering the catenary system corridor, the pantograph system will verify the presence of catenary lines and allow the driver to raise the pantograph from within the cab of the truck. Upon leaving the catenary lane, the pantograph will automatically retract and the truck will switch to on-board power systems. The on-board power systems could be a range of technologies, including batteries, fuel cells or internal combustion engines.

Figure 5: Catenary-Accessible Trucks on the Siemens' Test Track in Berlin, Germany

There will be a total of four trucks operating on the catenary system. There will be the one from Volvo mentioned above plus three more from other projects initiated by SCAQMD. TransPower, a local integrator, will develop two trucks--a CNG hybrid and battery electric truck, and Kenworth, with its partner BAE Systems, will develop and test a CNG hybrid.

Develop and Demonstrate Additional Class 8 Zero Emission Battery Electric Trucks

Heavy-duty diesel trucks in the South Coast Air Basin remain a significant source of emissions with adverse health effects, especially in the surrounding communities along the goods movement corridors near the Ports of Los Angeles and Long Beach and next to major freeways. In order to mitigate the impact and attain stringent federal ozone standards, SCAQMD has been aggressively promoting and supporting the development and deployment of advanced zero-emission cargo transport technologies, including battery electric trucks.

In October 2012, Transportation Power Inc. (TransPower) was awarded $1.14 million, as part of a DOE grant, to develop and demonstrate four Class 8 zero emission battery electric drayage trucks

in real world operations, transporting cargo containers from the Ports of Los Angeles and Long Beach to local warehouses and intermodal facilities. Subsequent to the award, TransPower received additional funding from CEC and the San Pedro Bay Ports' Technology Advancement Program to develop three more electric drayage trucks to demonstrate a total of seven trucks. This project is to cost-share the development and demonstration of the three additional trucks and also to fund related engineering design upgrades. These upgrades are based on lessons learned from the manufacture and operation of a prototype electric truck, which was also previously cost shared by the SCAQMD. TransPower anticipates the upgrades will collectively increase the operating efficiency and reduce vehicle assembly costs by approximately 25 percent, significantly improving the commercial value of the drive system.

Some of the key advances to be developed and incorporated in this project include the following:

- Automated manual transmission – a development of proprietary software to precisely match powertrain gearing to vehicle torque requirements, improving performance and operating efficiency. It will also achieve significant cost savings through the use of a lower-cost off-the-shelf manual transmission.

Figure 6: TransPower Electric Drayage Truck

- Advanced energy storage subsystem – a major redesign of the battery pack to simplify the assembly and servicing of the trucks with a larger and more rugged battery enclosures, requiring much less wiring and connectors. A new battery management system (BMS) will be also developed to communicate more reliably and balance cells faster and more efficiently than competing BMS boards, improving the operating range and battery life.

- Power control and accessory subsystem – an innovative concept to pre-integrate most vehicle controllers and electrically driven accessories on a module before vehicle installation. Previously, these components were mounted directly onto the vehicle in various locations, requiring complex wiring and hundreds of hours for installation. This new pre-integration approach will not only be easier and safer but will also reduce significant time and costs in assembly and servicing of production vehicles.

TransPower will partner with Total Transportation Services, Inc., a licensed motor carrier operating at the Ports of Los Angeles and Long Beach and other fleet operators, to demonstrate these trucks in revenue drayage service for two years or more to evaluate their performance and reliability.

Develop and Demonstrate Plug-In Hybrid Electric Retrofit System for Class 6 to 8 Trucks

The objectives of this project are to develop and design a retrofit plug-in hybrid electric system for work truck applications, such as bucket trucks, digger derricks, and underground utility trucks. During the two-year period of the project, the Odyne Systems will develop and evaluate concept designs, produce a selected concept, and evaluate one plug-in hybrid-electric medium-

and heavy-duty work truck with extended stationary engine-off technology. The one vehicle will be deployed in the South Coast Air Basin. The primary objectives of this project are:

- To improve specific aspects of the existing system through the use of smaller, lower cost components.
- To optimize the system and selected powertrain components for high volume production to enhance commercial appeal through lower-cost products and components.
- To match the size of the power electronics and energy storage device to customer duty cycle and work practice.

To quantify improvements in fuel economy and emissions the project will gather vehicle and component performance data during deployment that will enable the operating cost and environmental impact of the vehicle to be assessed. The Odyne hybrid retrofit solution will provide fleets an option in the SCAQMD to address the emissions that are being created from existing diesel vehicles within the fleet. This option will provide an immediate impact on the emissions being created and will not require the fleets to turn over the entire fleet to have a significant impact on emissions. On new vehicles the fleets can continue to purchase vehicles with the Odyne plug-in hybrid solution and retire the oldest, highest emission producing vehicles in the fleet. The Odyne retrofit solution will also provide an economical solution to address the existing vehicles within the South Coast Air Quality District. With retrofit vehicles having a shorter life before they are retired, the retrofit solution needs to provide a payback within three to five years. With fuel and maintenance savings of $5,000 to $8,000 per year and a targeted sell price of less than $30,000.00, the Odyne retrofit solution should provide those benefits for many applications.

Figure 7: Class 7 Bucket Truck Equipped with Odyne Plug-In Hybrid Drive System

Develop, Integrate and Demonstrate Ultra-Low Emission Natural Gas Engines from On-Road Heavy-Duty Engines

Heavy-duty on-road diesel vehicles are currently one of the largest sources of NO_x emissions in the South Coast Air Basin. This source category is still projected to be one of the largest contributors to NO_x emissions, even as the legacy fleet of older and higher polluting vehicles are retired from operation and replaced by the vehicles meeting the most stringent emission levels required by 2010 emissions standards. The 2012 AQMP showed that NO_x reductions in excess of 60% will be needed from all source categories to meet future federal ambient air quality standards for ozone. The development of ultra-low emission natural gas engines would significantly reduce emissions from this source category and assist the region in meeting federal ambient air quality standards in the future.

SCAQMD worked closely with the California Energy Commission, Southern California Gas Company and the U.S. Department of Energy to craft a Request for Proposals to solicit proposals for the development of an ultra-low NO_x emissions engine. CARB also adopted optional emission standards of 0.02 g/bhp-hr to enable incentive funding which improves market opportunity.

Cummins, Inc. proposed to develop, integrate and demonstrate in typical operations a 15L natural gas engine meeting the optional standard of 0.02 g/bhp-hr NO_x, which is 90% lower than current 2010 emission standards, 0.01 g/bhp-hr PM, 0.14 g/bhp-hr NMHC, and 15.5 g/bhp-hr CO with a maximum average of 10 ppm ammonia during the U.S EPA Heavy-Duty Engine Federal Test Procedure (HD-FTP).

NO_x emissions 90% lower than current production engines will require improved and more uniform combustion cycle to cycle within each cylinder and from cylinder to cylinder as well as improved low temperature NO_x control during engine startup and engine idling periods. As a result, the project provides for extensive theoretical engine and after treatment computer modeling, component bench testing, and prototype engine tests during the first year. A design review after the first year determines whether the project should continue to development of a pre-production engine for optimizing calibrations and emission certification tests.

Figure 8: Heavy-Duty NG Engine

Figure 9: Typical Heavy-Duty Drayage Truck

Upon successful HD-FTP tests, two production-intent engines will be integrated into commercial trucks for a six month field demonstration in typical service including chassis dynamometer tests. The goal of this project is to achieve a production-intent ultra-low NO_x emission natural gas heavy-duty engine that could enter the market by 2020. The target vehicle applications include Class 8 refuse, goods movement and drayage trucks.

Develop Quantitative Cellular Assays for Use in Understanding the Chemical Basis of Air Pollutant Toxicity

The objective of this research is to develop a biological mechanism-based analytical procedure to characterize the toxicity air pollutants. The study is developing and characterizing a standard in quantities sufficient to be employed in subsequent toxicity analyses of vehicle emissions and ambient pollutants. The project aims to collect a large quantity of diesel exhaust, including both particulate and vapor phase, from a well-characterized engine using low-sulfur fuel as the standard. Quantitative dose response toxicity assays can then be conducted with, for example, emissions from advanced technology engines to compare with results from assays using the standard diesel emissions. This will provide a measure of the relative toxic potency of vehicle emissions that can be directly compared in standard assays.

This project builds upon the toxicity assays developed under the auspices of the Southern California Particle Center, which was sponsored by U.S. EPA. The assays target specific biochemical pathways and proteins that are thought to be involved in the toxicity of pollutants. The pathways include inflammation, cellular oxidation potential and chemical reactions with

cellular proteins. Specific chemical assays will be used, as well as specific macrophage cell lines that have been used in previous air pollution toxicity studies. Standard protocols are being developed that can be applied to collected pollutant samples.

The results of this project will provide information to help understand the linkage between sources, chemical composition and the toxicity of emissions from motor vehicles, which will provide a strong scientific basis on which to develop and to assess strategies designed to protect the public from exposure to motor vehicle emissions. This study will provide advanced tools for assessing the relative toxicity of emissions sources and which technologies may be more important in reducing potential health effects from exposures to particles as well as to semi-volatile organic substances. These tools can then be used to quantify the benefits of using alternate and advanced technology to reduce emissions derived from motor vehicles and from other emissions sources. Additionally, development of these toxicity assays will be an invaluable resource to particulate matter exposure and health studies in the Los Angeles Basin.

Technology Deployment and Commercialization

One function of the Clean Fuels Program is to help expedite the deployment and commercialization of low and zero emission technologies and fuels needed to meet the requirements of the AQMP control measures. In many cases, new technologies, although considered ~~"c~~ommercially available," require assistance to fully demonstrate the technical viability to end-users and decision-makers.

The following projects contracted during the CY 2014 reporting period illustrate the impact of the SCAQMD's technology deployment and commercialization efforts and include: (a) participation in NREL's Fleet DNA Study; (b) construction of eight retail hydrogen fueling stations; and (c) continuing support for natural gas fueling stations.

Fleet DNA Study

On-road medium- and heavy-duty trucks are a significant source of NO_x emissions in the South Coast Air Basin (SCAB). Consequently, research is needed to determine how this source of emissions can be significantly reduced at minimum cost to facilitate attainment of ambient air quality standards by 2023 and 2032. The SCAQMD is cost-sharing National Renewal Energy Laboratory (NREL)'s Fleet DNA Project to collect and analyze data on truck fleet operations in the SCAB in order to determine the best approach for the deployment of advanced technologies in this sector.

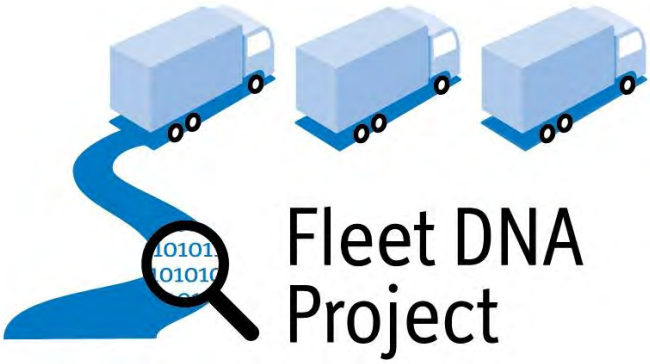


Figure 10: NREL's Fleet DNA Project Logo

This project will be divided into three tasks. The first task is the identification of appropriate fleet vocations by using existing databases to determine emissions inventory contribution. This will involve, for example, the analysis of population, age distribution, annual vehicle miles traveled, and estimated fuel usage for specific fleet vocations. Fleet vocation categories that may be analyzed as part of this task include refuse, urban delivery, drayage and long haul applications. At the conclusion of this task, the highest ranking fleet vocations will be recommended for further data collection and analysis of operational characteristics. The second task is the collection of operational data on three selected fleets representing different vocations. Sufficient operational data will be collected to ‗bracket' the range of operation for each vocation, using NREL's Drive-cycle Rapid Investigation, Visualization and Evaluation Tool (DRIVE). The final task entails the use of NREL's Future Automotive Systems Technology Simulator Tool (FASTSim), utilizing drive cycle information generated with DRIVE in the previous task, to evaluate the impact of technology improvements on emissions, vehicle efficiency, performance, cost and operating economics where applicable. Examples of technologies to be assessed include electrification, natural gas, biofuels, aerodynamic improvements, mass reduction and engine sizing.

Construction of Eight Hydrogen Fueling Stations including SCAQMD's Diamond Bar Station

In late 2010, the CEC released a Notice of Proposed Award (NOPA) recommending funding for eight projects that would develop hydrogen fueling infrastructure within the South Coast Air Basin. The eight stations will be strategically located and will play a significant role by providing hydrogen in Southern California in areas with high fuel cell vehicle densities. The SCAQMD cost-shared this project to offset high initial costs and investment for production and distribution of hydrogen infrastructure.

The eight proposed hydrogen fueling stations will be new, publicly accessible, next generation (35 MPa and 70 MPa) hydrogen fueling stations located throughout Southern California, including the construction and upgrade of an existing station at SCAQMD Headquarters in Diamond Bar. They will utilize improved delivery technologies to reduce the cost of transporting low-priced hydrogen made in centrally located facilities with high availability. The station concepts are simple, modular, expandable to full-sized station capacities, and reduce initial capital costs and overall site maintenance costs. The modular design incorporates a minimized station footprint to utilize existing retail gasoline forecourt locations and can be readily duplicated at a majority of existing gasoline retail stations in a number of markets for the broadest deployment. Due to the requirements of SB 1505, 33% of hydrogen dispensed will be made from renewable resources.

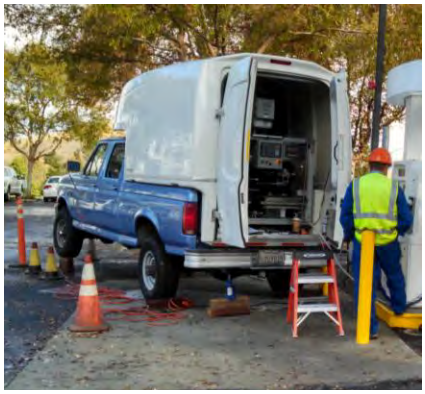


Figure 12: CDFA/DMS Testing

Figure 11: Hydrogen Dispenser at SCAQMD

The first station at SCAQMD will serve as the model for other modularly constructed delivered-hydrogen stations and will accept major credit cards. EPC LLC entered into a license agreement to operate SCAQMD's hydrogen fueling station in Diamond Bar. The license allows EPC to assign or sublet with SCAQMD's written permission; Air Products and Chemicals, Inc. will be providing equipment maintenance. EPC LLC obtained all permits for construction, maintenance and operation and will be operating the station for three years, including installation and operation of a

point-of-sale (credit card) system. The California Department of Food and Agriculture, Division of Measurement Standards (CDFA/DMS) conducted accuracy testing and issued a permit on February 11, 2015. The City of Diamond Bar subsequently issued an operating permit on February 17, 2015, and a Dedication Ceremony is scheduled for March 25, 2015. When final Type Evaluation for accuracy and consistency is successfully completed, this dispenser can be used at multiple stations with reduced testing cost and time.

Figure 13: Testing Fuel Cell Vehicles with the New Hydrogen Station

Continuing Support for Natural Gas Fueling Stations

Goods movement throughout Southern California and the increased number of heavy-duty Class 8 LNG-powered trucks used for moving these goods has increased the demand for LNG refueling in this region. One contract modification executed in 2014 was to provide an additional $1 million in funding to Clean Energy using funds from a CEC AB 118 grant. The $1 million brought the contract with Clean Energy to $1.4 million to provide funding for construction, operation and maintenance of three public access LNG projects. All three Clean Energy LNG sites are positioned near major highway corridors which serve as goods movement conduits for many heavy-duty vehicles in the South Coast and the Coachella Valley Air Basins. The three stations are located as follows: Fontana (San Bernardino County) which is adjacent to the I-10 corridor; Coachella (eastern portion of Riverside County) which is at the junction of Interstate 10 and highway 86, a main thoroughfare to Imperial County; and Perris (western Riverside County) which is adjacent to Interstate 215 and which serves as a thoroughfare to San Diego County.

Two of the three stations, Fontana and Coachella, were completed in 2013 and are now in operation. The Perris station was commissioned at the end of February 2015. All three stations are located at existing and established conventional truck fueling stops.

Figure 14: LNG Station at Truck Stop Center on Valley Blvd. in Fontana

The Fontana location also includes CNG refueling and is dispensing 45,000 GGE of CNG and 20,000 DGE of LNG per month. Coachella is currently dispensing 36,000 DGE of LNG and completing nearly 1,200 vehicle fueling transactions per month.

Figure 15: LNG Station at Love's Travel Stop on Dillon Road in Coachella

The Perris station is expected to have a starting annual throughput of 300,000 DGE of LNG. These three stations will increase the public access LNG facility count by 20% in SCAQMD's jurisdiction and demonstrate the viability of natural gas as an alternative fuel for the goods movement sector.

Figure 16: LNG Station under Construction at Arco Truck Stop on Cajalco Expressway in Perris

2014 FUNDING & FINANCIAL SUMMARY

The SCAQMD Clean Fuels Program supports clean fuels and technologies that appear to offer the most promise in reducing emissions, promoting energy diversity, and in the long term, providing cost-effective alternatives to current technologies. In order to address the wide variety of pollution sources in the Basin and the need for reductions now and in the future, using revenue from a $1 motor vehicle registration fee (see Program Funding on page 6), the SCAQMD seeks to fund a wide variety of projects to establish a diversified technology portfolio to proliferate choices with the potential for different commercial maturity timing. Given the evolving nature of technology and changing market conditions, such a representation is only a ―snapshot-in-time," as reflected by the projects approved by the SCAQMD Governing Board.

As projects are approved by the SCAQMD Governing Board and executed into contracts throughout the year, the finances may change to reflect updated information provided during the contract negotiation process. As such, the following represents the status of the Clean Fuels Fund as of December 31, 2014.

Funding Commitments by Core Technologies

The SCAQMD continued its successful leveraging of public funds with outside investment to support the development of advanced clean air technologies. During the period January 1 through December 31, 2014, a total of 72 contracts, projects or studies that support clean fuels were executed or amended, as shown in Table 2 (page 28). The major technology areas summarized are (listed in order of funding priority during the CY): hybrid/electric technologies and infrastructure, engine systems, natural gas infrastructure and deployment, hydrogen technology and infrastructure, mobile fuel cell technologies, health impacts studies, fuels and emission studies, and outreach and technology transfer. The distribution of funds based on technology area is shown graphically in Figure 17 (page 26). This wide array of technology support represents the SCAQMD's commitment to researching, developing, demonstrating and deploying potential near-term and longer-term technology solutions.

The project commitments that were contracted or purchased for the 2014 reporting period are shown below with the total projected project costs:

- SCAQMD Clean Fuels Fund Contribution $14,268,944
- Total Cost of Clean Fuels Projects $64,666,588

Each year, the SCAQMD Governing Board approves funds to be transferred to the General Fund Budget for Clean Fuels administration. For 2014, the Board transferred $850,000 for workshops, conferences, co-sponsorships and outreach activities as well as postage, supplies and miscellaneous costs for participation in special conferences. Only the funds committed by December 31, 2014, are included within this report. Any portion of the Clean Fuels Funds not spent by the end of Fiscal Year 2014-15 ending June 30, 2015, will be returned to the Clean Fuels Fund.

Partially included within the SCAQMD contribution are supplemental sponsorship revenues from various organizations that support these technology advancement projects. This supplemental revenue for pass-through contracts executed in 2014 totaling $5,963,707 is listed within Table 3 (page 31).

Appendix B lists the 121 Clean Fuels Fund contracts that were open and active as of January 1, 2015.

For Clean Fuels executed and amended contracts, projects and studies in 2014, the average SCAQMD contribution is approximately 22 percent of the total cost of the projects, identifying that each dollar from the SCAQMD was leveraged with nearly five dollars of outside investment. The typical leverage amount is $3-$4 for every $1 of SCAQMD Clean Fuels funds, but 2014 notably had a couple of significant contracts, significant both in funding and in the impact they hopefully will make in strides toward developing and commercializing clean transportation technologies.

During 2014, the distribution of funds for SCAQMD executed contracts, purchases and contract amendments with additional funding for the Clean Fuels Program totaling approximately $14.3 million are shown in Figure 17 below.

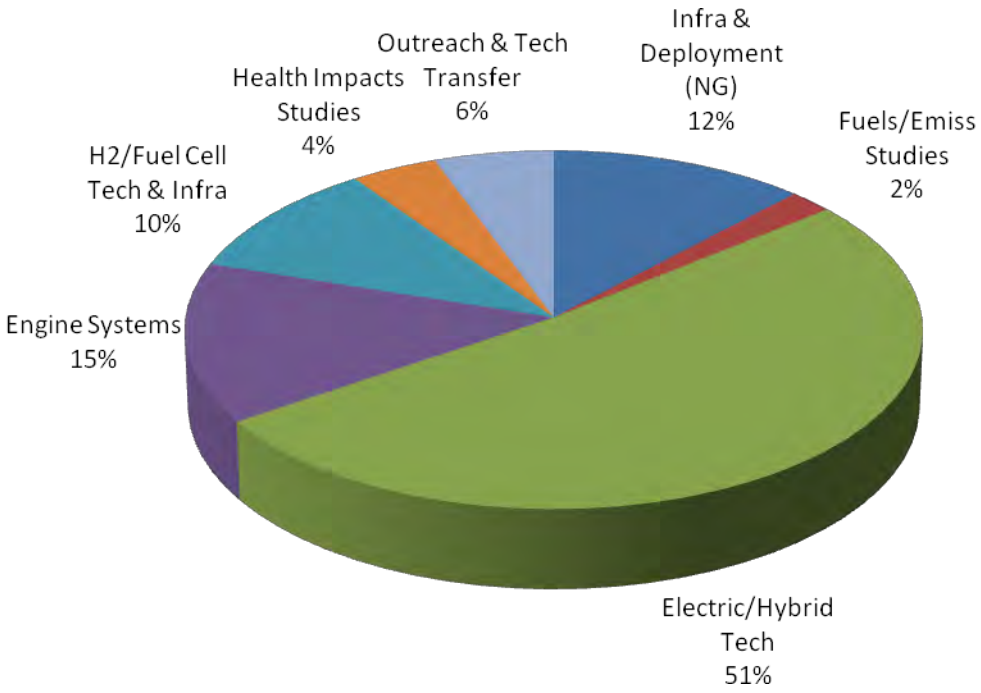


Figure 17: Distribution of Funds for Executed Clean Fuels Projects CY 2014 ($14.3 million)

Table 2 (page 28) provides a breakdown of these $14.3 million awards. Table 3 (page 31) provides information on outside funding recognized and received into the Clean Fuels Fund (nearly $6 million) for contracts executed in CY 2014. Additionally, the SCAQMD continued to seek funding opportunities and Table 4 (page 32) lists the additional $19,956,690 awarded in 2014 for projects that will be implemented as part of the Clean Fuels Program or which align well or will be complementary to the Clean Fuels Program.

Review of Audit Findings

State law requires an annual financial audit after the closing of each SCAQMD's fiscal year. The financial audit is performed by an independent Certified Public Accountant selected through a competitive bid process. For the fiscal year ended June 30, 2014, the firm of Simpson and Simpson, CPAs conducted the financial audit. As a result of this financial audit, a Comprehensive Annual Financial Report (CAFR) was issued. There were no adverse internal control weaknesses with regard to SCAQMD financial statements, which include the Clean Fuels Program revenue and expenditures. Simpson and Simpson CPAs gave the SCAQMD an "unmodified opinion," the

highest obtainable. Notably, the SCAQMD has achieved this rating on all prior annual financial audits.

Project Funding Detail by Core Technologies

The 72 new and continuing contracts, projects and studies that received SCAQMD funding in 2014 are summarized in Table 2, together with the funding authorized by the SCAQMD and by the collaborating project partners.

Table 2: Contracts Executed or Amended (w/$) between January 1 & December 31, 2014

Contract	Contractor	Project Title	Start Term	End Term	SCAQMD $	Project Total $
Electric/Hybrid Technologies & Infrastructure						
13396	Transportation Power Inc.	Develop & Demonstrate Class 8 Zero-Emission Electric Trucks	04/19/13	12/31/16	375,000	2,285,368
14062	Siemens Industry Inc.	Develop & Demonstrate Catenary Zero Emissions Goods Movement System & Develop & Demonstrate Diesel Catenary Hybrid Electric Trucks	07/14/14	07/13/18	5,500,000	14,780,000
14156	Galpin Motors Inc. (Galpin Ford)	Lease of Two Fusion Energi & One C-Max Energi PHEVs for a Three-Year Period	01/28/14	01/27/17	49,298	49,298
14184	Clean Fuel Connection, Inc.	DC Fast Charging Network Provider	04/04/14	06/30/20	250,000	1,268,000
14222	Odyne Systems, LLC	Develop & Demonstrate Plug-In Hybrid Electric Retrofit System for Class 6 to 8 Trucks	04/24/14	04/23/16	389,000	2,226,571
14224	Complete Coach Works	Develop & Demonstrate Long Range All-Electric Transit Bus	04/24/14	07/30/15	395,000	867,182
14256	National Strategies LLC	Develop & Demonstrate Vehicle-To-Grid Technology	09/05/14	03/04/18 -	250,000	3,377,689
14323	Selman Chevrolet Company	Lease Two 2014 Chevrolet Volt Extended-Range Electric Vehicles for Three Years	03/28/14	03/27/17	30,932	30,932
15021	Transportation Power Inc.	Upgrade & Demonstrate Two Electric Yard Tractors	07/14/14	12/31/15	75,000	405,000
Various	Various	Install & Upgrade EV Charging Infrastructure (Administer SoCalEV Infrastructure Project)	01/22/14	10/10/14	0	0
Direct Pay	ATVLS, Inc.	Install Electric Vehicle Chargers	TBD	TBD	7,306	7,306
Direct Pay	Clean Fuel Connection, Inc.	Install Electric Vehicle Chargers	TBD	TBD	5,388	5,388
Direct Pay	Croxton Electric	Install Electric Vehicle Chargers	TBD	TBD	6,685	6,685
Engine Systems						
14364	Cummins Inc.	Develop, Integrate & Demonstrate Ultra-Low Emission Natural Gas Engines for On-Road Heavy-Duty Vehicles	07/14/14	08/20/16	2,061,000	3,869,000
Infrastructure and Deployment (NG)						
09308	Trillium CNG	Maintain & Manage SCAQMD's Fast-Fill CNG Refueling Station	06/17/09	11/30/14	54,000	54,000
12851	Clean Energy	Install, Operate & Maintain Three LNG Fueling Stations (Fontana, Coachella & Perris)	10/05/12	12/31/18	1,000,000	3,477,323
14219	City of West Covina	Upgrade CNG Station at City Yard	05/15/14	06/15/17	200,000	618,429
14311	Southern California Gas Company	Construct & Operate CNG Fueling Station in Murrieta for SoCalGas	07/11/14	12/31/17	217,000	1,385,000

Table 2: Contracts Executed or Amended (w/$) between January 1 & December 31, 2014

Contract	Contractor	Project Title	Start Term	End Term	SCAQMD $	Project Total $
Infrastructure and Deployment (cont'd)						
15438	United Parcel Service, Inc.	Refurbish & Upgrade Ontario UPS LCNG Infrastructure	12/31/14	06/30/18	246,707	484,535
Hydrogen Technologies & Infrastructure						
13259	Air Products and Chemicals, Inc.	Hydrogen Station Operation & Maintenance for Five Cities Hydrogen Program	03/26/13	03/31/15	90,000	90,000
15020	University of California Irvine	Develop Sampling & Testing Protocols for Analyzing Impurities in Hydrogen	08/13/14	04/12/15	114,500	114,500
15150	Air Products and Chemicals, Inc.	Install & Upgrade Eight Hydrogen Fueling Stations (including SCAQMD's Diamond Bar Station)	10/10/14	04/09/19	1,000,000	17,044,216
15366	EPC LLC	Operate & Maintain Publicly Accessible Hydrogen Fueling Station at SCAQMD Headquarters	10/10/14	09/14/17	0	0
15419	SunLine Transit Agency	Disposition of Dispenser from Electrolyzer Hydrogen Station Demonstration at SCAQMD Headquarters	12/24/14	12/23/15	0	0
Direct Pay	Smart Chemistry Corp.	Conduct Hydrogen Quality Sampling & Analysis at Three Hydrogen Stations (Diamond Bar, Burbank & Newport Beach)	11/19/13	1/19/14	10,350	10,350
Direct Pay	Hydrogen Fueling Station	Additional Support for California Fuel Cell Partnership's Hydrogen Fueling Activities	01/01/14	06/04/14	10,000	127,000
Purchase Order	MKS Instruments	Purchase FTIR to Perform Hydrogen Fuel Quality Testing	08/07/14	1/23/15	91,768	91,768
Mobile Fuel Cell Technologies						
14622	California State University Long Beach Foundation	CSULB CEERS Student Educational Project to Demonstrate Graphene Fuel Cell Catalysts	08/05/14	05/31/15	28,000	28,000
15388	Bevilacqua-Knight Inc.	Participate in California Fuel Cell Partnership for CY 2014 & Provide Support for Regional Coordinator	01/01/14	12/31/14	137,800	1,676,800
Health Impacts Studies						
12865	University of California Los Angeles	Develop Quantitative Cellular Assays for Use in Understanding the Chemical Basis of Air Pollutant Toxicity	06/08/12	07/31/15	319,553	319,553
14171	Southern California Research Center/Allergy & Asthma Associates of Southern California	Risk of Incident Asthma among Children from In-Utero Exposures to Traffic Related Pollutants	09/22/14	03/21/16	99,670	317,119
14172	University of California Irvine	The Relation of Airway & Systemic Oxidative Stress to Particulate Air Pollution Exposures in an Elderly Cohort	02/17/14	08/16/15	159,974	376,368

Table 2: Contracts Executed or Amended (w/$) between January 1 & December 31, 2014

Contract	Contractor	Project Title	Start Term	End Term	SCAQMD $	Project Total $
Fuels/Emissions Studies						
13402	University of California Davis-Office of Research	Next Sustainable Transportation Energy Pathways (STEPS) Program	05/02/14	07/01/16	120,000	2,760,000
14162	National Renewable Energy Laboratory	Utilization of Fleet DNA Approach & Capabilities to Provide Vehicle Vocational Analysis in SCAQMD	02/26/14	12/30/15	174,985	199,985
Outreach & Technology Transfer						
12376	University of California Riverside/CE-CERT	Technical Assistance with Alternative Fuels, Biofuels, Emissions Testing & Zero-Emission Transportation Technology	06/13/14	05/31/16	75,000	75,000
12381	Integra Environmental Consulting Inc.	Technical Assistance with Alternative Fuels, Fuel Cells, Emissions Analysis & Aftertreatment Technologies	06/21/12	05/31/16	75,000	75,000
13194	Clean Fuel Connection, Inc.	Technical Assistance with Alternative Fuels, Renewable Energy & EVs, Program-Related Activities for AFVs, Lawn Mower Exchange, Conferences & Outreach	12/07/12	06/30/15	50,000	50,000
14185	Three Squares Inc.	Conduct Education Outreach for the Basin DC Fast Charging Network Project	04/11/14	06/30/15	49,183	49,183
15344	Clean Fuel Connection, Inc.	Technical Assistance with Alternative Fuels, Electric Vehicles, Charging & Fueling Infrastructure & Renewable Energy	09/22/14	09/22/16	60,000	60,000
15369	Breakthrough Technologies Institute, Inc.	Technical Assistance with Low- & Zero-Emission Vehicles, Fuel Cells, Stationary Applications & Emissions Analyses	11/07/14	11/06/16	30,000	30,000
15380	ICF Resources LLC	Technical Assistance with Goods Movement, Alternative Fuels & Zero-Emission Transportation Technologies	12/12/14	12/11/16	30,000	30,000
15415	Gladstein, Neandross & Associates, LLC	Technical Assistance with Alternative Fuels & Fueling Infrastructure, Emissions Analysis & On-Road Sources	11/07/14	11/06/16	60,000	60,000
Transfer	Transfer from Clean Fuels	Participation in California Natural Gas Vehicle Partnership for Fiscal Years 2014-15 & 2015-16	07/11/14	07/11/14	25,000	145,000
Direct Pay	Three Squares, Inc.	Technical Assistance for EV Charging Infrastructure Grant Preparation	02/01/14	02/06/14	15,307	15,307
Direct Pay	Transportation Research Board	Participation for CY 2014 Membership in Transportation Research Board & Support Minority Student Fellows Program	01/01/14	12/31/14	36,500	260,000

Table 2: Contracts Executed or Amended (w/$) between January 1 & December 31, 2014

Contract	Contractor	Project Title	Start Term	End Term	SCAQMD $	Project Total $
Outreach & Technology Transfer (cont'd)						
Direct Pay	Various	Cosponsor 22 Conferences, Workshops & Events plus 5 Memberships	01/01/14	12/31/14	294,038	5,462,933

Table 3: Supplemental Grants/Revenue Received into the Clean Fuels Fund (31) in CY 2014

Revenue Agreement #	Revenue Source	Project Title	Contractor	SCAQMD Contract #	Award Total $
#10685	U.S. DOE Clean Cities DE-EE0002545	Refurbish &Upgrade Ontario UPS LCNG Infrastructure	United Parcel Service, Inc.	#15438	150,000
#12152 (Amd #2)	CEC AB 118 Program ARV-10-054	Install Three New LNG Stations	Clean Energy	#12851	1,000,000
#12286	CEC AB 118 Program ARV-10-035	Refurbish & Upgrade Ontario UPS LCNG Infrastructure	United Parcel Service, Inc.	#15438	96,707
#13034	CEC AB 118 Program ARV-11-025	Construct CNG Fueling Station in Murrieta for SoCalGas	Southern California Gas Company	#14311	217,000
#14024 & #15517	CEC AB 118 Program 600-12-011 & 600-14-003	Develop & Demonstrate Catenary Zero Emissions Goods Movement System	Seimens Industry Inc.	#14062	3,000,000
#14051	CEC AB 118 Program ARV-12-053	Implement South Coast Air Basin DC Fast Charging Network	Clean Fuel Connection, Inc.	#14184	250,000
#14146	Southern California Gas Company	Develop, Integrate & Demonstrate Ultra-Low Emission Natural Gas Engines for On-Road Heavy-Duty Vehicles	Cummins Inc.	#14364	250,000
#15022	CEC 600-13-018	Develop, Integrate & Demonstrate Ultra-Low Emission Natural Gas Engines for On-Road Heavy-Duty Vehicles	Cummins Inc.	#14364	$1,000,000
Table 3 lists revenue recognized by SCAQMD into the Clean Fuels Fund (31) only if the pass-through contract was executed during the reporting CY (2014).					**$5,963,707**

Table 4: Summary of Federal & State Funding Awarded between Jan. 1 & Dec. 31, 2014

Awarding Entity or Program	Award Date	Purpose	Contractors	Award Total $/Fund
CEC AB 118 Program ARV-12-053 (#14051 Amd #1)	Exe 12/15/14	Implement South Coast Air Basin DC Fast Charging Network	Clean Fuel Connection Inc.	420,000 Fund 31 (Clean Fuels)
CEC AB 118 Program ARV-13-026 (#15441)	07/03/14	Implement South Coast Air Basin DC Fast Charging Network	Clean Fuel Connection Inc.	500,000 Fund 31 (Clean Fuels)
U.S. DOE/NETL (#15390)	08/21/14	Develop & Demonstrate Zero Emission Fuel Cell Range Extended Electric & Hybrid Electric Drayage Trucks	U.S. Hybrid, TransPower, CTE, GTI and International Rectifier	9,725,000 Fund 61
CEC	12/05/14 Brd Mtg	Develop and Demonstrate Zero Emission Fuel Cell Range Extended Electric and Hybrid Electric Drayage Trucks	U.S. Hybrid, TransPower, CTE, GTI and International Rectifier	2,400,000 Fund 61
LADWP	12/05/14 Brd Mtg	Develop and Demonstrate Zero Emission Fuel Cell Range Extended Electric and Hybrid Electric Drayage Trucks	U.S. Hybrid, TransPower, CTE, GTI and International Rectifier	1,000,000 Fund 61
San Pedro Bay Ports' Technical Advancement Program	12/05/14 Brd Mtg	Develop and Demonstrate Zero Emission Fuel Cell Range Extended Electric and Hybrid Electric Drayage Trucks	U.S. Hybrid, TransPower, CTE, GTI and International Rectifier	1,133,979 Fund 61
Southern California Gas Company	12/05/14 Brd Mtg	Develop and Demonstrate Zero Emission Fuel Cell Range Extended Electric and Hybrid Electric Drayage Trucks	U.S. Hybrid, TransPower, CTE, GTI and International Rectifier	250,000 Fund 61
CARB/BAR AB 118	12/05/14 Brd Mtg	Implement the Retirement and Replacement Component of the Enhanced Fleet Modernization Program	Foundation for California Community Colleges; Gladstein, Neandross & Associates; and Opus Inspection	1,400,000 Fund 56
U.S. EPA CATI A-00909414-1 (Amd #1)	07/21/14	Install and Test Air Filtration Systems in School Buses and Upgrade and Demonstrate Two Electric Yard Tractors	IQAir & TransPower	500,000 Fund 17
CEC AB 118 ARV-13-056 (#14685)	03/12/14	Support Hydrogen Readiness in Early Market Communities	Bevilacqua-Knight, Inc.	297,460 Fund 55
POLB/City of Long Beach (#14359)	04/04/14 Brd Mtg	Demonstrate Barge-Mounted Emission Control System	Advanced Cleanup Technologies, Inc.	2,063,624 Fund 17
U.S. EPA/ DERA	02/07/14 Brd Mtg	Convert and Demonstrate Two Diesel School Buses to Electric Buses with V2G Capability and Replace One Diesel School Bus with an Electric School Bus	Torrance and Newport-Mesa Unified School Districts	156,000 Fund 33

Table 4: Summary of Federal & State Funding Awarded between Jan. 1 & Dec. 31, 2014

Awarding Entity or Program	Award Date	Purpose	Contractors	Award Total $/Fund
U.S. EPA/ DERA	08/21/14	Replace Diesel School Buses with Electric School Buses	Colton and Los Angeles Unified School Districts	110,627 Fund 33
Table 4 provides a comprehensive summary of revenue awarded to SCAQMD during the reporting CY (2014) if it will be considered part of, or complementary to, the Clean Fuels Program, regardless of whether the pass-through contract has been executed.				**$19,956,690**

Project Summaries by Core Technologies

The following represents summaries of the contracts, projects and studies executed, or amended with additional dollars, in 2014. They are listed in the order found in Table 2 by category and contract number. The summaries provide the project title, contractors and subcontractors, SCAQMD cost-share, cosponsors and their respective contributions, contract term and a description of the projects as required by H&SC Section 40448.5.1(d).

Electric/Hybrid Technologies

13396: Develop & Demonstrate Class 8 Zero Emission Electric Trucks

Contractor: Transportation Power Inc.	SCAQMD Cost-Share	$ 375,000
	Cosponsors	
	California Energy Commission	1,450,364
	San Pedro Bay Ports' Technology Advancement Program	300,000
	Transportation Power Inc.	160,004
Term: 04/19/13 – 12/3/16	Total Cost:	$ 2,285,368

In October 2012, TransPower was awarded $1,142,070, as part of a DOE grant, to develop and demonstrate four Class 8 battery electric drayage trucks in real world drayage operations at the Ports of Los Angeles and Long Beach. Subsequent to the award, TransPower received additional funding from CEC and the San Pedro Bay Ports' Technology Advancement Program to develop three more electric drayage trucks for the demonstration. This contract modification is to cost-share the development of the three additional trucks for a total of seven demonstration trucks. In addition, this modification also includes design upgrades to the electric drive system incorporating technology advancements and improvements gained from the operations of earlier prototypes. The upgrades will help to enhance the vehicle performance and operating efficiency as well as to reduce assembly costs, making the vehicles more viable and well-positioned for commercialization.

14062: Develop & Demonstrate Catenary Zero Emissions Goods Movement System & Develop & Demonstrate Diesel Catenary Hybrid Electric Trucks

Contractor: Siemens Industry Inc.	SCAQMD Cost-Share *(partially received as pass-through funds)*	$ 5,500,000
	Cosponsors	
	Port of Long Beach	2,000,000
	Los Angeles County Metropolitan Transportation Authority —Metro"	2,000,000
	Port of Los Angeles China Shipping Settlement	4,000,000
	Siemens Industry Inc.	1,280,000
Term: 07/14/14 – 07/13/18	Total Cost:	$ 14,780,000

Siemens Industry Inc. (Siemens) has designed and demonstrated a catenary truck technology, eHighway, in Germany on a European truck chassis. For this project, Siemens proposes to bring the eHighway technology to southern California with their partner Volvo and develop and demonstrate a catenary plug-in hybrid electric truck technology. The hybrid drive system will extend the operating range of the truck beyond the all-electric range of the catenary system, enabling the truck to perform regional drayage operations and bridge gaps in catenary infrastructure as it is deployed on a regional level. Siemens and Volvo propose to develop and integrate two Mack Granite Vision diesel hybrid electric class 8 trucks configured to operate on the catenary system. The first truck will be used for integration and testing of the pantograph and electrical hybrid drive and will be evaluated on Siemens catenary test track in Germany. The second truck will leverage the same plug-in hybrid electric architecture being developed by Volvo under a separate SCAQMD project. The vehicle will use Volvo‘s current hybrid 150kW electro-mobility propulsion system will be upgraded with a pantograph to operate on the eHighway system.

14156: Lease of Two Fusion Energi & One C-Max Energi PHEVs for a Three-Year Period

Contractor: Galpin Motors Inc. (Galpin Ford)	SCAQMD Cost-Share	$ 49,298
	Cosponsors	
	Federal Tax credit $3,750 partially offset by Ford lease financing plus California Clean Vehicle Rebate of $1500 per PHEV	
Term: 01/28/14 01/27/17	Total Cost:	$ 49,298

The SCAQMD operates a number of alternative fuel vehicles, including electric vehicles, fuel cell vehicles and plug-in hybrid-electric vehicles (PHEVs). The primary objective of having these vehicles as part of the SCAQMD Fleet Demonstration Program is to continue to support the use of zero-emission vehicles. The three Ford PHEVs provide 19 miles all electric range in a five-passenger sedan (Fusions) or hatchback (C-Max), with over 500 miles total range including gasoline.

14184: DC Fast Charging Network Provider

Contractor: Clean Fuel Connection, Inc.	SCAQMD Cost-Share (*received as pass-through funds)*	$ 250,000
	Cosponsors	
	Clean Fuel Connection, Inc.	25,000
	eVgo	693,800
	Nissan	300,000
Term: 04/04/14 – 06/30/20	Total Cost:	$ 1,268,800

Clean Fuel Connection, Inc. (CFCI) was selected as the network provider for the 26-site DC fast charging network. CFCI is working in partnership with NRG/eVgo to serve as the installer and network provider. CFCI has installed over 8,000 EVSE since 1999 and is one of the most experienced installers of EVSE in the U.S. The 26 sites will be in addition to NRG/eVgo‘s CPUC

settlement of installing 200 DC fast chargers in California and will be integrated into the eVgo network. CFCI will operate the network for five years beyond the date of installation and will provide pay per use and subscription payment models to users. Installation at sites will begin in 2015 and be completed in early 2016. Subsequent to the execution of this contract with CFCI, the CEC issued a Notice of Proposed Award (NOPA) announcing the SCAQMD had been awarded $500,000 to implement six additional sites to their DC fast charging network and also amended their original award increasing it to a total of $720,000. CFCI's contract will be amended in 2015 to add these additional funds. Total CEC funding is $1.22 million for a 26-site network.

14222: Develop & Demonstrate Plug-In Hybrid Electric Retrofit System for Class 6 to 8 Trucks

Contractor: Odyne Systems, LLC	SCAQMD Cost-Share	$ 389,000
	Cosponsors	
	California Energy Commission	916,000
	Odyne Systems, LLC	921,000
Term: 04/24/14 – 04/23/16	Total Cost:	$ 2,226,000

The objectives of this project are to develop and design a retrofit plug-in hybrid electric system for work truck applications, such as bucket trucks, digger derricks, and underground utility trucks. During the two-year period of the project, the Odyne Systems will develop and evaluate concept designs, produce a selected concept, and evaluate one plug-in hybrid-electric medium- and heavy-duty work truck with extended stationary engine-off technology. The one vehicle will be deployed in the South Coast Air Basin. The primary objectives of this project are: 1) to improve specific aspects of the existing system through the use of smaller, lower cost components; 2) to optimize the system and selected powertrain components for high volume production to enhance commercial appeal through lower-cost products and components; 3) to match the size of the power electronics and energy storage device to customer duty cycle and work practice; 4) to quantify improvements in fuel economy and emissions. The project will gather vehicle and component performance data during deployment that will enable the operating cost and environmental impact of the vehicle to be assessed.

14224: Develop & Demonstrate Long Range All-Electric Transit Bus

Contractor: Complete Coach Works	SCAQMD Cost-Share	$ 395,000
	Cosponsors	
	U.S. Hybrid	44,500
	EV Grid	27,000
	Complete Coach Works	390,200
Term: 04/24/14 – 07/30/15	Total Cost:	$ 856,700

Complete Coach Works is one of the largest bus remanufacturing companies in the nation and has undertaken initial development efforts to produce an electric bus for transit applications. Leveraging their previous work, Complete Coach Works will design, develop and demonstrate their third generation electric bus concept in this project. The bus would be built off of a refurbished chassis incorporating significant improvements to the electric drive system. The improvements would be focused on making the bus more competitive with conventional transit buses on the initial purchase cost as well as on operating costs. The drive system is locally

sourced from U.S. Hybrid with a higher power output and the battery pack will be manufactured by EV Grid applying a more power dense lithium ion chemistry to trim system weight and utilizing high-volume cylindrical battery cells to further reduce the production cost. Complete Coach Works is targeting a driving range of 150 miles, which would satisfy the needs of approximately 80% of their customer base and still be a commercially marketable product. The electric bus will be demonstrated in revenue service with different transit agencies in the South Coast Air Basin to evaluate its performance and reliability as well as to quantify its operating cost relative to traditional vehicles in their fleets.

14256: Develop & Demonstrate Vehicle-To-Grid Technology

Contractor: National Strategies, LLC	SCAQMD Cost-Share	$ 250,000
	Cosponsors	
	California Energy Commission	1,473,488
	National Strategies, LLC	1,654,201
Term: 09/05/14 – 03/04/18	Total Cost:	$ 3,377,689

National Strategies proposed a Vehicle-to-Grid (V2G) Electric School Bus Demonstration Project that seeks to demonstrate if V2G capable school buses can overcome the capital cost barriers associated with EV technology and be financially viable on a total cost-of-ownership basis. In October 2013, the CEC made an award to National Strategies to develop and demonstrate six electric school buses with vehicle-to-grid and vehicle-to-building functionality (V2G/B) in school districts across California. School buses are ideal for V2G/B operation since they typically operate in the morning and afternoon for a few hours but remain parked most of the day. In this proposed project, two of the zero-emission school buses will be demonstrated in the South Coast Air Basin with Torrance Unified School District. National Strategies will convert two type C school buses for Torrance Unified School District that will utilize electric drive systems installed into existing OEM school bus chassis.

14323: Lease Two 2014 Chevrolet Volt Extended-Range Electric Vehicles for Three Years

Contractor: Selman Chevrolet Company	SCAQMD Cost-Share	$ 30,932
	Cosponsors	
	Federal Tax credit $7,500 partially offset by Chevy lease financing plus CA Clean Vehicle Rebate of $1500 per PHEV	
Term: 03/28/14 - 03/27/17	Total Cost:	$ 30,932

The SCAQMD operates a number of alternative fuel vehicle (AFVs), including electric vehicles (EV), fuel cell vehicles (FCVs) and plug-in hybrid-electric vehicles (PHEVs). The primary objective of having these vehicles as part of the SCAQMD‘s Fleet Demonstration Program is to continue to support the use of zero emission vehicles. The Chevy Volts provide 38 miles all electric range with about 300 miles total range including gasoline.

15021: Upgrade & Demonstrate Two Electric Yard Tractors

Contractor: Transportation Power Inc.	SCAQMD Cost-Share	$ 75,000
	Cosponsor	330,000
	U.S. EPA FY14 CATI Grant *(received as pass-through funds-- but not into Clean Fuels Fund)*	
Term: 07/14/14 – 12/31/15	Total Cost:	$ 405,000

The objectives of this project are to: (i) upgrade two prototype electric yard tractors to reflect lessons learned during a previous demonstration and incorporate Transportation Power Inc.'s TransPower latest ElecTruckTM technology; and (ii) demonstrate the upgraded tractors at container/trailer handling locations in the SCAQMD. During this demonstration, the tractors will be equipped with data logging instruments to record vehicle, drive system and battery system data. This demonstration will help encourage deployment of electric yard tractors and other cargo handling equipment.

Various: Install & Upgrade EV Charging Infrastructure (Administer SoCalEV Infrastructure Project)

Contractor: Various	SCAQMD Cost-Share	$ 0
Term: 08/05/13 – 06/30/15	Total Cost	$ 0

State, federal and local funds are currently being invested to support battery EV, plug-in hybrid EV and charging infrastructure. And while Southern California has an established network of public charging for EVs, the infrastructure is mostly obsolete. In 2013, the LADWP asked the SCAQMD to administer this project, which was previously awarded $840,750 by CEC. During that same CY, the SCAQMD executed the first five agreements - Memorandum of Agreement (MOA) - with members of the SoCalEV Regional Collaborative to install as well as upgrade existing public EV charging infrastructure at key Southern California locations. In 2014 the SCAQMD executed another 12 agreements with members of the SoCalEV Regional Collaborative. Data will be collected on charger utilization, charging use patterns, operating costs, electricity used and real world electric range of EVs. The work with all the members will be completed in 2015. (A complete listing of these MOAs can be found in Appendix B-Open Contracts.)

Direct Pay: Load Testing & Repair of Electric Vehicle Chargers

Contractor: ATVLS, Inc.	SCAQMD Cost-Share	$ 7,306
Term: 01/15/14 – 03/07/14	Total Cost	$ 7,306

This project provides funds for conducting load testing at several sections of the SCAQMD's Headquarters parking lot to determine electrical demand and need to replace or upgrade transformers, electrical panels and circuit breakers as part of a preliminary site assessment to increase the number of electric vehicle chargers onsite. A Clipper Creek Level 2 charger was also replaced in the parking area near the front lobby entrance after two years of service. The warranty on the charger had expired and the charger could not be repaired. This charger had originally been installed under a CEC Reconnect California grant awarded to Clipper Creek to upgrade old electric vehicle chargers to Level 2 chargers with J1772 connectors.

Direct Pay: Procure Electric Vehicle Chargers

Contractor: Clean Fuel Connection, Inc.	SCAQMD Cost-Share	$ 5,388
Term: 02/25/14 – 03/04/14	Total Cost	$ 5,388

This project provides funds for the demonstration of Level 2 electric vehicle charging infrastructure from several manufacturers including Coulomb Technologies, ECOtality, Clipper Creek and Schneider Electric. Clean Fuel Connection, Inc. purchased and installed two Level 2 charging stations in SCAQMD's parking lot behind Conference Room CC8 to provide additional charging for SCAQMD Board Members and staff as part of SCAQMD's Fleet Demonstration Program.

Direct Pay: Install Electric Vehicle Chargers

Contractor: Croxton Electric	SCAQMD Cost-Share	$ 6,685
Term: 03/3/14 – 03/4/14	Total Cost	$ 6,685

This project provides funds for the demonstration of Level 2 electric vehicle charging infrastructure from several manufacturers including Coulomb Technologies, ECOtality, Clipper Creek and Schneider Electric. Croxton Electric installed two Level 2 charging stations in the SCAQMD's parking lot behind Conference Room CC8 to provide additional charging for SCAQMD Board Members and staff as part of SCAQMD's Fleet Demonstration Program.

Engine Systems

14364: Develop, Integrate & Demonstrate Ultra-Low Emission Natural Gas Engines from On-Road Heavy-Duty Engines

Contractor: Cummins Inc.	SCAQMD Cost-Share *(partially received as pass-through funds)*	$ 2,061,000
	Cosponsor	
	Cummins Inc.	1,808,000
Term: 07/14/14 – 08/20/16	Total Cost:	$ 3,869,000

The objective of this project is to develop, integrate and demonstrate a natural gas engine suitable for on-road Class 8 heavy-heavy duty vehicle applications. The emissions targets are 0.02 g/bhp-hr NO_x, 0.01 g/bhp-hr PM, 0.14 g/bhp-hr NMHC, and 15.5 g/bhp-hr CO or lower, as measured using the U.S. EPA heavy-duty engine certification test procedure. Ammonia emissions will also be measured and methods to attain 10 ppm or lower are to be incorporated in the engine design. In addition, the engine design shall achieve minimal, if any, fuel economy penalties compared to similar 2010 diesel engines.

Infrastructure & Deployment

09308: Maintain & Manage SCAQMD's Fast-Fill CNG Refueling Station

Contractor: Trillium CNG	SCAQMD Cost-Share	$ 54,000
Term: 06/17/09 – 11/30/14	Total Cost:	$ 54,000

In late 2014, the SCAQMD Board authorized execution of a consecutive contract with Trillium CNG to ensure continued operation of the public access CNG station at SCAQMD headquarters. Concurrently, the Board approved the release of an RFP to solicit bids from contractors interested in assuming ownership and improving the now 12 year old CNG refueling facility. This contract, originally executed in 2009 with Trillium CNG (formerly Pinnacle), was allowed to expire so a new interim contract could be negotiated with Trillium CNG. The CNG station is currently operating without interruption and the RFP for a new owner/operator has closed and proposals are being evaluated. This station currently dispenses about 14,000 GGE/month and fuels about 2000 vehicles per month. Approximately 80% of the fuel dispensed is to non-SCAQMD vehicles.

12851: Install, Operate & Maintain Three LNG Fueling Stations (Fontana, Coachella & Perris)

Contractor: Clean Energy	SCAQMD Cost-Share (*received as pass-through funds)*	$ 1,000,000
	Cosponsor	
	Clean Energy	2,477,323
Term: 10/05/12 - 12/31/18	Total Cost:	$ 3,477,323

In late 2011 the SCAQMD received and executed a $2.6 million grant from CEC after applying for funding under AB 118 Program PON-09-006 for multiple natural gas stations. This grant was subsequently amended in 2013 and 2014. This modification executed in 2014 provides an additional $1 million to Clean Energy for three public access LNG projects. The Fontana and Coachella stations were both new stations completed in 2013 and are now in operation. Fontana adds LNG fueling capabilities to an existing conventional truck stop and is dispensing 45,000 GGE CNG and 20,000 DGE LNG per month. Coachella is designed to support heavy-duty trucks off Interstate 10 and has also undergone site improvements. Coachella is currently dispensing 36,000 DGE of LNG and completing 1,150 vehicle fueling transactions per month. The Perris station, which is expected to be commissioned in the first quarter of 2015, will be a new public access LNG fueling station established at an existing Arco Truck Stop and is expected to have a starting annual throughput of 300,000 DGE.

14219: Upgrade CNG Station at City Yard

Contractor: City of West Covina	SCAQMD Cost-Share	$ 200,000
	Cosponsors	
	MSRC/AB 2766 Discretionary Fund	300,000
	City of West Covina	118,429
Term: 05/15/14 – 06/15/17	Total Cost:	$ 618,429

The City of West Covina will upgrade the CNG station located at their West Covina City Yard. Upgrading the system will include the removal of the existing inoperable compressor with duplex compressors and controls, new storage vessels, dispensers and all associated electrical and mechanical equipment. The City has 15 natural gas vehicles, comprised of 13 trucks and vans and

2 buses. Nearby public agencies including several cities and school districts will refuel their natural gas fleets once the station upgrades are complete.

14311: Install & Maintain CNG Fueling Station in Murrieta for SoCalGas

Contractor: Southern California Gas Company	SCAQMD Cost-Share (*received as pass-through funds)*	$ 217,000
	Cosponsor	
	Southern California Gas Company	1,168,000
Term: 07/11/14 - 12/31/17	Total Cost:	$ 1,385,000

The SCAQMD received a CEC grant under AB 118 Program PON-11-602 to assist the Southern California Gas Company to install a new public/private access CNG station located at the Southern California Gas Company facility in Murrieta. This station will be positioned near the junction of the I-15 and I-215 freeways. The station will serve the needs of the SoCalGas's growing natural gas-powered vehicle fleet as well incentivize local fleets to purchase natural gas powered vehicles, e.g. school districts, water agencies and municipal fleets, as well as provide fueling for vehicles used in goods movement. The facility will include a 600 scfm compressor capable of fueling at 5 GGE/minute as well as 41,000 scf of storage and the public dispenser will include two hoses rated at 3600 psi, a universal card reader and will have 24/7 accessibility.

15438: Refurbish & Upgrade UPS Ontario LCNG Infrastructure

Contractor: United Parcel Service, Inc.	SCAQMD Cost-Share (*received as pass-through funds)*	$ 246,707
	Cosponsor	
	United Parcel Service, Inc.	237,828
Term: 12/31/14 – 06/30/18	Total Cost:	$ 484,535

The United Parcel Service, Inc. (UPS) LCNG station in Ontario, California, was first established in 1997 and continues to provide CNG and LNG refueling to many vehicles, including an expanded fleet of UPS LNG-powered heavy-duty vehicles. The station is located near the Ontario International Airport and is adjacent to both the SR-60 and I-15 freeways, providing a convenient and established source of both CNG and LNG fuel to a wide variety of NGVs and fleets that regularly operate or pass through this region. Nearly 900,000 DGE of LNG and 400,000 DGE CNG are dispensed annually from this facility with demand of both fuel types expected to increase in the near future. SCAQMD applied for and was awarded infrastructure funding through CEC's AB 118 Program as well as DOE's Clean Cities Program for this project. The $96,707 from CEC and $150,000 from DOE were recognized into the Clean Fuels Fund.

Hydrogen Technology and Infrastructure

13259: Hydrogen Station Operation & Maintenance for Five Cities Hydrogen Program

Contractor: Air Products and Chemicals, Inc.	SCAQMD Cost-Share	$ 90,000
Term: 03/26/13 – 03/31/15	Total Cost:	$ 90,000

SCAQMD embarked on an ambitious project to demonstrate hydrogen fueling and hydrogen ICE vehicles throughout the South Coast Air Basin. In 2004, SCAQMD also awarded a contract to Air Products and Chemicals, Inc. (APCI) to build hydrogen stations at the Five Cities sites (Burbank, Ontario, Riverside, Santa Ana and Santa Monica), which included three electrolyzer stations and two mobile fueling stations. The contract for operation and maintenance was extended to March 31, 2015, to provide funding for operation and maintenance of the Riverside, Santa Ana and Santa Monica stations through mid-2014, closing costs for the Ontario station through 2013, and closing and removal of hydrogen fueling equipment at Riverside and Santa Monica in early 2015.

15020: Develop Sampling & Testing Protocols for Analyzing Impurities in Hydrogen

Contractor: University of California Irvine	SCAQMD Cost-Share	$ 114,500
	Cosponsors	
	AirUCI previously installed analytical instruments	In-kind
Term: 08/13/14 - 04/12/15	Total Cost:	$ 114,500

Proper codes and standards are essential for the commercial deployment of hydrogen and fuel cell technologies. The SAE J2719 fuel quality standard has been adopted for hydrogen fuel quality; however, testing protocols, along with equipment that can measure hydrogen fuel quality at those levels, need to be assessed. AirUCI will conduct an evaluation of current protocols and propose enhanced protocols as well as develop and implement method(s) to identity and quantify trace contaminants present in hydrogen fuel at hydrogen vehicle fueling stations located within the South Coast Air Basin.

15150: Install or Upgrade Eight Hydrogen Fueling Stations throughout SCAB (including SCAQMD's Diamond Bar Hydrogen Station)

Contractor: Air Products and Chemicals, Inc.	SCAQMD Cost-Share	$ 1,000,000
	Cosponsors	
	California Energy Commission PON-09-608	11,231,733
	Air Products and Chemicals, Inc.	4,812,483
Term: 10/10/14 - 04/09/19	Total Cost:	$ 17,044,216

On November 16, 2010, the California Energy Commission released a revised Notice of Proposed Award (NOPA) recommending funding for eight projects that will develop hydrogen fueling infrastructure within the South Coast Air Basin. Additional funds were needed to offset high initial costs and investment for production and distribution of hydrogen for these projects so the SCAQMD stepped in to cost-share these projects. The eight stations are strategically located and will play a significant role by providing hydrogen in Southern California in areas with high vehicle densities. The first station at SCAQMD Headquarters in Diamond Bar will serve as the model for the other modularly constructed delivered-hydrogen stations and will accept major credit cards.

15366: Operate & Maintain Publicly Accessible Hydrogen Fueling Station at SCAQMD Headquarters

Contractor: EPC LLC	SCAQMD Cost-Share	$ 0
Term: 10/10/14 - 09/14/17	Total Cost:	$ 0

EPC LLC entered into a license agreement to operate SCAQMD's new hydrogen fueling station in Diamond Bar. The license allows EPC to assign or sublet with SCAQMD's written permission; Air Products and Chemicals, Inc. will be providing equipment maintenance under their contract #15150 in coordination with EPC. EPC LLC obtained all permits for construction, maintenance and operation and will be operating the station for three years, including installation and operation of the point-of-sale (POS) credit card system.

15419: Disposition of Dispenser from Electrolyzer Hydrogen Station Demonstration at SCAQMD Headquarters

Contractor: SunLine Transit Agency	SCAQMD Cost-Share	$ 0
	Cosponsor	
	Sunline Transit Agency	In-kind
Term: 12/24/14 - 12/23/15	Total Cost:	$ 0

At the end of the useful life of the original Stuart Energy electrolysis-generated hydrogen fueling station at SCAQMD, Hydrogenics decommissioned the station and removed all the obsolete equipment under contract #10061. SunLine Transit has the only known remaining identical FTI hydrogen dispenser in our region at their hydrogen fueling station and it requires spare parts in order to continue operation until their station can be upgraded. SunLine Transit agreed to indemnify SCAQMD and provided labor and equipment to relocate the dispenser to their station.

Direct Payment: Conduct Hydrogen Quality Sampling & Analysis at Three Hydrogen Stations (Diamond Bar, Burbank and Newport Beach)

Contractor: Smart Chemistry Corporation	SCAQMD Cost-Share	$ 10,350
Term: 11/19/13 – 01/19/14	Total Cost:	$ 10,350

The SCAQMD maintains a hydrogen station at its Headquarters in Diamond Bar, and every few years there is a need to conduct sampling and analysis of particulates and gaseous content in the hydrogen fuel. Smart Chemistry is one of the few qualified independent laboratories that can perform sampling and analysis of hydrogen gas streams to the low levels SAE J2719. Smart Chemistry first assisted SCAQMD back in 2008 with performing gas sampling and chemical analysis of the electrolyzer-based hydrogen fueling station. Additionally, in 2014 the SCAQMD also tasked Smart Chemistry with sampling and analysis at the Newport Beach and Burbank hydrogen stations, which are scheduled for upgrades to begin retail sales of hydrogen sometime in 2015-16. The work conducted was for determining hydrogen purity in order to present to the various OEMs assuring them the quality met the SAE J2719 standards.

Direct Pay: Additional Support for California Fuel Cell Partnership's Hydrogen Fueling Activities

Contractor: Hydrogen Fueling Station	SCAQMD Cost-Share	$ 10,000
	Cosponsors	
	Several automotive and government members	117,000
Term: 01/01/14 - 06/04/14	Total Cost:	$ 127,000

The successful passage of AB 8, which dedicates funding for hydrogen infrastructure, was the result of the efforts of many entities including outreach ride-and-drive activities by CaFCP staff and member organizations. This additional support will continue to provide hydrogen fueling for CaFCP outreach activities until the new West Sacramento and SCAQMD hydrogen fueling stations are operational.

Purchase Order: Purchase FTIR to Perform Hydrogen Fuel Quality Testing

Contractor: MKS Instruments	SCAQMD Cost-Share	$ 91,768
Term: 08/07/14 – 01/23/15	Total Cost:	$ 91,768

Proper codes and standards are essential for the commercial deployment of hydrogen and fuel cell technologies. The SAE J2719 fuel quality standard has been adopted for hydrogen fuel quality; however, testing protocols, along with equipment that can measure hydrogen fuel quality at those levels, need to be assessed. The fuel quality required by SAE J2719 must be quantified at the vehicle-fueling station interface and a determination made as to how the presence of small amounts of contaminants may affect the performance and durability of proton exchange membrane (PEM) fuel cells. Current analyses of hydrogen fuel quality have to be enhanced or developed for approximately half of the fuel cell specifications. SCAQMD laboratory staff have investigated the applicability of various instruments and determined a purpose-designed FTIR gas analyzer for measuring certain contaminants within hydrogen fuel would be most cost-efficient. The equipment cost includes software, operational calibration recipes and training. A significant cost savings is realized by the purchase of this equipment. If this equipment were not acquired, separate analyses would have to be developed for sampling of acid halides (no known method for halogens such as chlorine or bromine), formaldehyde (HPLC analysis for formaldehyde at four hours per sample), and ammonia (impinger sampling and IC analysis for ammonia at four hours). Halogen gas sampling and analysis has yet to be scoped. This equipment will act as the cornerstone for analyzing hydrogen fuel purity.

Mobile Fuel Cell Technologies

14622: CSULB CEERS Student Education Project to Demonstrate Graphene Fuel Cell Catalysts

Contractor: California State University Long Beach Foundation	SCAQMD Cost-Share	$ 28,000
Term: 08/05/14 – 05/31/15	Total Cost:	$ 28,000

The Center for Energy and Environmental Research and Services (CEERS) at the California State University Long Beach (CSULB) proposed conducting a feasibility study

of iodine-edged graphene catalysts for Proton Exchange Membrane Fuel Cell (PEMFC). The goal is to obtain the performance of these catalysts under operating fuel cell conditions and to understand how these catalysts have improved properties versus traditional Platinum (Pt) catalysts. The motivation for this study was to find an ideal catalyst that is dramatically less expensive and has improved durability and performance than pure Pt for PEMFC.

15388: Participate in California Fuel Cell Partnership for CY 2014 & Provide Support for Regional Coordinator

Contractor: Bevilacqua-Knight, Inc.	SCAQMD Cost-Share	$ 137,800
	Cosponsors	
	8 automakers; 5 government agencies; 1 fuel cell provider, and 9 associate and 14 affiliate members	1,927,200
Term: 01/01/14 - 12/31/14	Total Cost:	$ 2,065,000

In April 1999, the California Fuel Cell Partnership (CaFCP) was formed with eight members; SCAQMD joined and has participated since 2000. The CaFCP and its members are demonstrating and deploying fuel cell passenger cars and transit buses with associated hydrogen fueling infrastructure in California. Since the CaFCP is a voluntary collaboration, each participant contracts with Bevilacqua-Knight, Inc. (BKi) for their portion of the CaFCP's administration. In 2014, the SCAQMD Board contributed $87,800 for membership and up to $50,000, along with four cubicles at SCAQMD Headquarters, to provide support for the CaFCP Regional Coordinator.

Health Impacts Studies

12865: Develop Quantitative Cellular Assays for Use in Understanding the Chemical Basis of Air Pollutant Toxicity

Contractor: University of California Los Angeles (UCLA)	SCAQMD Cost-Share	$ 319,553
Term: 06/08/12 – 07/31/15	Total Cost:	$ 319,553

The objective of this research is to develop a biological mechanism-based analytical procedure to characterize the toxicity air pollutants. The study is developing and characterizing a standard in quantities sufficient to be employed in subsequent toxicity analyses of vehicle emissions and ambient pollutants. UCLA is working with researchers at the University of California Riverside Center for Environmental Research and Technology (UCR/CE-CERT) to collect a large quantity of diesel exhaust, including both particulate and vapor phase, from a well-characterized engine using low-sulfur fuel as the standard. Quantitative dose response toxicity assays can then be conducted with, for example, emissions from advanced technology engines to compare with results from assays using the standard diesel emissions. This will provide a measure of the relative toxic potency of vehicle emissions that can be directly compared in standard assays.

14171: Risk of Incident Asthma among Children from in-Utero Exposures to Traffic Related Pollutants

Contractor: Southern California Research Center/Allergy & Asthma Associates of Southern California	SCAQMD Cost-Share	$ 99,670
	Cosponsor	
	BP	217,449
Term: 09/22/14 – 03/21/16	Total Cost:	$ 317,119

This project will estimate the association of traffic exposure during pregnancy and diagnosis of asthma during childhood. This study is among the first to evaluate potential risk of exposures near the residence, work, and in-vehicle travel during a vulnerable time of immune system development. The project uses a case control study design. The subjects with asthma are recruited from patients in a large medical practice focusing on asthma. Historical data are available including date of birth, residence history, demographic variable, and asthma severity and control. Control subjects matched for characteristics such as age, gender and ethnicity are being recruited from general pediatric clinics, preschools and other venues. The goal is to recruit 1,000 cases and an equal number of matched controls. Traffic-related exposures during pregnancy are estimated based on residence and work locations and on commute patterns. Markers of traffic emissions include NO, NO_2, CO, $PM_{2.5}$ and ultrafine particles. Both dispersion models of nearby traffic emissions as well as regional air monitoring data will be employed. Additionally, a model developed under a previous research project will be used to estimate exposures to traffic pollutants during commuting times.

14172: The Relation of Airway & Systemic Oxidative Stress to Particulate Air Pollution Exposures in an Elderly Cohort

Contractor: University of California Irvine	SCAQMD Cost-Share	$ 159,974
	Cosponsor	
	BP	216,394
Term: 02/17/14 – 08/16/15	Total Cost:	$ 376,368

This project will be accomplished in coordination with a study funded by the National Institutes of Health on the health effects of fine particulate exposures. It includes weekly measurements of air pollutants and cardiovascular and respiratory symptoms in a group of 120 elderly subjects living in the South Coast Air Basin. Half of the subjects reside in Los Angeles, and half reside in Anaheim. The measurements are taken over two six-week periods, one in the cool season and one in the warm season. The current project adds measures for markers of oxidative stress in the breath and in the blood of the subjects. About half of the subject data have been collected during the first year of the project. The analysis will determine which pollutants are associated with specific respiratory and cardiovascular health outcomes. It is hypothesized that oxidant pollutants, such as ozone and secondary organic aerosols, which include oxidized organic substances emitted from fuel combustion associated with particulate matter, are responsible for respiratory effects. It is further hypothesized that cardiovascular effects and changes in blood markers are associated with freshly emitted traffic-related organic chemicals in particulate matter.

Fuels/Emissions Studies

13402: Next Sustainable Transportation Energy Pathways (STEPS) Program

Contractor: University of California Davis-Office of Research	SCAQMD Cost-Share	$ 120,000
	Cosponsors	
Term: 05/02/14 - 07/01/16	Total Cost:	$ 2,760,000

13402: Next Sustainable Transportation Energy Pathways (STEPS) Program

Contractor: University of California Davis/Institute of Transportation Studies	SCAQMD Cost-Share	$ 120,000
	Cosponsors	
	20 organizations from energy, automotive, and government sectors	2,640,000
Term: 05/02/14 - 07/01/16	Total Cost:	2,760,000

The University of California Davis/Institute of Transportation Studies is continuing a multi-year Next Sustainable Transportation Energy Pathways (NextSTEPS) Program to develop the theory, tools and methods for self-consistent and transparent comparisons of promising alternative energy and vehicle pathways, and to apply these tools and methods in comparative assessments of transportation energy pathways. Increased analysis of shale oil and gas will be added and models for hydrogen, electricity and biofuels will be further refined. SCAQMD identified four key subject areas for inclusion in this multi-year program: 1) Transition Scenarios for Alternative Fuels and Vehicles in California; 2) Consumer Behavior and Vehicle Choice: Longitudinal Tracking; 3) Best Policy and Incentive Strategies; and 4) Low Carbon Options for Non Light-Duty Subsectors.

14162: Utilization of Fleet DNA Approach and Capabilities to Provide Vehicle Vocational Analysis in SCAQMD

Contractor: National Renewable Energy Laboratory	SCAQMD Cost-Share	$ 174,985
	Cosponsor	
	National Renewable Energy Laboratory	25,000
Term: 02/26/14 – 12/30/15	Total Cost:	$ 199,985

The National Renewable Energy Laboratory (NREL) is collecting and analyzing data in the SCAQMD‘s jurisdiction to match powertrains and advanced technology with duty cycles of medium- and heavy-duty trucks. Vehicle duty cycle data will be collected from specific fleet vocations, chosen primarily by their contribution to the medium- and heavy-duty vehicle

emissions inventory. This study will provide information to optimize deployment of advanced vehicle technology in order to maximize emission reductions and fuel economy.

Outreach and Technology Transfer

12376: Technical Assistance with Alternative Fuels, Biofuels, Emissions Testing & Zero-Emission Transportation Technology

Contractor: University of California Riverside/CE-CERT	SCAQMD Cost-Share	$ 75,000
Term: 06/13/14 – 05/31/16	Total Cost:	$ 75,000

SCAQMD seeks to implement aggressive programs to develop and demonstrate pre-commercial technologies for low- and zero-emission vehicles and equipment, alternative fuels, and renewable energy sources. Due to constant and rapid changes in technologies and the sheer breadth of potential projects, SCAQMD supplements in-house technical resources with outside expertise and assistance to evaluate and implement these demonstration projects. The College of Engineering/Center for Environmental Research and Technology (CE-CERT) is a research center at University of California Riverside dedicated to research on air quality and energy efficiency with approximately 120 investigators including 30 Ph.D. level researchers. CE-CERT will provide technical expertise to evaluate a broad range of emerging technologies in alternative and/or renewable fuels and vehicles as well as to conduct air pollution formation and control studies.

12381: Technical Assistance with Alternative Fuels, Fuel Cells, Emissions Analysis & Aftertreatment Technologies

Contractor: Integra Environmental Consulting Inc.	SCAQMD Cost-Share	$ 75,000
Term: 06/21/12 – 05/31/16	Total Cost:	$ 75,000

External expertise is needed to augment in-house expertise and assist staff in technical reviews of emission inventories, goods movement and off-road sources. Integra Environmental Consulting, Inc. was selected to provide technical assistance with emission inventories, goods movement sector analysis and off-road sources, especially related to availability and commercialization of near-zero and zero emission vehicles and equipment.

13194: Technical Assistance with Alternative Fuels, Renewable Energy & EVs, Program Related Activities for AFVs, Lawn Mower Exchange, Conferences & Outreach

Contractor: Clean Fuel Connection, Inc.	SCAQMD Cost-Share	$ 50,000
Term: 12/07/12 – 06/30/15	Total Cost:	$ 50,000

SCAQMD relies on expert input, consultation and support to manage a number of programs conducted under the Clean Fuels Program and incentive programs. Clean Fuel Connection, Inc. (CFCI) is providing technical assistance with alternative fuels, renewable energy and electric vehicles to promote, assess, expedite and deploy the development and demonstration of advanced, low- and zero-emissions mobile and stationary technologies. This modification to

increase available funds under this existing Contract is for administrative support to enable the range of activities involved in implementing the Clean Fuels Program and associated complimentary programs as needed. Support is necessary to enhance or expand existing program-related activities associated with performing or meeting program objectives such as alternative fuel vehicles (AFVs) demonstration programs, the lawn mower exchange program, participation in technical conferences and other outreach activities.

14185: Conduct Education Outreach for the Basin DC Fast Charging Network Project

Contractor: Three Squares, Inc.	SCAQMD Cost-Share	$ 49,183
Term: 04/11/14 – 10/31/16	Total Cost:	$ 49,183

Three Squares, Inc. (TSI) was selected to conduct education outreach for the DC fast charging network as each of the 26 sites were installed. TSI is an environmental consulting firm with extensive experience working with advanced technology, vehicle manufacturers and emission control technology providers. Education outreach components and social media campaign for users of the DC fast charging network will include information on the benefits of driving plug-in electric vehicles (PEVs) and having public fast charging in their communities, how to use DC fast chargers, and a list of available incentives for PEVs and infrastructure. Sites will be installed in 2015 and completed in early 2016. TSI will also produce a best practices guidelines document on education outreach and messaging, based on survey data and web traffic from network users.

15344: Technical Assistance with Alternative Fuels, Electric Vehicles, Charging and Fueling Infrastructure and Renewable Energy

Contractor: Clean Fuel Connection, Inc.	SCAQMD Cost-Share	$ 60,000
Term: 09/22/14 – 09/22/16	Total Cost:	$ 60,000

Clean Fuel Connection, Inc. (CFCI) will provide technical and administrative support for development and demonstration of advanced, low- and zero-emission mobile and stationary technologies for the Clean Fuels Program and various complementary incentive programs. CFCI's technical expertise and support enhances existing program-related activities associated with performing or meeting program objectives.

15369: Technical Assistance with Low- and Zero-Emission Vehicles, Fuel Cells, Stationary Applications and Emissions Analyses

Contractor: Breakthrough Technologies Institute, Inc.	SCAQMD Cost-Share	$ 30,000
Term: 11/07/14 – 11/06/16	Total Cost:	$ 30,000

At its December 6, 2013 meeting, the Board approved RFP #P2014-10 to solicit proposals for technical assistance for the Clean Fuels Program and implementation of various incentive funding programs. The RFP solicited statements of qualifications from individuals and organizations potentially capable of providing technical assistance in a variety of areas to support staff activities. The RFP sought companies or individuals to provide assistance in preparation of AQMP control measures; assessment of zero-emission and goods movement technologies; technical assistance for feasibility studies of stationary and mobile emission control technologies;

emissions assessment of new alternative fuel technologies; evaluation of innovative emissions control systems; assessment of economic, regulatory and technical barriers to the commercialization of clean fuels and advanced technologies; and to implement various incentive programs. Contracts with five technical experts including Breakthrough Technologies Institute were executed to provide technical assistance and outreach support. Breakthrough Technologies Institute is providing technical assistance with low- and zero-emission vehicles, fuel cells, stationary applications and emissions analyses. The team at Breakthrough Technologies Institute has a combined professional experience and proven expertise of over 80 years in the areas of alternative fuels, low- and zero-emission technologies, emission controls and federal policies and state regulations.

15380: Technical Assistance with Goods Movement, Alternative Fuels and Zero-Emission Transportation Technologies

Contractor: ICF Resources LLC	SCAQMD Cost-Share	$ 30,000
Term: 12/12/14 – 12/11/16	Total Cost:	$ 30,000

This contract is one of the five technical experts awarded funding as a result of RFP #P2014-10 which solicited proposals for technical assistance for the Clean Fuels Program and implementation of various incentive funding programs. ICF International is providing technical assistance with goods movement technologies, alternative fuels and zero-emission transportation technologies. ICF is a leading technology firm with over 40 years of experience. ICF has worked as a prime contractor for local, state and federal agencies and has extensive expertise in the areas of fuels and transportation related issues.

15415: Technical Assistance with Alternative Fuels and Fueling Infrastructure, Emissions Analysis and On-Road Sources

Contractor: Gladstein, Neandross & Associates, LLC	SCAQMD Cost-Share	$ 60,000
Term: 11/07/14 – 11/06/16	Total Cost:	$ 60,000

This contract is another one of the five technical experts awarded funding as a result of RFP #P2014-10 which solicited proposals for technical assistance for the Clean Fuels Program and implementation of various incentive funding programs. Gladstein, Neandross & Associates, LLC (GNA) is providing technical expertise with alternative fuels and fueling infrastructure, emission analysis and on-road sources. GNA has partnered with energy, transit, waste management and goods movement companies to develop projects such as the use of LNG in cargo handling equipment at the Ports of Los Angeles and Long Beach, evaluation of the feasibility of utilizing LNG in the Ports‘ yard equipment and the development of strategies to reduce emissions from construction and operations of the proposed LNG import terminal.

Transfer: Participate in California Natural Gas Vehicle Partnership

Contractor: Transfer from Clean Fuels	SCAQMD Cost-Share	$ 25,000
	Cosponsors	
	CNGVP Participating Members	135,000
Term: 07/11/14 – 07/11/14	Total Cost	$ 160,000

The California Natural Gas Vehicle Partnership (CNGVP) was formed to accelerate the development of advanced natural gas vehicle technologies to provide a benchmark for lowering emissions from petroleum-based engines and to provide a pathway to future fuel cell use in the next two decades. The SCAQMD spearheaded the formation of this strategic alliance, which comprises state and federal air quality, transportation and energy agencies, vehicle and engine manufacturers, fuel providers, and transit and refuse hauler organizations. Partnership Steering Committee members contribute monies to fund specific projects intended to achieve the goal of the Partnership. In July 2014 the SCAQMD approved $25,000 for the SCAQMD's participation in the Steering Committee for the next two years.

Direct Pay: Technical Assistance for EV Charging Infrastructure Grant Preparation

Contractor: Three Squares, Inc.	SCAQMD Cost-Share	$ 15,306
Term: 01/01/14 – 02/06/14	Total Cost	$ 15,306

CEC released PON-13-606 offering funding for EV charging infrastructure, with projects due by February 4, 2014. SCAQMD retained the expertise of Three Squares, Inc. to provide technical assistance in developing, preparing and submitting a grant proposal to expand the South Coast Air Basin DC Fast Charging Network. Three Squares, Inc. worked with staff on writing the project narrative, gathering the required CEQA and health impacts documentation and site selection. On July 3, 2014, CEC issued a NOPA announcing the SCAQMD had been awarded $500,000 to implement six additional sites to their DC fast charging network. CEC later agreed to award an additional $420,000 to their original grant for the first 20 DC fast charging sites for a revised award of $720,000. Total CEC funding for the 26-site network is $1.22 million.

Direct Pay: Participation for CY 2014 Membership in Transportation Research Board and Support of Minority Student Fellows Program

Contractor: Transportation Research Board	SCAQMD Cost-Share	$ 36,500
	Cosponsors	
	SCAQMD's Legislative & Public Affairs Office	32,500
	Core Program Participating Members	191,000
Term: 01/01/14 – 12/31/14	Total Cost	$ 260,000

In 2014 the SCAQMD supported the Transportation Research Board (TRB) by participating as a member and sponsoring TRB's 2014 Minority Student Fellowship Program. The mission of the TRB is to promote innovation and progress in transportation through research. In an objective and interdisciplinary setting, TRB facilitates the sharing of information on transportation practice and policy by researchers and practitioners; stimulates research and offers research management services that promote technical excellence; provides expert advice on transportation policy and programs; and disseminates research results broadly and encourages their implementation. TRB's varied activities annually engage more than 7,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest by participating on TRB committees, panels and task forces. TRB is one of six major divisions of the National Research Council (NRC) - a

private, nonprofit institution that is jointly administered by the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine - and is the principal operating agency of the National Academies in providing services to the government, the public and the scientific and engineering communities. The TRB Executive Committee, whose members are appointed by the chairman of NRC, exercises oversight responsibility for the Board's programs and activities. Members include senior transportation industry executives, top officials of public-sector transportation agencies, and distinguished researchers from academia. Sponsors and affiliates provide support for TRB core programs and activities. Sponsors are the major source of financial support for TRB's core technical activities. Federal, state, and local government agencies and professional societies and organizations that represent industry groups are eligible to be TRB sponsors. TRB's annual expenditures for program activities exceed $90 million.

Direct Pay: Cosponsor 22 Conferences, Workshops & Events plus 5 Memberships

Contractor: Various	SCAQMD Cost-Share	$ 294,038
	Cosponsors	
	Various	5,168,895
Term: 01/01/14 – 12/31/14	Total Cost	$ 5,462,933

The SCAQMD regularly participates in and hosts or cosponsors conferences, workshops and events. These funds provide support for the 22 conferences, workshops and events sponsored throughout 2014 as follows: NAFTANEXT Summit in April; Coordinating Research Council's 2014 Vehicle Emissions Workshop in March; UCR's 2014 Solar Energy Conference in February and 2014 PEMS Conference in April; UCI's ICEPAG 2014 in April; California Science Center Foundation's Foundation Fair Awards in April; JLP's 2014 Climate Day; EPRI's 2014 Plug-In Conference in July; The Women in Green Forum in August; CleanTechOC's 2014 Symposium: Stepping on the Gas in June; 2014 ACT Expo in Long Beach in May as well as a booth at the ACT Expo; the 7th Symposium on Global Emerging Environmental Challenges and Government in July; U.S. EPA's West Coast Collaborative Meeting in San Francisco in September; the 2014 Santa Monica AltCar Expo in August; 2014 GloSho in September; the Southern California Energy Summit in Palm Springs in October; CleanTechOC's 2014 Conference & Expo in October; the 2014 LA Auto Show, the Fuel Cell Seminar in November; Calstart's 2014 Annual Meeting & Blue Sky Awards in November; and Clean Fuel Advisory Group Participation Fees for February and August retreats. Additionally, for 2014 five memberships were renewed for participation in the PEV Collaborative, the Fuel Cell & Hydrogen Energy Association, the California Hydrogen Business Council, the Electric Drive Transportation Association, and the Air & Waste Management Association.

PROGRESS AND RESULTS IN 2014

Key Projects Completed

A large number of emission sources contribute to the air quality problems in the South Coast Air Basin. Given the diversity of these sources, there is no single technology or "silver bullet" that can solve all of the region's problems. Accordingly, the SCAQMD continues to support a wide range of advanced technologies, addressing not only the diversity of emissions sources, but also the time frame to commercialization of these technologies. Projects co-funded by the SCAQMD's Clean Fuels Program include emission reduction demonstrations for both mobile and stationary sources, although legislative requirements limit the use of available funds primarily to on-road mobile sources.

Historically, mobile source projects have targeted low-emission technology developments in automobiles, transit buses, medium- and heavy-duty trucks and off-road applications. These vehicle-related efforts have focused on: 1) advancements in engine design, electric power trains, energy storage/conversion devices (e.g., fuel cells and batteries); and 2) implementation of clean fuels (e.g. natural gas, propane and hydrogen) including their infrastructures. Stationary source projects have included a wide array of advanced low NO_x technologies and clean energy alternatives, such as fuel cells, solar power and other renewable energy systems.

Table 5 (page 61) provides a list of 46 projects and contracts completed in 2014. Summaries of the completed technical projects are included in Appendix C. Selected projects which represent a range of key technologies from near-term to long-term are highlighted below.

Demonstrate Battery Electric Heavy-Duty Trucks

CARB classified diesel exhaust as a known carcinogen in 1990 and as a toxic air contaminant in 1998, and the ports at Los Angeles and Long Beach are implementing measures to combat diesel emissions from goods movement activities. One of the major sources of criteria pollutant emissions is from diesel-fueled heavy-duty trucks. There are several measures that can be used to reduce emissions from heavy-duty trucks, such as conversion to clean fuels, hybridization and electrification. The Battery Electric Heavy-Duty Trucks project is an example of how the electrification of a drayage truck to reduce emissions from diesel-fueled trucks was accomplished.

A zero emission battery-electric drive system was installed by TransPower into two Class 8 truck tractors. Each drive system was intended to utilize network control architecture to control modular components, including high-power drive motors and inverters along with electrically-driven accessories, powered by lithium battery packs. A key technology advancement enabled by this project was development of a new onboard inverter-charger unit (ICU), which combines the functions of a motor inverter and battery charger. Other key advances included application of a new automated manual transmission and advanced battery management technologies to Class 8 electric trucks.

Figure 18: Truck #2 with loaded container provided by Port of LA

The ElecTruck project was highly successful in its core long term

objectives of achieving major technology advances in two key areas: (1) vehicle control and integration and (2) advanced energy storage. More generally, the ElecTruck project successfully advanced the state of the art in application of electric propulsion technology to Class 8 trucks, and provided valuable lessons learned that enabled TransPower to proceed to even more advanced component and integrated subsystem designs that are being incorporated into a growing fleet of fully operational electric Class 8 trucks, tractors and school buses. These vehicles are exhibiting performance characteristics beyond those of any other electric vehicles of this class.

The ElecTruck project demonstrated the essential feasibility of eliminating emissions from the largest and most polluting road vehicles - Class 8 trucks. If 5,000 electric trucks of the ElecTruck design were deployed in California by 2020, this would achieve an estimated aggregate emissions reduction of 378,500 tons of carbon per year – a significant step toward achieving the CARB 2020 limit of 427 million tons. Electric trucks of this design also eliminate criteria pollutants at the point of operation and reduce noise. By eliminating use of fossil fuels, they are also less expensive to operate and reduce our dependence on imported oil.

Sources, Composition, Variability and Toxicological Characteristics of Ultrafine Particles in Southern California

Many of the health effects associated with exposure to particulate matter (PM) derive from the ability of PM to generate oxidative stress. There is evidence that ultrafine particles (UFP) (with diameters of < 0.1- 0.2 μm), in particular, may be more toxic than coarse or fine PM. Despite their very low contribution to PM mass, UFP dominate particle number concentrations as well as have a large surface area relative to fine or coarse particles and a high pulmonary deposition efficiency. These particles can thus carry considerable amounts of toxic air pollutants, such as organic carbon and transition metals.

This project involved colleting samples of quasi-ultrafine particles (PM0.25, dp < 0.25 μm) over a year‘s time at several locations in the South Coast Air Basin. Sites included source, near-freeway, semi-rural receptor and desert locations. Twenty-four hour time-integrated samples were concurrently collected once a week for a year-long period at 10 distinctly different areas across the Los Angeles Basin, followed by comprehensive chemical and toxicological analyses, to provide insight on the seasonal and spatial variability in the chemical composition, sources and oxidative potential. The sampling site locations are shown in the following figure.

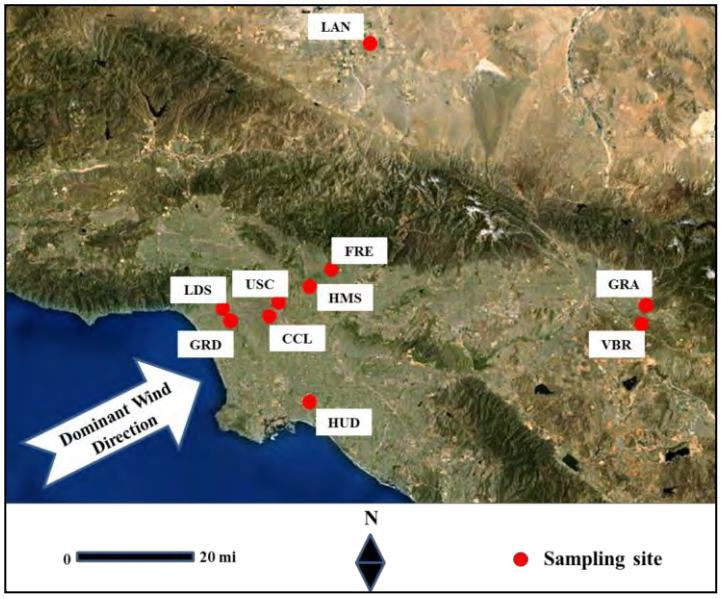


Figure 19: Location of the sampling sites

Average PM0.25 mass concentration ranged from 5.9 to 16.1 µg/m3 across the basin and seasons. Wintertime levels were highest at the source HUD site, while lowest at the desert-like LAN site. On the other hand, summertime concentrations peaked at the inland receptor locations. Chemical mass closure showed that that quasi-UFP in the basin consisted of 49–64% organic matter, 3–6.4% elemental carbon (EC), 9–15% secondary ions (SI), 0.7–1.3% trace ions, and 5.7–17% crustal material and trace elements, on a yearly average basis. Seasonal variation in source apportionment of quasi-ultrafine particles by site is show in the figure below.

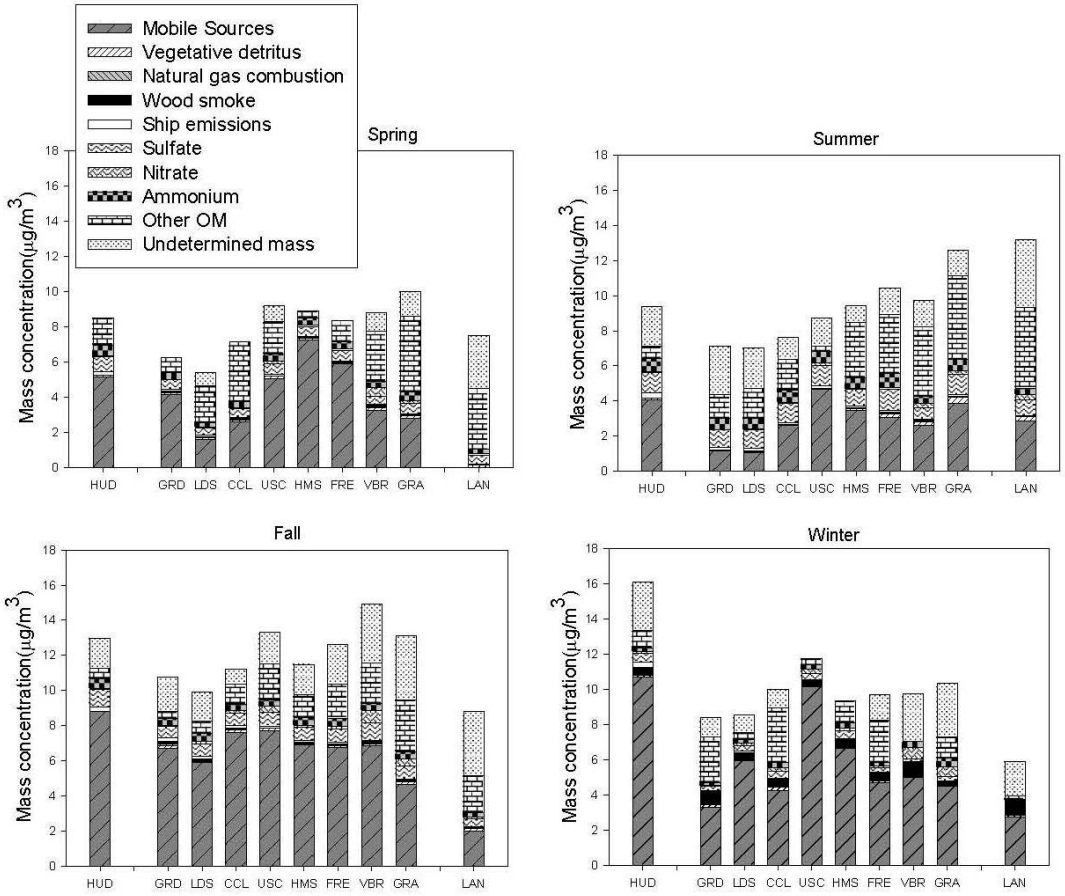


Figure 20: Seasonal variation in source apportionment of quasi-ultrafine particles (dp<0.25 µm) by site

The redox activity (which is thought to be related to potential toxicity) of PM0.25 samples was also assessed by means of a biological reactive oxygen species (ROS) assay (generation of ROS in rat alveolar macrophage cells). Seasonally, fall and summer displayed higher volume-based ROS-activity (i.e. ROS-activity per unit volume of air) compared to spring and winter. ROS levels were generally higher at near source and urban background sites compared to rural receptor locations, except for summer when comparable ROS-activity was observed at the rural receptor sites. Mass-based ROS activity, which reflects the intrinsic toxicity of particles, showed very similar trends to volume-based ROS activity, indicating that PM composition, more than PM mass concentration, was driving ROS activity. Variation in mass-based ROS Activity (µg Zymosan/mg PM) at different sampling sites are show below.

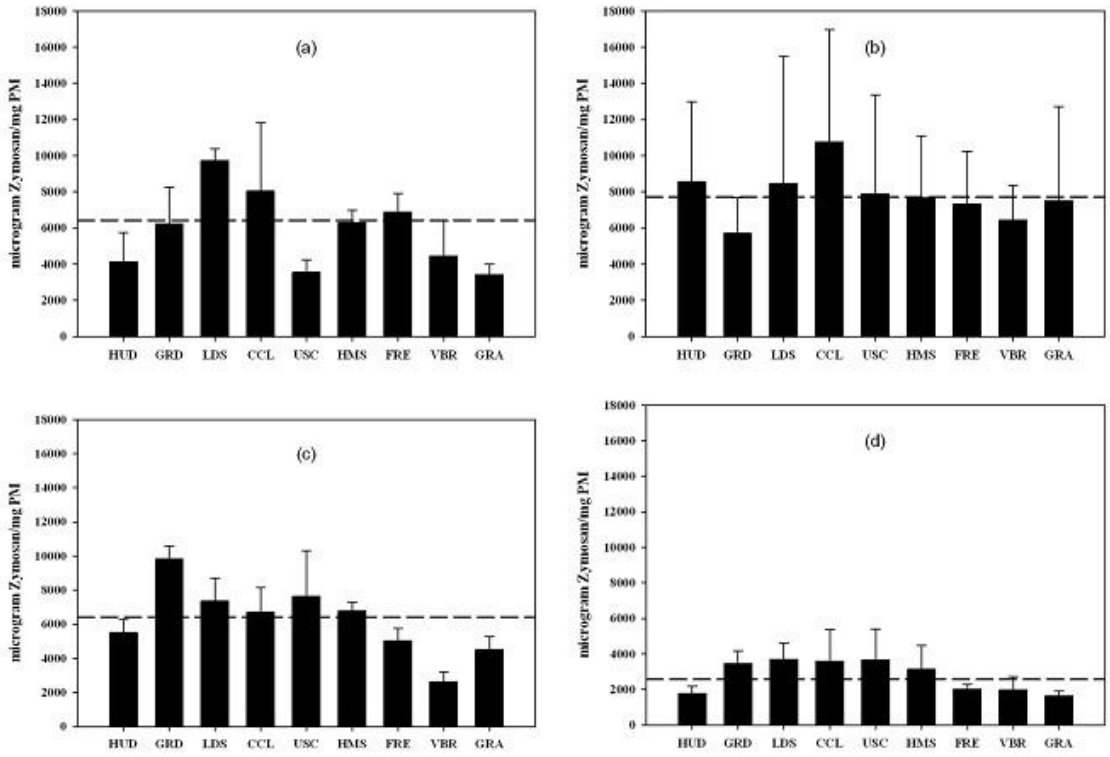


Figure 21: Variation in mass-based ROS Activity (ug Zymosan/mg PM) at different sampling sites during: (a) spring, (b) summer, (c) fall and (d) winter. Error bars correspond to one standard deviation. Dashed lines indicate the average of 9 sampling sites

These findings help establish the association between sources, composition and toxicity of UFP and provide a strong scientific basis for developing more targeted and cost-effective regulatory strategies at both the federal and state level. Moreover, the extensive database on UFP, generated from this project, constitutes an invaluable resource to PM exposure and health studies in the South Coast.

Publications:

A. Saffari, N. Daher, M. M. Shafer, J.J. Schauer, C. Sioutas. Seasonal and spatial variation in dithiothreitol (DTT) activity of quasi-ultrafine particles in the Los Angeles Basin and its association with chemical species. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances and Environmental Engineering, 49 (4), 441-451, 2014

A. Saffari, N. Daher, M. M. Shafer, J.J. Schauer, C. Sioutas. Global perspective on the oxidative potential of airborne particulate matter: a synthesis of research findings. Environmental science and technology, 2014, 48, 7576-7583.

A. Saffari., N. Daher, M. M. Shafer, J.J. Schauer, C. Sioutas. Seasonal and spatial variation of trace elements and metals in quasi-ultrafine (PM0.25) particles in the Los Angeles metropolitan area and characterization of their sources. Environmental Pollution, 181, 14-23, 2013.

A. Saffari, N. Daher, M. M. Shafer, J.J. Schauer, C. Sioutas. Seasonal and spatial variation in reactive oxygen species activity of quasi-ultrafine particles (PM0.25) in the Los Angeles metropolitan area and its association with chemical composition. Atmospheric Environment, 79, 566-575, 2013.

D. Wang, P. Pakbin, M. M. Shafer, D. Antkiewicz, J. J. Schauer and C. Sioutas. Macrophage Reactive Oxygen Species Activity of Water-soluble and Water-insoluble Fractions of Ambient Coarse, PM2.5 and Ultrafine Particulate Matter (PM) in Los Angeles. Atmospheric Environment, 77, 301-310, 2013.

S. Hasheminassab, N. Daher, J.J. Schauer, C. Sioutas. Source apportionment and organic compound characterization of ambient ultrafine particulate matter (PM) in the Los Angeles Basin. Atmospheric Environment, 79, 529-539, 2013.

N. Daher, S. Hasheminassab, M.M. Shafer, J.J. Schauer, C. Sioutas. Seasonal and spatial variability in chemical composition and mass closure of ambient ultrafine particles in the megacity of Los Angeles. Environmental Science: Processes and Impacts, 15, 283-295, 2013.

Conversion of Biowaste to Natural Gas using Steam Hydrogasification

Utilization of renewable energy sources is an integral part of California‘s strategy to reduce greenhouse gas emissions and to diversify domestic energy sources. Renewable Natural Gas (RNG) can be produced from carbonaceous and renewable feedstocks through a number of technologies including anaerobic digestion, gasification and pyrolysis. However, these technologies are often inefficient and the product gas is typically of low quality and inferior to fossil source-based natural gas. The Steam Hydrogasification Reaction (SHR), developed by the University of California Riverside/CE-CERT, is a thermo-chemical process that can produce high quality RNG from organic waste in a cost-effective and efficient manner. The SHR is also capable of handling wet feedstock providing an attractive alternative to landfilling solid wastes with high moisture contents like wastewater sludge that can pose more environmental issues in disposal. Another key benefit of this process is it uses steam to significantly increase the methane formation rate with a high carbon conversion efficiency compared to other gasification technologies. In addition, the SHR does not require an expensive oxygen plant that can be a significant barrier for smaller-scale production facilities.

Figure 22: PDU SHR-WGS system

The objective of this project was to demonstrate the SHR system in a Process Development Unit (PDU) scale reactor to produce RNG from organic waste in order to validate and optimize the process for a pilot plant design. A bubbling fluidized bed SHR with a 5 lb/hr feed rate was used in this project with a water gas shift (WGS) reactor integrated to maximize the methane production. As illustrated in Figure 42, biosolids comingled with food and green waste were pretreated in a hydrothermal reactor to pumpable slurry and fed into the SHR. When the slurry reached the

reaction zone, it reacted with hydrogen and water producing methane, CO and CO_2. With solid particles and moisture removed through a gas clean-up process, the product gas then passed through the WGS to convert CO into hydrogen and CO_2. In this project, a gas recirculation loop was added to recycle internally generated hydrogen back to the reactor for a self-sustained operation without external hydrogen supply.

The demonstration yielded a final gas composition of 73% CH4 and 27% CO after CO2 separation. In addition, an ASPEN modeling study showed that the methane concentration can be further increased to 90% by utilizing CO in the methanation process. Carbon conversion efficiency was 75% meaning 75% of carbon in the feedstock was utilized to produce the product gas. The remaining 25% was converted into char that can be utilized as fuel for heat source in a larger scale demonstration. Through this project, the process condition was optimized as follows: 1.0 H2/C mole ratio, 1.5 H20/feedstock mass ratio, 750oC reactor temperature, 400 Psia reactor pressure, and 320-380oC WGS operation temperature. In addition, an economic analysis for a commercial-scale plant showed that the RNG production cost will range from $5 to $15/MMBtu depending on site capacity and applications.

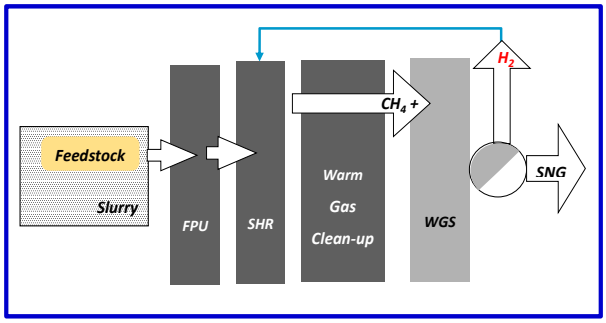


Figure 23: SHR-WGS Process Diagram

Biofuels derived from waste-based feedstocks typically have lower carbon intensities compared to other biofuels and alternative fuels. The SHR process has demonstrated potentials to produce high quality RNG from biomass waste more efficiently than competing renewable energy technologies including anaerobic digesters. Based on a preliminary feedstock availability assessment, a wide-scale implementation of this technology can help to support about 5% of the natural gas consumption in California.

Table 5: Projects Completed between January 1 & December 31, 2014

Contract	Contractor	Project Title	Date
Infrastructure and Deployment			
06028	Consolidated Disposal Service, LLC	Purchase & Install CNG Fueling System at Long Beach Waste Transfer Station	Jul-14
07051	City of Pasadena	Purchase & Install New Public Access CNG Fueling Station	Mar-14
07244	SunLine Transit Agency	Upgrade Existing Public Access CNG Fueling Stations in Thousand Palms & Indio	Apr-14
07245	USA Waste of California, Inc.	Purchase & Install New LNG Production Facility Using Landfill Gas from Altamont Landfill in Livermore	Dec-14
08030	TNT Blanchard	Repower Four Off-Road Construction Vehicles	Jun-14
08101	Pupil Transportation Cooperative	Upgrade Existing Full Public Access CNG Fueling Station in Whittier	Jun-14
09308	Trillium CNG (formerly Pinnacle)	Maintain & Manage SCAQMD's Diamond Bar Headquarters' Fast-Fill CNG Refueling Station	Nov-14
10034	California Cartage Company	Install Two LNG Fueling Stations at the Ports	Nov-14
10054†	Applied LNG Technologies	Upgrade & Perform Emergency Repairs of L/CNG Refueling Facility	Dec-14
10055	Waste Management	Install New Public Access CNG Refueling Station in Santa Ana	Dec-14
11561	SuperShuttle International, Inc.	Purchase & Deploy 34 CNG Shuttle Vans	Oct-14
12259	A-1 Alternative Fuel Systems	Demonstrate Natural Gas-Powered Police Pursuit Vehicle	Oct-14
Emission Control Technologies			
10696	Johnson Matthey, Inc.	Optimize & Demonstrate Selective Catalytic Regenerating Technology (SCRT) for NO_x & PM Emissions Control	Dec-14
10697	Johnson Matthey, Inc.	Optimize & Demonstrate Selective Catalytic Continuously Regenerating Technology (SCCRT) for NOx & PM Emissions Control	Dec-14
12113	Southern Counties Terminals dba Griley Air Freight	Retrofit Nine Heavy-Duty Diesel Trucks with DPFs	Mar-14
12114	South Bound Express, Inc.	Retrofit Three Heavy-Duty Diesel Trucks with DPFs	Mar-14
12118	National Ready Mixed Concrete, Co.	Retrofit 13 Heavy-Duty Diesel Trucks with DFPs	Mar-14
12120	Standard Concrete Products, Inc.	Retrofit 15 Heavy-Duty Diesel Trucks with DPFs	Mar-14
12121	Challenge Dairy Products, Inc.	Retrofit Three Heavy-Duty Diesel Trucks with DPFs	Mar-14

Table 5: Projects Completed between January 1 & December 31, 2014

Contract	Contractor	Project Title	Date
Emission Control Technologies (cont'd)			
12122	Bear Trucking, Inc.	Retrofit One Heavy-Duty Diesel Truck with DPFs	Mar-14
12123	RRM Properties Ltd.	Retrofit 127 Heavy-Duty Diesel Trucks with DPFs	Mar-14
12124	Gaio Trucking, Inc.	Retrofit Eight Heavy-Duty Diesel Trucks with DPFs	Mar-14
12125	Spragues Ready Mix	Retrofit Four Heavy-Duty Diesel Trucks with DPFs	Mar-14
12175	RRM Properties Ltd.	Retrofit Seven Heavy-Duty Diesel Trucks with DPFs	Mar-14
12186	Pipeline Carriers Inc.	Retrofit Ten Heavy-Duty Diesel Trucks with DPFs	Mar-14
13407	Chaffey Joint Union High School District	Demonstrate DPF Technology on Two School Buses	Mar-14
Electric/Hybrid Technologies & Infrastructure			
11614	Transportation Power, Inc.	Demonstrate Battery Electric Heavy-Duty Trucks	Sep-14
11725†	Puente Hills Nissan	Lease Three Nissan Leaf Electric Vehicles for 39 Months	Aug-14
12020	Chargepoint	Upgrade & Install Electric Charging Infrastructure	Apr-14
12825†	BMW of Monrovia	Lease Two BMW ActiveE Electric Vehicles for Two Years	Jun-14
12889†	BMW of Monrovia	Lease Two BMW ActiveE Electric Vehicles for Two Years	Jun-14
13149	UCLA Luskin Center for Innovation	Develop Southern California PEV Readiness Plan	Mar-14
Mobile Fuel Cell Technologies			
15388	Bevilacqua-Knight, Inc.	Participate in California Fuel Cell Partnership for CY 2014 & Provide Support for Regional Coordinator	Dec-14
Hydrogen Technologies & Infrastructure			
04185	Quantum Fuel Systems Technologies Worldwide Inc.	Develop & Demonstrate Hydrogen ICE Vehicles for Five Cities Program	Apr-14
13146†	California State University Los Angeles	Lease One Toyota Prius Hydrogen-Fueled Vehicle	Mar-14
Health Impacts Studies			
11527	University of Southern California	Study Sources, Composition, Variability & Toxicological Characteristics of Ultrafine Particles in Southern California	Dec-14

Table 5: Projects Completed between January 1 & December 31, 2014

Contract	Contractor	Project Title	Date
Health Impacts Studies (cont'd)			
12197	University of California Riverside/CE-CERT	Health Effects of PM Emissions from Heavy-Duty Vehicles—A Comparison Between Different Biodiesel Fuels	Mar-14
Stationary Clean Fuel Technologies			
09304	Solar Integrated Technologies, Inc.	Install & Evaluate Two 40kW (AC) PV Systems at SCAQMD Headquarters	Dec-14
11208†	Long Beach Unified School District	Long Beach USD Air Filtration MOA	Dec-14
13078	University of California Riverside/CE-CERT	Conversion of Biowaste to Natural Gas using Steam Hydrogasification	Dec-14
Outreach and Technology Transfer			
07060†	Don Breazeale and Associates Inc.	Technical Assistance Related to Air Quality Impacts of Regional Goods Movement	May-14
07129†	Breakthrough Technologies Institute, Inc.	Technical Assistance with Fuel Cell Technology	Mar-14
11182†	Tech Compass	Technical Assistance with Alternative Fuels, Fuel Cells, Emissions Analysis and Aftertreatment Technologies	Dec-14
12309†	TIAX LLC	Technical Assistance with Low- and Zero-Emission Vehicles, Fuel Cells and Fueling Infrastructure	Apr-14
12604†	Joseph C. Calhoun, P.E., Inc.	Technical Assistance with Low- and Zero-Emission Vehicles, Technology & Emissions Analysis	Dec-14
13081†	Burnett & Burnette	Technical Assistance in Evaluation and Assessing New Installations of Alternative Fueling Stations	Apr-14

†Two-page summary reports (as provided in Appendix C) are not required for level-of-effort technical assistance contracts, leases or cosponsorships; or it was unavailable at time of printing this report.

CLEAN FUELS PROGRAM
2015 PLAN UPDATE

The Clean Fuels Program (Program) was first created in 1988, along with the SCAQMD's Technology Advancement Office (TAO). Funding for the Program is received through a $1 motor vehicle registration fee. The Clean Fuels Program continually seeks to support the development and deployment of zero and near-zero emission technologies over a broad array of applications and spanning near- and long-term implementation. Planning has been and remains an ongoing activity for the Program, which must remain flexible to address evolving technologies as well as the latest progress in the state-of-technologies, new research areas and data.

Every year the SCAQMD re-evaluates the Clean Fuels Program based on the region's ongoing need for emissions reductions and develops a Plan Update for the upcoming calendar year (CY) targeting near-term projects to help achieve those reductions. This portion of this comprehensive document is the Plan Update for 2015.

Overall Strategy

The overall strategy of the SCAQMD's Clean Fuels Program is based primarily on technology needs identified through the Air Quality Management Plan (AQMP) process and the SCAQMD Board's directives to protect the health of residents in Southern California, which encompasses approximately 16.8 million people (nearly half the population of California). The AQMP is the long-term "blueprint" that defines:

- the basin-wide emission reductions needed to achieve federal ambient air quality standards;
- the regulatory measures to achieve those reductions;
- the timeframes to implement these proposed measures; and
- the technologies required to meet these future proposed regulations.

The 2012 AQMP identified the need for 200 tons/day oxides of nitrogen (NO_x) reductions to be adopted by 2020 for full implementation by 2023 and in large part focuses control measures on transportation technologies and cleaner fuels. These emission reduction needs are further identified in a joint SCAQMD, California Air Resources Board (CARB) and San Joaquin Air Pollution Control District effort, "Vision for Clean Air: A Framework for Air Quality and Climate Control Planning."[2] Moreover, the SCAQMD is currently only one of two regions in the nation recognized as an extreme ozone nonattainment area (the other is San Joaquin Valley). Ozone (smog) is created by a chemical reaction between NO_x and VOCs emissions at ground level. This is especially noteworthy because the largest contributor to ozone is NO_x emissions, and mobile sources (on- and off-road as well as aircraft and ships) contribute to more than three-fourths of the NO_x emissions in this region.

The daunting challenge to reduce ozone and NO_x require the Clean Fuels Program to encourage and accelerate advancement of transformative fuel and transportation technologies, leading the way for commercialization of progressively lower-emitting fuels and vehicles. If this region hopes to meet the 8-hour ozone standard (80 ppb) by 2023, it is projected that a 65% reduction in NO_x is required. The NO_x and VOC emission sources of greatest concern to this region are heavy-

[2] http://www.arb.ca.gov/planning/vision/docs/vision_for_clean_air_public_review_draft.pdf

duty on-road and off-road vehicles as well as to a lesser extent light- and medium-duty on-road vehicles. To underscore this concern, the 2013 Vehicle Technologies Market Report[3], released in early 2014 by the Oak Ridge National Laboratory for the Department of Energy, and corroborated by EMFAC 2011 projections, notes that Class 8 trucks comprise 41% of the medium- and heavy-duty truck fleet but consume 78% of the fuel use in this sector. This is especially significant since the report also notes that Class 8 truck sales have continued to increase significantly since 2009. In addition to NO_x and VOCs, fine particulate matter ($PM_{2.5}$) produced from mobile sources must also be reduced. Given the relationship between NO_x, ozone and $PM_{2.5}$, the 2015 Plan Update must emphasize emission reductions in these areas.

In recent years, it has become increasingly clear that the effect of containers being moved through the Ports of Los Angeles and Long Beach and the subsequent movement of goods throughout the region not only have a dramatic impact on air quality but also the quality of life to the communities along the major goods movement corridors. In recognition of these impacts, in the last couple of years, the SCAQMD has initiated a concerted effort to develop and demonstrate zero and near-zero emissions' goods movement technologies, such as electric trucks, plug-in hybrid trucks with all-electric range, zero emission container transport technologies, trucks operating from wayside power including catenary technology and heavy-duty technologies. The preliminary findings from the Multiple Air Toxics Exposure Study (MATES) IV[4], which included local scale studies near large sources such as ports and freeways, reinforce the importance of these impacts and the need for transformative transportation technologies, especially near the ports and goods movement corridor.

For over 20 years, a key strategy of the Clean Fuels Program has been its implementation as a public-private partnership in conjunction with private industry, technology developers, academic institutions, research institutions and government agencies. This public-private partnership has allowed the Program to leverage its funding with at least $3 of spending on R&D projects to every $1 of SCAQMD funds.

As the state and federal governments have turned a great deal of their attention to climate change, the SCAQMD has remained committed to developing, demonstrating and commercializing zero and near-zero emission technologies. Fortunately many, if not the majority, of technology sectors that address our need for NO_x reductions also garner greenhouse gas (GHG) reductions. Due to these ~~"~~co-benefits," we have been successful in partnering with the state and federal grants.

Funding Scope

This 2015 Plan Update includes projects to develop, demonstrate and commercialize a variety of technologies, from near-term to long-term, that are intended to provide solutions to the emission control measures identified in the 2012 AQMP and to address the increasing challenges this region is facing to meet air quality standards, including (1) new and changing federal requirements such as the newer 2032 ozone standard in addition to the current 2023 standard, (2) implementation of new technology measures, and (3) the continued development of economically sound compliance approaches. The scope of projects in the 2015 Plan Update also needs to remain sufficiently flexible to address new challenges and proposed methodologies that are identified in the 2012 AQMP, to consider dynamically evolving technologies, and to incorporate new research and data, such as the draft findings from the MATES IV study, which was

[3] http://cta.ornl.gov/vtmarketreport/index.shtml

[4] http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv

undertaken to update the emissions inventory of toxic air contaminants and conduct a regional modeling effort to characterize risk to health across the Basin. The study included measuring ultrafine particle and black carbon concentrations, as well as the white papers under development for the 2016 AQMP, which will focus on addressing ozone standards. Finally, given the increasing call for action by the federal government to reduce carbon and greenhouse gases (e.g., President Obama's Climate Action Plan released in June 2013), coupled with 2014-15 state budget appropriations relative to reducing greenhouse gases (GHGs), the co-benefits of technologies should also be considered.

In addition to providing for specific control measures based on known technologies and control methods, the Clean Air Act has provisions for more general measures based on future, yet-to-be-developed technologies. These "black box" measures are provided under Section 182(e)(5) of the Clean Air Act for regions that are extreme non-attainment areas, such as the South Coast Basin. Some of the technologies that are developed and demonstrated in the Clean Fuels Program may serve as control measures for the "black box."

Within the core technology areas defined later in this section, there exists a range of projects that represent near-term to long-term efforts. The SCAQMD Clean Fuels Program tends to support development, demonstration and technology commercialization efforts, or deployment, rather than fundamental research. The general time-to-product for these efforts, from long-term to near-term, is described below.

- Most technology *development* projects are expected to begin during 2015 with durations of about two years. Additional field demonstrations to gain long-term verification of performance, spanning up to two years, may also be needed prior to commercialization. Certification and ultimate commercialization would be expected to follow. Thus, development projects identified in this plan are expected to result in technologies ready for commercial introduction as soon as 2018. Projects are also proposed that may involve the development of emerging technologies that are considered longer term and, perhaps higher risk, but with significant emission reduction potential. Commercial introduction of such long-term technologies would not be expected until 2020 or later.
- More mature technologies, those ready to begin field *demonstration* in 2015, are expected to result in a commercial product in the 2016-2017 timeframe. Technologies being field demonstrated generally are in the process of being certified. The field demonstrations provide a controlled environment for manufacturers to gain real-world experience and address any end-user issues that may arise prior to the commercial introduction of the technology. Field demonstrations provide real-world evidence of a technology's performance to help allay any concerns by potential early adopters.
- *Deployment* or technology commercialization efforts focus on increasing the utilization of clean technologies in conventional applications. It is often difficult to transition users to a non-traditional technology or fuel, even if such a technology or fuel offers significant societal benefits. As a result, in addition to government's role to reduce risk by funding technology development and testing, one of government's roles is to support and offset any incremental cost through incentives to help accelerate the transition and use of the cleaner technology. The increased use and proliferation of these cleaner technologies often depends on this initial support and funding as well as efforts intended to increase confidence of stakeholders that these technologies are real, cost-effective in the long term and will remain applicable.

Core Technologies

As previously noted, the SCAQMD Clean Fuels Program maintains flexibility to address dynamically evolving technologies incorporating the latest state-of-the-technology progress. Over the years, the SCAQMD has provided funding for projects for a wide variety of low and zero emission projects. In order to meet the upcoming 2023 8-hour ozone standard, the areas of zero and near-zero emission technologies need to be emphasized. The working definition of "near-zero" is an order of magnitude lower than the existing 0.2 g/bhp-hr NO_x. This level is 0.02 g/bhp-hr NO_x and close to a combined cycle powerplant emissions rate. This effort can be seen in the following sections and in the proposed funding distribution in Figure 24 (page 74). The major core technology areas are identified below with specific project categories discussed in more detail in the following sections. The core technology areas identified reflect the staff's forecast for upcoming projects and needs within the basin but is not intended to be considered a budget.

Not all project categories will be funded, due to cost-share constraints, focus on the control measures identified in the 2012 AQMP and the availability of suitable projects. The technical areas identified below are clearly appropriate within the context of the current air quality challenges and opportunities for technology advancement. Within these areas there is significant opportunity for SCAQMD to leverage its funds with other funding agencies to expedite the implementation of cleaner alternative technologies in the Basin. A concerted effort is continually made to form private partnerships to leverage Clean Fuels funds. For example, there may be an upcoming opportunity to leverage state funding since SB 1204 (Lara and Pavley), which was chaptered last month, designates money from the state's cap-and-trade program for development, demonstration and early commercialization of zero and near-zero emission truck, bus and off-road vehicles.

It should be noted, therefore, that these priorities may shift during the year in keeping with the diverse and flexible "technology portfolio" approach. Changes in priority may occur to (1) capture opportunities such as cost-sharing by the state government, the federal government, or other entities, or (2) address specific technology issues which affect residents within the SCAQMD's jurisdiction.

The following core technology areas are listed by current SCAQMD priorities based on the goals for 2015.

Hydrogen & Fuel Cell Technologies & Infrastructure

The SCAQMD supports hydrogen infrastructure and fuel cell technologies as one option in our technology portfolio and is dedicated to assisting federal and state government programs to deploy fuel cell vehicles (FCVs) by supporting the required refueling infrastructure.

SCAQMD works closely with the California Fuel Cell Partnership (CaFCP) to further the commercialization of fuel cells for transportation and install the required hydrogen refueling infrastructure. In mid-2014 the CaFCP published Hydrogen Progress, Priorities and Opportunities, a report updating its 2012 roadmap describing the first network of commercial hydrogen stations in California, which calls for 68 hydrogen fueling stations in cluster communities at specific destinations by 2016. CEC funding awards over the last two years, along with some smaller cost-share support from SCAQMD, have made significant inroads to creating a growth path to 100 hydrogen stations, the state's current goal for launching a commercially self-sustaining network to support a growing number of fuel cell vehicles to implement the state's ZEV Action Plan. Furthermore, in September 2013 the Governor signed Assembly Bill 8 providing significant funding for hydrogen stations, which will greatly assist in making the inroads necessary toward expanding the hydrogen infrastructure network in California.

Calendar Years 2015-2017 are a critical timeframe for the introduction of FCVs. In fact, several automakers are scheduled to release products in 2015-2016, Hyundai being the first to already offer a FCV for lease in 2014. Since stations need one to two years lead time for permitting and construction, plans for stations need to be initiated now. While coordination efforts with the Division of Measurement Standards to establish standardized measurements for hydrogen fueling started in 2014, additional efforts to offer hydrogen for sale to general consumers are still needed. In addition, new business models and funding besides grants for construction need to be explored to enable the station operations to remain solvent during the early years until vehicle numbers ramp up.

Commencing late 2012, the CEC, which based its AB 118 hydrogen funding strategy on CaFCP's roadmap as well as the University of California, Irvine's Advanced Power and Energy Program, has issued multiple Program Opportunity Notices for hydrogen fuel infrastructure and to date has awarded funding for 36 new hydrogen fueling stations. The CEC in mid-2013 awarded the SCAQMD $6.7 million to implement the upgrade and refurbishment of existing hydrogen fueling stations to ensure legacy stations continue operation as FCVs become available in the market. The SCAQMD received a subsequent award of $300,000 in 2014 from CEC to implement a plan for hydrogen readiness in early market communities. The SCAQMD will work closely with state agencies to implement these programs and continue efforts to upgrade and refurbish existing hydrogen infrastructure.

The 2015 Plan Update identifies key opportunities while clearly leading the way for pre-commercial demonstrations of original equipment manufacturer (OEM) vehicles. Future projects may include the following:

- development and demonstration of hydrogen-natural gas engine systems for medium- and heavy-duty vehicle applications as well as stationary power applications;
- continued development and demonstration of distributed hydrogen production and fueling stations, including energy stations with electricity and hydrogen co-production and higher pressure (10,000 psi) hydrogen dispensing;
- development and demonstration of cross-cutting fuel cell applications (e.g. plug-in hybrid fuel cell vehicles);
- development and demonstration of fuel cells in off-road, locomotive and marine applications;
- demonstration of fuel cell vehicles in controlled fleet applications in the Basin; and
- development and implementation of strategies with government and industry to build participation in the hydrogen market including certification and testing of hydrogen as a commercial fuel to create a business case for investing.

Electric/Hybrid Technologies & Infrastructure

If the region hopes to meet the federal standards for $PM_{2.5}$ and ozone, a primary focus must be on zero and near-zero emission technologies. A leading strategy to achieve these goals is the wide-scale implementation of electric drive systems for all applicable technologies. With that in mind, the SCAQMD seeks to support projects to address the main concerns regarding cost, battery lifetime, travel range, charging station infrastructure and manufacturer commitment. Integrated transportation systems can encourage further reduction of emissions by matching the features of electric vehicles (zero emissions, zero start-up emissions, limited range) to typical consumer demands for mobility by linking them to transit. Additionally, the impact of fast charging on battery life and infrastructure costs is not well understood.

The development and deployment of zero emission goods movement systems remains one of the top priorities for the SCAQMD to support a balanced and sustainable growth in the port complex. The SCAQMD continues to work with our regional partners, in particular the Ports of Los Angeles and Long Beach, the Southern California Association of Governments (SCAG) and Los Angeles County Metropolitan Transportation Association (LACMTA), to identify technologies which could be beneficial to and garner support from all stakeholders. Specific technologies include zero emission trucks (using batteries and/or fuel cells), near-zero emission trucks with all-electric range using wayside power (catenary or roadbed electrification), locomotives with near-zero emissions (e.g., 90% below Tier 4), electric locomotives using battery tender cars and catenary, and linear synchronous motors for locomotives and trucks.

There is a high level of interest from major automobile manufacturers for hybrid-electric technologies in light-, medium- and heavy-duty applications as well as off-road equipment. In particular, there are increasing numbers of diesel- and gasoline-fueled hybrid-electric vehicles and multiple models of light-duty plug-in hybrid and battery electric vehicles (BEVs). Such vehicles offer the benefits of higher fuel economy and range as well as lower emissions. Hybrid electric technology is not limited to gasoline and diesel engines and can be coupled with natural gas engines, microturbines and fuel cells for further emission benefits. Additionally, continued advancements in the light-duty arena which, while there is commercially available product, is not yet mainstream technology, may have applications for medium- and heavy-duty vehicles. In fact, the goal of SB 1275 (de León), chaptered in September 2014, is to bring one million zero emission electric vehicles to California over the next ten years as well as to ensure that disproportionally impacted communities benefit from this transition toward cleaner transportation.

Opportunities to develop and demonstrate technologies that could enable expedited widespread use of electric and hybrid-electric vehicles in the Basin include the following:

- development and demonstration of hybrid and electric technologies for goods movement, e.g., series hybrids with all electric range and trolley trucks on catenary wayside power;
- evaluation and demonstration of light-, medium- and heavy-duty plug-in hybrid electric vehicles;
- development and demonstration of CNG hybrid vehicle;
- demonstration of full performance and niche application battery electric vehicles;
- demonstration of integrated programs that make best use of electric drive vehicles through interconnectivity between fleets of electric vehicles and mass transit, and web-based reservation systems that allow multiple users;
- demonstration of heavy-duty battery electric vehicles;
- demonstration of heavy-duty hybrid vehicles including hydraulic and series hybrid concepts;
- development of streamlined implementation procedures to prepare and accelerate EV market penetration and commercialization; and
- demonstration and installation of EV infrastructure to support the electric and hybrid-electric vehicle fleets currently on the roads or soon entering the market, and to reduce cost, improve convenience and integrate with renewable energy and building demand management strategies (e.g., vehicle-to-grid or vehicle-to-building functionality).

Engine Systems

Natural gas engines are experiencing huge market growth due to the low cost of fuel. In order to achieve the emission reductions required for the South Coast Air Basin, the internal combustion engines (ICEs) used in the heavy-duty sector will require emissions much lower, i.e., 90% than

the 2010 standards. Future projects will support the development, demonstration and certification of engines that can achieve these massive emissions reductions using an optimized systems approach. Specifically, these projects are expected to target the following:

- development of ultra-low emissions natural gas engines for heavy-duty vehicles and high horsepower applications;
- continued development and demonstration of alternative fuel medium-duty and heavy-duty engines and vehicles;
- development and demonstration of alternative fuel engines for off-road applications;
- evaluation of alternative engine systems such as compressed air propulsion and hydraulic plug-in hybrid vehicles;
- development and demonstration of engine systems that employ advance fuel or alternative fuels, engine design features, improved exhaust or recirculation systems, and aftertreatment devices;
- development and demonstration of engine systems that employ advance fuel or alternative fuels, engine design features, improved exhaust or recirculation systems, and aftertreatment devices.

Infrastructure and Deployment (Natural Gas)

The importance of natural gas and related refueling infrastructure cannot be overemphasized for the realization of large deployment of alternative fuel technologies. Significant demonstration and commercialization efforts funded by the Clean Fuels Program as well as other local, state and federal agencies are underway to: 1) support the upgrade and buildup of public and private infrastructure projects , 2) expand the network of public-access and fleet fueling stations based on the population of existing and anticipated vehicles, and 3) put in place infrastructure that will ultimately be needed to accommodate transportation fuels with very low gaseous emissions.

Compressed and liquefied natural gas (CNG and LNG) refueling stations are being positioned to support both public and private fleet applications. Upgrades and expansions are also needed to refurbish or increase capacity for some of the stations installed five years ago as well as standardize fueling station design, especially to ensure growth of alternative fuels throughout the South Coast Air Basin and beyond. Funding has been provided at key refueling points for light-, medium- and heavy-duty natural gas vehicle users traveling from the local ports, along I-15 and The Greater Interstate Clean Transportation Corridor (ICTC) Network.

Active participation in the development of National Fire Protection Association (NFPA) fire and safety codes and standards, evaluation of the cost and economics of the new fuels, public education and training and emergency response capability are just a few areas of the funded efforts that have overcome public resistance to these new technologies. Some of the projects expected to be developed and co-funded for infrastructure development are:

- development and demonstration of renewable natural gas as a vehicle fuel from renewable feedstocks and biowaste;
- development and demonstration of advanced, cost effective methods for manufacturing synthesis gas for conversion to renewable natural gas;
- deployment of natural gas home refueling appliances for light-duty vehicles;
- enhancement of safety and emissions reduction from LNG refueling equipment;
- expansion of fuel infrastructure, fueling stations, and equipment; and
- expansion of infrastructure connected with existing fleets, public transit, and transportation corridors.

Emissions, Fuels and Health Impacts Studies

The monitoring of pollutants in the Basin is extremely important, especially when focused on (1) a particular sector of the emissions inventory (to identify the responsible technology) or (2) exposure to pollution (to assess the potential health risks). Recent studies indicate that smoggy areas can produce irreversible damage to children‘s lungs. This information highlights the need for further emissions and health studies to identify the emissions from high polluting sectors as well as the health effects resulting from these technologies.

Over the past few years, the SCAQMD has funded emission studies to evaluate the impact of tailpipe emissions of biodiesel and ethanol fueled vehicles mainly focusing on criteria pollutants and greenhouse gas (GHG) emissions. These studies showed that biofuels, especially biodiesel, can contribute to higher NO_x emissions while reducing other criteria pollutant emissions. Furthermore, despite recent advancements in toxicological research related to air pollution, the relationship between particle chemical composition and health effects is still not completely understood, especially for biofuels. Therefore, a couple of years ago the SCAQMD funded studies to investigate the physical and chemical composition and toxicological potential of tailpipe PM emissions from biodiesel and ethanol fueled vehicles to better understand their impact on public health. Studies have continued in 2014 to further investigate the toxicological potential of emissions, such as ultrafine particles and vapor phase substances, and to determine whether or not other substances such as volatile or semi-volatile organic compounds are being emitted in lower mass emissions that could pose harmful health effects.

In recent years, there has also been an increased interest both at the state and national level on the use of alternative fuels including biofuels to reduce petroleum oil dependency, GHG emissions and air pollution. In order to sustain and increase biofuel utilization, it is essential to identify feedstocks that can be processed in a more efficient, cost-effective and sustainable manner. One such fuel that the Clean Fuels Program is interested in pursuing is dimethyl ether (DME). This synthetic fuel can be made from renewable natural gas resources and has characteristics similar to gas-to-liquids fuels, i.e., high cetane, zero aromatics and negligible emissions of particulate matter. Volvo has announced they will commercialize class 8 trucks using DME in 2015, and staff would like to ensure these trucks have lower NO_x than the existing standard. A study in 2015 on DME is being proposed.

Some areas of focus include:

- demonstration of remote sensing technologies to target different high emission applications and sources;
- studies to identify the health risks associated with ultrafines and ambient particulate matter including their composition to characterize their toxicity and determine specific combustion sources;
- in-use emissions studies using biofuels including DME to evaluate in-use emission composition;
- in-use emissions studies to determine the impact of new technologies, in particular PEVs on local air quality as well as the benefit of telematics on emissions reduction strategies;
- lifecycle energy and emissions analyses to evaluate conventional and alternative fuels; and
- analysis of fleet composition and their associated impacts.

Stationary Clean Fuel Technologies

Although stationary source emissions are small compared to mobile sources in the South Coast Air Basin, there are areas where cleaner fuel technology can be applied to reduce NO_x, VOC and

PM emissions. For example, inspections suggest there is a large population of small ICE generators within the Basin that are operating outside their permit limits due to poor maintenance, deliberate tuning for different performance, operation outside equipment design or changes in fuel quality. Cleaner, more robust distributed generation technologies exist that could be applied to not only improve air quality, but enhance power quality and reduce electricity distribution congestion.

The use of renewable feedstocks for energy production is a viable and necessary strategy to provide sustainable power for future needs while reducing greenhouse gas emissions and achieving domestic energy diversity. One of the projects that the SCAQMD recently supported in this effort was a bench scale demonstration project using a steam hydrogasification process to produce natural gas from biomass and biosolid (sewage sludge) feedstocks. Steam Hydrogasification Reaction (SHR) has been developed to produce various forms of energy products from carbonaceous resources. SHR is capable of handling wet feedstocks like sludge, does not require expensive oxygen plants and has been demonstrated to be most efficient and cost-effective compared to other conventional gasification technologies. This project successfully demonstrated that the SHR process coupled with a water-gas shift (WGS) reactor can produce natural gas containing up to 90% methane.

Additionally, alternative energy storage could be achieved through vehicle to grid or vehicle to building technologies. The University of California Riverside‘s Sustainable Integrated Grid Iniitiative, funded in part by the SCAQMD and launched in 2014, for example could assist in the evaluation of these technologies. Projects conducted under this category may include:

- development and demonstration of reliable, low emission stationary technologies (e.g., low NO_x burners, fuel cells or microturbines);
- exploration of renewables as a source for cleaner stationary technologies;
- evaluation, development and demonstration of advanced control technologies for stationary sources; and
- vehicle-to-grid or vehicle-to-building demonstration projects to develop sustainable, low emission energy storage alternatives

Emission Control Technologies

Although engine technology and engine systems research is required to reduce the emissions at the combustion source, post-combustion cleanup methods are also needed to address the current installed base of on-road and off-road technologies. Existing diesel emissions can be greatly reduced with aftertreatment controls such as particulate matter (PM) traps and catalysts, as well as lowering the sulfur content or using additives with diesel fuel. Gas-to-Liquid (GTL) fuels, formed from natural gas or other hydrocarbons rather than petroleum feedstock and emulsified diesel, provide low emission fuels for use in diesel engines. As emissions from engines become lower and lower, the lubricant contributions to VOC and PM emissions become increasingly important. The most promising of these technologies will be considered for funding, specifically:

- evaluation and demonstration of new emerging liquid fuels, including alternative and renewable diesel and GTL fuels;
- development and demonstration of advanced aftertreatment technologies for mobile applications (including diesel particulate traps and selective catalytic reduction catalysts);
- development and demonstration of low-VOC and PM lubricants for diesel and natural gas engines; and

Outreach and Technology Transfer

Since the value of the Clean Fuels Program depends on the deployment and adoption of the demonstrated technologies, outreach and technology transfer efforts are essential to its success. This core area encompasses assessment of advanced technologies, including retaining outside technical assistance as needed, efforts to expedite the implementation of low emission and clean fuels technologies, coordination of these activities with other organizations and information dissemination to educate the end user. Technology transfer efforts include support for various clean fuel vehicle incentive programs as well.

Target Allocations to Core Technology Areas

Figure 24 below presents the potential allocation of available funding, based on SCAQMD projected program costs of nearly $16.4 million for all potential projects. The expected actual project expenditures for 2015 will be less than the total SCAQMD projected program cost since not all projects will materialize. The target allocations are based on balancing technology priorities, technical challenges and opportunities discussed previously and near-term versus long-term benefits with the constraints on available SCAQMD funding. Specific contract awards throughout 2015 will be based on this proposed allocation, the quality of proposals received and evaluation of projects against standardized criteria and ultimately SCAQMD Governing Board approval.

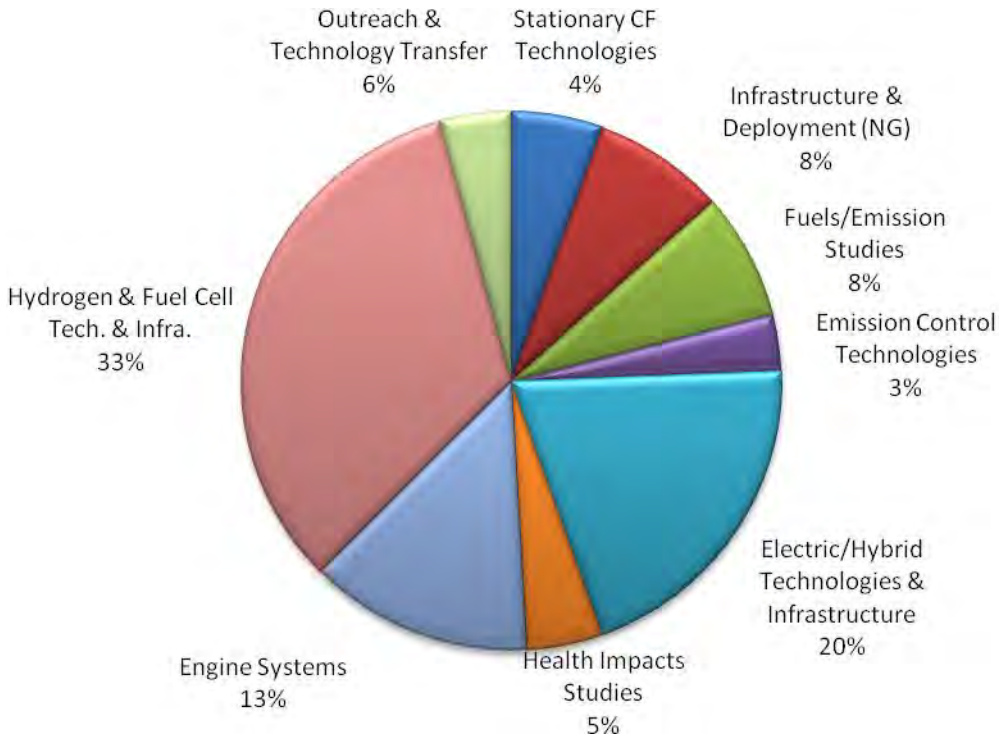


Figure 24: Projected Cost Distribution for Potential SCAQMD Projects in 2015 ($16.4M)

PROGRAM PLAN UPDATE FOR 2015

This section presents the Clean Fuels Program Plan Update for 2015. The proposed projects are organized by program areas and described in further detail, consistent with the SCAQMD budget, priorities and the best available information on the state-of-the-technology. Although not required, this Plan also includes proposed projects that may be funded by revenue sources other than the Clean Fuels Program, specifically related to VOC and incentive projects.

Table 6 summarizes potential projects for 2015 as well as the distribution of SCAQMD costs in some areas as compared to 2015. The funding allocation continues the focus toward development and demonstration of zero and near-zero emission technologies including the infrastructure for such technologies. However, while the SCAQMD had over the last couple of years emphasized electric and hybrid-electric technologies, the intent is to continue to allow the projects in this core technology area to achieve some progress while the Program is slightly re-calibrated to focus on the current federal and state activity in hydrogen and fuel cells and the anticipated roll out of fuel cell vehicles in 2015-2016. Some additional funding has also been shifted to Fuels and Emissions Studies in order to further evaluate biofuels including DME and to partner with the National Renewable Energy Laboratory (NREL) on a fleet and technology matching analysis. Like the prior year, the funding allocations again align well with the SCAQMD‘s FY 2014-15 Goals and Priority Objectives. Overall, the Program is designed to ensure a broad portfolio of technologies and leverage state and federal efforts.

Each of the proposed projects described in this Plan, once fully developed, will be presented to the SCAQMD Governing Board for approval prior to contract initiation. This development reflects the maturity of the proposed technology, identification of contractors to perform the projects, host site participation, securing sufficient cost-sharing to complete the project and other necessary factors. Recommendations to the SCAQMD Governing Board will include descriptions of the technology to be demonstrated and in what application, the proposed scope of work of the project and the capabilities of the selected contractor and project team, in addition to the expected costs and expected benefits of the projects as required by H&SC 40448.5.1.(a)(1). Based on communications with all of the organizations specified in H&SC 40448.5.1.(a)(2) and review of their programs, the projects proposed in this Plan do not appear to duplicate any past or present projects.

Funding Summary of Potential Projects

The remainder of this section contains the following information for each of the potential projects summarized in Table 6 (page 77).

Proposed Project: A descriptive title and a designation for future reference.

Expected SCAQMD Cost: The estimated proposed SCAQMD cost share as required by H&SC 40448.5.1.(a)(1).

Expected Total Cost: The estimated total project cost including the SCAQMD cost share and the cost share of outside organizations expected to be required to complete the proposed project. This is an indication of how much SCAQMD public funds are leveraged through its cooperative efforts.

Description of Technology and Application: A brief summary of the proposed technology to be developed and demonstrated, including the expected vehicles, equipment, fuels, or processes that could benefit.

Potential Air Quality Benefits: A brief discussion of the expected benefits of the proposed project, including the expected contribution towards meeting the goals of the AQMP, as required by H&SC 40448.5.1.(a)(1). In general, the most important benefits of any technology research, development

and demonstration program are not necessarily realized in the near term. Demonstration projects are generally intended to be proof-of-concept for an advanced technology in a real-world application. While emission benefits, for example, will be achieved from the demonstration, the true benefits will be seen over a longer term, as a successfully demonstrated technology is eventually commercialized and implemented on a wide scale.

Table 6: Summary of Potential Projects for 2015

Proposed Project	Expected SCAQMD Cost $	Expected Total Cost $
Hydrogen and Fuel Cell Technologies and Infrastructure		
Develop and Demonstrate Operation and Maintenance Business Case Strategies for Hydrogen Stations	350,000	4,000,000
Develop and Demonstrate Distributed Hydrogen Production and Fueling Stations	2,000,000	6,000,000
Develop and Demonstrate Medium- and Heavy-Duty Fuel Cell Vehicles	3,000,000	10,000,000
Demonstrate Light-Duty Fuel Cell Vehicles	100,000	100,000
Subtotal	$5,450,000	$20,100,000
Electric/Hybrid Technologies & Infrastructure		
Demonstrate Light-Duty Plug-In Hybrid & Battery Electric Vehicles and Infrastructure	1,100,000	2,000,000
Develop and Demonstrate Medium- and Heavy-Duty Hybrid Vehicles and Infrastructure	600,000	1,800,000
Demonstrate Alternative Energy Storage	300,000	2,000,000
Develop and Demonstrate Electric Container Transport Technologies	1,300,000	2,6000,000
Subtotal	$3,300,000	$8,400,000
Engine Systems		
Develop and Demonstrate Advanced Alternative Fuel Medium- and Heavy-Duty Engines and Vehicles	2,000,000	20,000,000
Develop and Demonstrate Alternative Fuel and Clean Conventional Fueled Light-Duty Vehicles	200,000	1,500,000
Subtotal	$2,200,000	$21,500,000
Infrastructure and Deployment (NG)		
Deploy Natural Gas Vehicles in Various Applications	500,000	2,000,000
Develop, Maintain & Expand Natural Gas Infrastructure	300,000	2,000,000
Demonstrate Natural Gas Manufacturing and Distribution Technologies Including Renewables	500,000	7,000,000
Subtotal	$1,300,000	$11,000,000
Fuels/Emission Studies		
In-Use Emissions Studies for Advanced Technology Vehicle Demonstrations	500,000	1,000,000
Conduct Emissions Studies on Biofuels and Alternative Fuels	500,000	1,300,000

Table 6: Summary of Potential Projects for 2015 (cont'd)

Proposed Project	Expected SCAQMD Cost $	Expected Total Cost $
Fuels/Emission Studies (cont'd)		
Identify and Demonstrate In-Use Fleet Emissions Reduction Technologies & Opportunities	250,000	2,000,000
Subtotal	$1,250,000	$4,300,000
Health Impacts Studies		
Evaluate Ultrafine Particle Health Effects	250,000	3,000,000
Conduct Monitoring to Assess Environmental Impacts	250,000	1,000,000
Assess Sources and Health Impacts of Particulate Matter	250,000	300,000
Subtotal	$750,000	$4,300,000
Stationary Clean Fuel Technologies		
Develop and Demonstrate Reliable, Low Emission Monitoring Systems and Test Methods	250,000	500,000
Develop and Demonstrate Clean Stationary Technologies	250,000	750,000
Develop and Demonstrate Renewables-Based Energy Generation Alternatives	200,000	1,000,000
Subtotal	$700,000	$2,250,000
Emission Control Technologies		
Develop and Demonstrate Advanced Aftertreatment Technologies	300,000	5,000,000
Demonstrate On-Road Technologies in Off-Road and Retrofit Applications	250,000	1,000,000
Subtotal	$550,000	$6,000,000
Outreach and Technology Transfer		
Assessment and Technical Support of Advanced Technologies and Information Dissemination	500,000	800,000
Support for Implementation of Various Clean Fuels Vehicle Incentive Programs	400,000	400,000
Subtotal	$900,000	$1,200,000
TOTALS FOR POTENTIAL PROJECTS	**$16,400,000**	**$79,050,000**

Technical Summaries of Potential Projects

Hydrogen and Fuel Cell Technologies & Infrastructure

Proposed Project: Develop and Demonstrate Operation and Maintenance Business Case Strategies for Hydrogen Stations

Expected SCAQMD Cost: $350,000

Expected Total Cost: $4,000,000

Description of Technology and Application:

California regulations require automakers to place increasing numbers of zero emission vehicles into service every year. By 2050, CARB projects that 87% of light-duty vehicles on the road will be zero emission battery and fuel cell vehicles with fuel cell electric becoming the dominant powertrain.

In 2013, cash-flow analysis resulting in a Hydrogen Network Investment Plan and fuel cell vehicle development partnership announcements by major automakers enabled the passage of AB 8 which provides $20 million per year for hydrogen infrastructure cofunding through the CEC. This resulted in limited fuel cell vehicle production announcements by Hyundai, Toyota and Honda for 2014-2015.

In mid-2014 the CaFCP published the *Hydrogen Progress, Priorities and Opportunities* (HyPPO) report, an update of their roadmap describing the first network of commercial hydrogen stations in California.

Additional work in this project category would develop a plan to secure long-term funding to complete the hydrogen fueling network build-out, provide details how funding can be invested, assess alternative revenue streams such as renewable incentives, propose alternative financing structures to leverage/extend CEC funding, and support station operation during the transition to commercial viability.

Potential Air Quality Benefits:

The 2012 AQMP identifies the use of alternative fuels and zero emission transportation technologies as necessary to meet federal air quality standards. One of the major advantages of Fuel Cell vehicles (FCEVs) is the fact that they use hydrogen, a fuel that can be domestically produced from a variety of resources such as natural gas, solar, wind and biomass. The technology and means to produce hydrogen fuel to support FCEVs are available now. The deployment of large numbers of FCEVs, which is an important strategy to attain air quality goals, requires a well planned and robust hydrogen fueling infrastructure. This SCAQMD program with additional funding from other entities will provide the hydrogen fueling infrastructure that is necessary in the South Coast Air Basin. The deployment of FCEVs and the development of the necessary fueling infrastructure will lead to substantial reductions in NOx, VOC, CO, PM and toxic air contaminants from vehicles.

Proposed Project: Develop and Demonstrate Distributed Hydrogen Production and Fueling Stations

Expected SCAQMD Cost: $2,000,000

Expected Total Cost: $6,000,000

Description of Technology and Application:

Alternative fuels, such as hydrogen and the use of advanced technologies, such as fuel cell vehicles, are necessary to meet future clean air standards. A key element in the widespread acceptance and resulting increased use of alternative fuel vehicles is the development of an infrastructure to support the refueling of vehicles, cost-effective production and distribution and clean utilization of these new fuels.

A major challenge to the entry and acceptance of direct-hydrogen fuel cell vehicles is the limited number of hydrogen refueling sites. This program would support the development and demonstration of hydrogen refueling technologies. Proposed projects would address:

- *Fleet and Commercial Refueling Stations:* Further expansion of the hydrogen fueling network based on retail models, providing renewable generation, adoption of standardized measurements for hydrogen refueling, other strategic refueling locations and increased dispensing pressure of 10,000 psi and compatibility with existing CNG stations may be considered.
- *Energy Stations*: Multiple-use energy stations that can produce hydrogen for fuel cell vehicles or for stationary power generation are considered an enabling technology with the potential for costs competitive with large-scale reforming. System efficiency, emissions, hydrogen throughput, hydrogen purity and system economics will be monitored to determine the viability of this strategy for hydrogen fueling infrastructure deployment and as a means to produce power and hydrogen from renewable feedstocks (biomass, digester gas, etc.).

Home Refueling Appliances: Home refueling/recharging is an attractive advancement for alternative clean fuels due to the limited conventional refueling infrastructure. Similar to the natural gas home refueling appliance currently commercially available, this project would evaluate a hydrogen home refueler for cost, compactness, performance, durability, emission characteristics, ease of assembly and disassembly, maintenance and operations. Other issues such as building permits, building code compliance and UL ratings for safety would also be evaluated. It is estimated that approximately 50,000 fuel cell vehicles will be deployed by 2017 in California and the majority of these vehicles will be in the South Coast Air Basin. To provide fuel for these vehicles, the hydrogen fueling infrastructure needs to be significantly increased. SCAQMD will seek additional funding from CEC and CARB to construct and operate hydrogen fueling stations.

Potential Air Quality Benefits:

The 2012 AQMP identifies the use of alternative clean fuels in mobile sources as a key attainment strategy. Pursuant to AQMP goals, the SCAQMD has in effect several fleet rules that require public and certain private fleets to purchase clean-burning alternative-fueled vehicles when adding or replacing vehicles to their vehicle fleets. Fuel cell vehicles constitute the cleanest alternative-fuel vehicles today. Since hydrogen is a key fuel for fuel cell vehicles, this program would address some of the barriers faced by hydrogen as a fuel and thus assist in accelerating its acceptance and ultimate commercialization. In addition to supporting the immediate deployment of the demonstration fleet, expanding the hydrogen fuel infrastructure should contribute to the

market acceptance of fuel cell technologies in the long run, leading to substantial reductions in NO_x, VOC, CO, PM and toxic compound emissions from vehicles.

Proposed Project: Develop and Demonstrate Medium- and Heavy-Duty Fuel Cell Vehicles

Expected SCAQMD Cost: $3,000,000

Expected Total Cost: $10,000,000

Description of Technology and Application:

This proposed project would support evaluation including demonstration of promising fuel cell technologies for applications using direct hydrogen with proton exchange membrane (PEM) fuel cell technology. Battery fuel cell hybrids are another potential technology being mentioned by battery experts as a way of reducing costs and enhancing performance of fuel cell vehicles.

The California ZEV Action Plan specifies actions to help deploy an increasing number of zero emission vehicles, including medium- and heavy-duty ZEVs. Fleets are useful demonstration sites because economies of scale exist in central refueling, in training skilled personnel to operate and maintain the vehicles, in the ability to monitor and collect data on vehicle performance and for manufacturer technical and customer support. In some cases, medium- and heavy-duty fuel cell vehicles could leverage the growing network of hydrogen stations, providing an early base load of fuel consumption until the number of passenger vehicles grows. These vehicles could include hybrid-electric vehicles powered by fuel cells and equipped with batteries capable of being charged from the grid and even supplying power to the grid.

In 2012 SCAQMD launched demonstrations of Zero Emission Container Transport (ZECT) technologies. This project included development and demonstration of a fuel cell hybrid electric truck platform. In 2015 staff proposes to launch ZECT II to develop and demonstrate additional fuel cell truck platforms and vehicles.

This category may include projects in the following applications:

On-Road:
- Transit Buses
- Shuttle Buses
- Medium- & Heavy-Duty Trucks

Off-Road:
- Vehicle Auxiliary Power Units
- Construction Equipment
- Lawn and Garden Equipment
- Cargo Handling Equipment

Potential Air Quality Benefits:

The 2012 AQMP identifies the need to implement zero emission vehicles. SCAQMD adopted fleet regulations require public and some private fleets within the Basin to acquire alternatively fueled vehicles when making new purchases. In the future, such vehicles could be powered by zero emission fuel cells operating on hydrogen fuel. The proposed projects have the potential to accelerate the commercial viability of fuel cell vehicles. Expected immediate benefits include the establishment of zero- and near-zero emission proof-of-concept vehicles in numerous applications. Over the longer term, the proposed projects could help foster wide-scale implementation of zero emission fuel cell vehicles in the Basin. The proposed projects could also lead to significant fuel economy improvements, manufacturing innovations and the creation of high-tech jobs in Southern California, besides realizing the air quality benefits projected in the AQMP.

Proposed Project: Demonstrate Light-Duty Fuel Cell Vehicles

Expected SCAQMD Cost: $100,000

Expected Total Cost: $100,000

Description of Technology and Application:

This proposed project would support the demonstration of limited production and early commercial fuel cell passenger vehicles using gaseous hydrogen with proton exchange membrane (PEM) fuel cell technology. Recent designs of light-duty fuel cell vehicles include hybrid batteries to recapture regenerative braking and improve overall system efficiency.

With the implementation of the California ZEV Action Plan, supplemented by the existing and planned hydrogen refueling stations in the Southern California area, light-duty fuel cell limited-production vehicles are planned for retail deployment in early commercial markets near hydrogen stations by several automakers. Fleets are useful demonstration sites because economies of scale exist in central refueling, in training skilled personnel to operate and maintain the vehicles, in the ability to monitor and collect data on vehicle performance and for manufacturer technical and customer support. SCAQMD has included fuel cell vehicles as part of its demonstration fleet since our first hydrogen station began operation in 2005; strengthening support, education, and outreach regarding fuel cell vehicle technology on an on-going basis. In addition, demonstration vehicles could include hybrid-electric vehicles powered by fuel cells and equipped with larger batteries capable of being charged from the grid and even supplying power to the grid.

Potential Air Quality Benefits:

The 2012 AQMP identifies the need to implement zero emission vehicles. SCAQMD adopted fleet regulations require public and some private fleets within the Basin to acquire alternatively fueled vehicles when making new purchases. In the future, such vehicles could be powered by zero emission fuel cells operating on hydrogen fuel. The proposed projects have the potential to accelerate the commercial viability of fuel cell vehicles. Expected immediate benefits include the deployment of zero- emission vehicles in SCAQMD‘s demonstration fleet. Over the longer term, the proposed projects could help foster wide-scale implementation of zero emission fuel cell vehicles in the Basin. The proposed projects could also lead to significant fuel economy improvements, manufacturing innovations and the creation of high-tech jobs in Southern California, besides realizing the air quality benefits projected in the AQMP.

Electric/Hybrid Technologies & Infrastructure

Proposed Project: Demonstrate Light-Duty Plug-In Hybrid & Battery Electric Vehicles and Infrastructure

Expected SCAQMD Cost: $1,100,000

Expected Total Cost: $2,000,000

Description of Technology and Application:

All of the major automobile manufacturers are currently developing and commercializing hybrid-electric vehicles, which now come in a variety of fuel economy and performance options. These commercial hybrid EVs integrate a smaller internal combustion engine, battery pack and electric drive motors to improve fuel economy (e.g., Chevy Volt) or performance (e.g., Lexus RX400h).

The SCAQMD has long supported the concept of using increased battery power to allow a portion of the driving cycle to occur in all-electric mode for true zero emission miles. This battery dominant strategy is accomplished by incorporating an advanced battery pack initially recharged from the household grid or EV chargers. This —plug-in" hybrid EV strategy allows reduced emissions and improved fuel economy. In 2009, CARB adopted Plug-In Hybrid Electric Vehicle Test Procedure Amendments and Aftermarket Parts Certification and several automobile manufacturers have announced demonstration or early production plans of —extended" plug-in hybrid electric, extended-range electric vehicles (E-rEV), or highway capable battery electric vehicles (BEVs). Electric utilities refer to PHEVs, E-rEVs and BEVs as plug-in electric drive vehicles (PEVs) and are working with automakers to support PEVs. The recent adoption of revised recommended practice SAE J1772 enables passenger vehicles to charge from 110/120V AC (Level 1), 220/240V AC (Level 2), and faster 440/480V DC charging using a common conductive connector in 30 minutes or less in the U.S. and Europe. The impact of fast charging on battery life and infrastructure costs is not well understood and will be evolving as three fast DC systems (SAE combo, CHAdeMO and Tesla) compete for international market share.

Integrated programs can interconnect fleets of electric drive vehicles with mass transit via web-based reservation systems that allow multiple users. These integrated programs can match the features of EVs (zero emissions, zero start-up emissions, short range) to typical consumer demands for mobility in a way that significantly reduces emissions of pollutants and greenhouse gases.

At recent auto shows, automakers have displayed concept plug-in fuel cell vehicles. Development and demonstration of dual fuel, zero emission vehicles could expand the acceptance of battery electric vehicles and accelerate the introduction of fuel cells in vehicle propulsion.

The SCAQMD has long been a leader in promoting early demonstrations of next generation light-duty vehicle propulsion technologies (and fuels). However, given the current and planned market offerings in this category, priorities have shifted. Nevertheless, the SCAQMD will continue to evaluate market offerings and proposed technologies in light-duty vehicles to determine if any future support is required.

This project category is to develop and demonstrate: 1) various PEV architectures; 2) anticipated costs for such architectures; 3) customer interest and preferences for each alternative; 4) prospective commercialization issues and strategies for various alternatives; 5) integration of the technologies into prototype vehicles and fleets; 6) infrastructure (especially in conjunction with the DOE and the Los Angeles Department of Water & Power) to demonstrate the potential clean air benefits of these types of vehicles; 7) support for local government outreach and charging

installation permit streamlining; and 8) evaluation of any new promising light-duty vehicle propulsion technologies or fuels.

Potential Air Quality Benefits:

The 2012 AQMP identifies zero or near-zero emitting vehicles as a key attainment strategy. HEV technologies have the potential to achieve near-zero emissions but with the range of a conventional gasoline-fueled vehicle, a factor expected to enhance consumer acceptance. Given the variety of PEV systems under development, it is critical to determine the true emissions and performance of PEVs. Demonstration of optimized prototypes would enhance the deployment of near-ZEV and ZEV technologies.

Expected benefits include the establishment of criteria for emissions evaluations, performance requirements, customer acceptability of the technology, etc. This will help both regulatory agencies and OEMs to expedite introduction of zero and near-zero emitting vehicles in the South Coast Basin, which is a high priority of the AQMP.

Proposed Project: Develop and Demonstrate Medium- and Heavy-Duty Hybrid Vehicles and Infrastructure

Expected SCAQMD Cost: $600,000

Expected Total Cost: $1,800,000

Description of Technology and Application:

Hybrid technologies have gained momentum in the light-duty sector with commercial offerings by most all of the automobile manufacturers. Unfortunately, the medium- and heavy-duty platforms are where most emissions reductions are required, especially for the in-use fleet due to low turnover. This project category is to investigate the use of hybrid technologies to achieve similar performance as the conventional fueled counterparts while achieving both reduced emissions and improved fuel economy. Development and validation of emission test procedures is needed, but is complicated due to the low volume and variety of medium- and heavy-duty vehicles.

Platforms to be considered include utility trucks, delivery vans, shuttle buses, transit buses, waste haulers, construction equipment, cranes and other off-road vehicles. Innovations that may be considered for demonstration include: advancements in the auxiliary power unit, either ICE or other heat engine; battery-dominant hybrid systems utilizing off-peak re-charging, with advanced battery technologies such as lithium-ion; and hydraulic energy storage technologies where applicable. Alternative fuels are preferred in these projects, e.g., natural gas, LPG, hydrogen, GTL and hydrogen-natural gas blends, but conventional fuels such as gasoline, clean diesel, or even biodiesel may be considered if the emissions benefits can be demonstrated as equivalent or superior to alternative fuels. Both new designs and retrofittable technologies and related charging infrastructure will be considered.

Federal Recovery Act funding combined with state and local support has accelerated the development and demonstration of medium-duty plug-in hybrid electric truck platforms. Analysis of project data and use profiles will help optimize drive systems, target applications for early commercialization and fill gaps in product offerings.

Potential Air Quality Benefits:

The 2012 AQMP identifies zero- or near-zero emitting vehicles as a key attainment strategy. Hybrid technologies have the potential to redirect previously wasted kinetic energy into useable vehicle power. This proposed project category will evaluate various hybrid systems and fuel combinations to identify their performance and emissions benefits. Given the variety of hybrid systems under development, it is critical to determine the true emissions and performance of these prototypes, especially if both emissions and fuel economy advantages are achieved.

Expected benefits include the establishment of criteria for emissions evaluations, performance requirements and customer acceptability of the technology. This will help both regulatory agencies and OEMs to expedite introduction of near-zero emitting vehicles in the South Coast Basin, which is a high priority of the AQMP.

Proposed Project: Demonstrate Alternative Energy Storage

Expected SCAQMD Cost: $300,000

Expected Total Cost: $2,000,000

Description of Technology and Application:

The SCAQMD has been involved in the development and demonstration of energy storage systems for electric and hybrid-electric vehicles, mainly Lithium ion chemistry battery packs. Over the past few years, additional technology consisting of nickel sodium chloride, lithium-ion and lithium iron phosphate batteries have shown robust performance. Other technology manufacturers have also developed energy storage devices including flywheels, hydraulic systems and ultracapacitors. Energy storage systems optimized to combine the advantages of ultracapacitors and advanced batteries could yield further benefits. This project category is to apply these advanced storage technologies in vehicle platforms to identify best fit applications, demonstrate their viability (reliability, maintainability and durability), gauge market preparedness and provide a pathway to commercialization.

The long-term objective of this program is to decrease fuel consumption and resulting emissions without any changes in performance compared to conventional vehicles. This program will support several projects for development and demonstration of different types of low emission hybrid vehicles using advanced energy strategies and conventional or alternative fuels. The overall net emissions and fuel consumption of these types of vehicles are expected to be much lower than traditional engine systems. Both new and retrofit technologies will be considered.

Potential Air Quality Benefits:

Certification of low emission vehicles and engines and their integration into the Basin‘s transportation sector is a high priority under the 2012 AQMP. This program is expected to develop alternative energy storage technologies that could be implemented in medium- and heavy-duty trucks, buses and other applications. Benefits will include proof of concept for the new technologies, diversification of transportation fuels and lower emissions of criteria, toxic pollutants and greenhouse gases.

Proposed Project: Develop and Demonstrate Electric Container Transport Technologies

Expected SCAQMD Cost: $3,000,000

Expected Total Cost: $5,000,000

Description of Technology and Application:

Advanced transportation systems can be used to transfer cargo containers from ports to both local and ―distant" intermodal facilities, thereby significantly reducing emissions from on-road trucks and locomotives and also reducing traffic congestion in local transportation corridors. Such systems could be stand-alone systems that use magnetic levitation (maglev), linear synchronous motors or linear induction motors on dedicated guideways. A more near-term design could use existing roadways that are electrified with catenary electric lines or linear electric motors to move containers on modified trucks equipped to run on electricity. In both scenarios, containers are transported relatively quietly and without direct emissions. The footprints for such systems are similar to conventional rail systems but have reduced impact on adjacent property owners including noise and fugitive dust. These systems can even be built above or adjacent to freeways or on elevated guideways. These container freight systems are not designed to carry any operators on the guideways, where the over-the-roadway system may require the operator to actively control the transport of the containers.

One of the container transportation concepts the SCAQMD is actively pursuing is the eHighway catenary hybrid truck system by Siemens Mobility. Siemens and their partners have developed a catenary system and hybrid electric trucks to utilize the catenary for zero emission transport of containers. The hybrid drive system will extend the operating range of the truck beyond the all-electric range of the catenary system, thus enabling the truck to perform regional drayage operations and bridge gaps in catenary infrastructure as it is deployed on a regional level. The proposed Siemens pantograph system will allow for seamless connection and disconnection from the catenary wires. When entering the catenary system corridor, the pantograph system will verify the presence of catenary lines and allow the driver to raise the pantograph from within the cab of the truck. Upon leaving the catenary system, the pantograph automatically retracts and the truck switches to on-board power systems. The on-board power systems could be a range of technologies, including batteries, fuel cells, or internal combustion engines. In addition, SCAQMD is administering a project to develop and demonstrate zero emission drayage trucks for goods movement operations, consisting of three different battery electric truck technologies and a fuel cell hybrid electric truck platform. This project is funded by a $4.2 million award from Department of Energy to promote the deployment of zero emission cargo transport technologies. These trucks can be also upfitted to connect to wayside power via a catenary or LSM system in the future.

In addition to these technologies, there are other options for electric container applications such as dual-mode locomotives, hybrid electric technologies with battery storage, a battery tender car, magnetic levitation, fuel cell propulsion systems and other wayside power alternatives. This program will evaluate all available technology options to determine whether their systems can be successfully developed and deployed, financially viable, and reliably operated on a long-term basis.

Potential Air Quality Benefits:

On-road heavy-duty diesel truck travel is an integral part of operations at the ports moving cargo containers into the Basin and beyond. The 2012 AQMP proposes to reduce emissions from this activity by modernizing the fleet and retrofitting NO_x and PM emission controls on older trucks.

An alternative approach, especially for local drayage to the nearby intermodal facilities, is to use advanced container transport systems that use electric propulsion for the containers on fixed guideways or modified trucks able to operate on electricity which will eliminate local diesel truck emissions. The emission benefits have not yet been estimated because the fate of the displaced trucks has not been determined.

Engine Systems

Proposed Project: Develop and Demonstrate Advanced Alternative Fuel Medium- and Heavy-Duty Engines and Vehicles

Expected SCAQMD Cost: $2,000,000

Expected Total Cost: $20,000,000

Description of Technology and Application:

The objective of this proposed program is to support development and certification of near commercial prototype low emission heavy-duty alternative fuel engine technologies and demonstration of these technologies in on-road vehicles. The NO_x emissions target for this program area is 0.2 g/bhp-hr and lower and the PM emissions target is below 0.01 g/bhp-hr. To achieve these targets, an effective emission control strategy must employ advance fuel or alternative fuels, engine design features, improved exhaust or recirculation systems, and aftertreatment devices that are optimized using a system approach. This program is expected to result in several projects, including:

- demonstration of advanced engines in medium- and heavy-duty vehicles and high horsepower applications;
- development of durable and reliable retrofit technologies to convert engines and vehicles from petroleum fuels to alternative fuels; and
- anticipated fuels for these projects include but are not limited to CNG, LNG, LPG, emulsified diesel and GTL fuels. The program proposes to expand field demonstration of these advanced technologies in various vehicle fleets operating with different classes of vehicles.

The use of alternative fuel in heavy-duty trucking applications has been demonstrated in certain local fleets within the Basin. These vehicles typically require 200-300 horsepower engines. Higher horsepower alternative fuel engines are beginning to be introduced. However, vehicle range, lack of experience with alternative fuel engine technologies and limited selection of appropriate alternative fuel engine products have made it difficult for more firms to consider significant use of alternative fuel vehicles. For example, in recent years, several large trucking fleets have expressed interest in using alternative fuels. However, at this time the choice of engines over 350 HP or more is limited. Continued development of cleaner dedicated natural gas or other alternative fuel engines such as natural gas-hydrogen blends over 350 HP would increase availability to end-users and provide additional emission reductions.

Potential Air Quality Benefits:

This program is intended to expedite the commercialization of low emission alternative fuel heavy-duty engine technology in California, both in the Basin and in intrastate operation. The emission reduction benefit of replacing one 4.0 g/bhp-hr heavy-duty engine with a 0.2 g/bhp-hr engine in a vehicle that consumes 10,000 gallons of fuel per year is about 1400 lb/yr of NO_x. Clean alternative fuels, such as natural gas, or natural gas blends with hydrogen can also reduce heavy-duty engine particulate emissions by over 90 percent compared to current diesel technology. This program is expected to lead to increased availability of low emission alternative fuel heavy-duty engines. Fleets can use the engines and vehicles emerging from this program to comply with SCAQMD fleet regulations.

Proposed Project: Develop and Demonstrate Alternative Fuel and Clean Conventional Fueled Light-Duty Vehicles

Expected SCAQMD Cost: $200,000

Expected Total Cost: $1,500,000

Description of Technology and Application:

Although new conventional fueled vehicles are much cleaner than their predecessors, not all match the lowest emissions standards often achieved by alternative fuel vehicles. This project would assist in the development, demonstration and certification of both alternative-fueled and conventional-fueled vehicles to meet the strictest emissions requirements by the state, e.g., SULEV for light-duty vehicles. The candidate fuels include CNG, LPG, ethanol, GTL, clean diesel, bio-diesel and ultra low-sulfur diesel, and compressed air technologies. The potential vehicle projects may include:

- certification of CNG light-duty sedans and pickup trucks used in fleet services;
- resolution of higher concentration ethanol (E-85) affect on vehicle fueling system (—permeation issue");
- certification of E85 vehicles to SULEV standards;
- assessment of —clean diesel" vehicles, including hybrids and their ability to attain SULEV standards; and
- assessment of compressed air technologies.

Other fuel and technology combinations may also be considered under this category.

Potential Air Quality Benefits:

The 2012 AQMP identifies the use of alternative clean fuels in mobile sources as a key attainment strategy. Pursuant to AQMP goals, the SCAQMD has in effect several fleet rules that require public and certain private fleets to purchase clean-burning alternative-fueled vehicles when adding or replacing vehicles to their vehicle fleets. This program is expected to lead to increased availability of low emission alternative-and conventional-fueled vehicles for fleets as well as consumer purchase.

Infrastructure and Deployment (NG)

Proposed Project: Deploy Natural Gas Vehicles in Various Applications

Expected SCAQMD Cost: **$**500,000

Expected Total Cost: $2,000,000

Description of Technology and Application:

Natural gas vehicles (NGVs) have been very successful in reducing emissions in the South Coast Air Basin due to the deployment of fleets and heavy-duty vehicles utilizing this clean fuel. In order to maintain the throughput, utility and commercial potential of the natural gas infrastructure and the corresponding clean air benefits, deploying additional models of NGVs in existing applications are needed. This technology category seeks to support the implementation of early-commercial vehicles in a wide variety of applications, such as taxis, law enforcement vehicles, shuttle buses, delivery vans, transit buses, waste haulers, class 8 tractors and off-road equipment such as construction vehicles and yard hostlers.

Potential Air Quality Benefits:

Natural gas vehicles have inherently lower engine criteria pollutant emissions than conventional vehicles, especially in the heavy-duty applications where older diesel engines are being replaced. Incentivizing these vehicles in city fleets, goods movement applications and transit bus routes help to reduce the local emissions and exposure to nearby residents. Natural gas vehicles also can have lower greenhouse gas emissions and increase energy diversity depending on the feedstock and vehicle class. Deployment of additional NGVs is in agreement with SCAQMD‘s AQMP as well as the state‘s Alternative Fuels Plan as part of AB 1007 (Pavley).

Proposed Project: Develop, Maintain & Expand Natural Gas Infrastructure

Expected SCAQMD Cost: $300,000

Expected Total Cost: $2,000,000

Description of Technology and Application:

This program would support the development, maintenance and expansion of natural gas fueling station technologies and incorporate advancing concepts to increase the overall number of such fueling stations in strategic locations throughout the Basin including the Ports, reduce the cost of natural gas equipment, standardize fueling station design and construction and help with the implementation of SCAQMD's fleet rules. As natural gas fueling equipment begins to age or has been placed in demanding usage, components begin to age and deteriorate. This program offers an incentive to facilities to replace worn-out equipment or to upgrade existing fueling and/or garage and maintenance equipment to offer increased fueling capacity to public agencies, private fleets and school districts.

Potential Air Quality Benefits:

The AQMP identifies the use of alternative clean fuels in mobile sources as a key attainment strategy. NGVs have significantly lower emissions than gasoline vehicles and represent the cleanest internal combustion engine powered vehicles available today. The project has the potential to significantly reduce the installation and operating costs of NGV refueling stations, besides improving the refueling time. While new or improved NGV stations have an indirect emissions reduction benefit, they help facilitate the introduction of low emission, NGVs in private and public fleets in the area, which have a direct emissions reduction benefit. The increased exposure and fleet and consumer acceptance of NGVs would lead to significant and direct reductions in NOx, VOC, CO, PM and toxic compound emissions from mobile sources. Such increased penetration of NGVs will provide direct emissions reductions of NO_x, VOC, CO, PM and air toxic compounds throughout the Basin.

Proposed Project: Demonstrate Natural Gas Manufacturing and Distribution Technologies Including Renewables

Expected SCAQMD Cost: $500,000

Expected Total Cost: $7,000,000

Description of Technology and Application:

Lack of sufficient statewide LNG production results in increased fuel costs and supply constraints. The cost of transporting LNG from production facilities out-of-state increases the fuel cost anywhere from 15 to 20 cents per gallon of LNG and subjects users to the reliability of a single supply source. High capital costs prevent construction of closer, large scale liquefaction facilities. Small-scale, distributed LNG liquefaction systems may provide 25 percent lower capital costs than conventional technology per gallon of LNG produced. Because these smaller plants can be sited near fleet customers, costs for transporting the LNG to end users are much lower than those for remote larger plants. Beyond these cost reductions, the smaller plants offer key benefits of much smaller initial capital investment and wider network of supply than the larger plant model. Renewable feed stocks including landfill gas, green waste and waste gases can be processed to yield LNG or CNG.

Industry and government agree that LNG promises to capture a significant share of the heavy-duty vehicle and engine market. LNG is preferred for long distance trucking as it provides twice the energy per unit volume as CNG. This translates to longer driving ranges and lower-weight vehicle fuel storage.

The main objectives of this project are to investigate, develop and demonstrate:

- commercially viable methods for converting renewable feed stocks into CNG or LNG (e.g., production from biomass);
- economic small-scale natural gas liquefaction technologies;
- utilization of various gaseous feed stocks locally available;
- commercialize incentives for fleets to site, install and use LNG and L/CNG refueling facilities; and
- strategic placement of LNG storage capacity sufficient to provide supply to users in the event of a production outage.

Potential Air Quality Benefits:

The SCAQMD relies on a significant increase in the penetration of zero- and low emission vehicles in the South Coast Basin to attain federal clean air standards by 2014, 2023 and 2032. This project would help develop a number of small-scale liquefaction technologies that can reduce LNG costs to be competitive with diesel fuel. Such advances are expected to lead to greater infrastructure development. This would make LNG fueled heavy-duty vehicles more available to the commercial market leading to direct reductions in NO_x, PM and toxic compound emissions.

Fuels/Emission Studies

Proposed Project: In-Use Emissions Studies for Advanced Technology Vehicle Demonstrations

Expected SCAQMD Cost: $500,000

Expected Total Cost: $1,000,000

Description of Technology and Application:

Hybrid electric, hybrid hydraulic, plug-in electric hybrid and pure EVs will all play a unique role in the future of transportation. Each of these transportation technologies has attributes that could provide unique benefits to different transportation sectors. Identifying the optimal placement of each transportation technology will provide the co-benefits of maximizing the environmental benefit and return on investment for the operator.

The environmental benefit for each technology class will be highly duty-cycle and application specific. Identifying the attributes of a specific application or drive cycle that would take best advantage of a specific transportation technology would speed the adoption and make optimal use of financial resources in the demonstration and deployment of a technology. The adoption rates would be accelerated since the intelligent deployment of a certain technology would ensure that a high percentage of the demonstration vehicles showed positive results. These positive results would spur the adoption of this technology in similar applications, as opposed to negative results derailing the further development or deployment of a certain technology.

The proposed project would conduct a characterization of application specific drive cycles to best match different transportation technologies to specific applications. The potential emissions reductions and fossil fuel displacement for each technology in a specific application would be quantified on a full-cycle basis. This information could be used to develop a theoretical database of potential environmental benefits of different transportation technologies when deployed in specific applications.

Potential Air Quality Benefits:

The development of an emissions reduction database, for various application specific transportation technologies, would assist in the targeted deployment of new transportation technologies. This database coupled with application specific vehicle miles traveled and population data would assist in intelligently deploying advanced technology vehicles to attain the maximum environmental benefit. These two data streams would allow vehicle technologies to be matched to an application that is best suited to the specific technology, as well as selecting applications that are substantial enough to provide a significant environmental benefit. The demonstration of a quantifiable reduction in operating cost through the intelligent deployment of vehicles will also accelerate the commercial adoption of the various technologies. The accelerated adoption of lower emitting vehicles will further assist in attaining SCAQMD‘s air quality goals.

Proposed Project: Conduct Emissions Studies on Biofuels and Alternative Fuels

Expected SCAQMD Cost: $500,000

Expected Total Cost: $1,300,000

Description of Technology and Application:

The use of biofuels can be an important strategy to reduce petroleum dependency, air pollution and greenhouse gas emissions. Biofuels are in fact receiving increased attention due to national support and state activities resulting from AB 32, AB 1007 and the Low-Carbon Fuel Standard. It's noteworthy to mention that in 2013 the Low-Carbon Fuel Standard was upheld by the U.S. Court of Appeals for the Ninth Circuit and subsequently in June 2014 opponents were denied further appeal by the Supreme Court. With an anticipated increase in biofuel use, it is the objective of this project to further analyze these fuels to better understand their benefits and impacts not only on greenhouse gases but also on air pollution and associated health effects.

In various diesel engine studies, replacement of petroleum diesel fuel with biodiesel fuel has demonstrated reduced PM, CO and air toxics emissions. Biodiesel also has the potential to reduce greenhouse gas emissions because it can be made from renewable feedstocks, such as soy and canola. However, certain blends of biodiesel have a tendency to increase NO_x emissions, which exacerbates the ozone and $PM_{2.5}$ challenges faced in the Basin. In addition, despite recent advancements in toxicological research in the air pollution field, the relationship between biodiesel particle composition and associated health effects is still not completely understood.

Ethanol is another biofuel that is gaining increased national media and state regulatory attention. CARB has recently amended the reformulated gasoline regulation to further increase the ethanol content to 10% as a means to increase the amount of renewable fuels in the state. It is projected that the state's ethanol use will increase from 900 million gallons in 2007 to 1.5 billion gallons by 2012 as a result. As in the case of biodiesel, ethanol has demonstrated in various emission studies to reduce PM, CO and toxic emissions; however, the relationship between particle composition and associated health effects from the combustion of ethanol is not well understood either.

DME is another fuel which requires evaluation of in-use emissions, especially NO_x, in light of Volvo's announcement that they will commercialize class 8 trucks using DME in 2015. Furthermore, CARB recently proposed a regulation on the commercialization of alternative diesel fuels, including biodiesel and renewable diesel, while noting that biodiesel in older heavy-duty vehicles can increase NO_x and the need for emerging alternative diesel fuels to have clear ground rules for commercialization. The impact of natural gas fuel composition on emissions from heavy-duty trucks and transit buses is also being studied.

In order to address these concerns on potential health effects associated with biofuels, namely biodiesel and ethanol blends, this program will investigate the physical and chemical composition and associated health effects of tailpipe PM emissions from light- to heavy-duty vehicles burning biofuels in order to ensure public health is not adversely impacted by broader use of these fuels. This program also supports future studies to identify mitigation measures to reduce NO_x emissions for biofuels. Additionally, a study of emissions from well-to-wheel for the extraction and use of shale gas might be considered.

Potential Air Quality Benefits:

If biodiesel and biodiesel blends can be demonstrated to reduce air pollutant emissions with the ability to mitigate any NO_x impact, this technology will become a viable strategy to assist in meeting air pollutant standards as well as the goals of AB 32 and the Low-Carbon Fuel Standard. The use of biodiesel is an important effort for a sustainable energy future. Emission studies are

critical to understanding the emission benefits and any tradeoffs (NO_x impact) that may result from using this alternative fuel. With reliable information on the emissions from using biodiesel and biodiesel blends, the SCAQMD can take actions to ensure the use of biodiesel will obtain air pollutant reductions without creating additional NO_x emissions that may exacerbate the Basin's ozone problem.

Proposed Project: Identify and Demonstrate In-Use Fleet Emissions Reduction Technologies and Opportunities

Expected SCAQMD Cost: $250,000

Expected Total Cost: $2,000,000

Description of Technology and Application:

New technologies, such as alternative fueled heavy-duty engines, are extremely effective at reducing emissions because they are designed to meet the most stringent emissions standards while maintaining vehicle performance. In addition, many new vehicles are now equipped with telematics enabling motorists to obtain transportation information such as road conditions to avoid excessive idling and track information about the vehicle maintenance needs, repair history, tire pressure and fuel economy. Telematics have been shown to reduce emissions from new vehicles. Unfortunately, the in-use fleet lacks telematic systems--particularly heavy-duty engines in trucks, buses, construction equipment, locomotives, marine vessels and cargo handling equipment--have fairly long working lifetimes (up to 20 years due to remanufacturing in some cases). Even light-duty vehicles routinely have lifetimes exceeding 200,000 miles and 10 years. And it is the in-use fleet, especially the oldest vehicles, which are responsible for the majority of emissions.

This project category is to investigate near-term emissions control technologies which can be economically applied to reduce emissions from the in-use fleet. The first part of the project is to identify and conduct proof-of-concept demonstrations of feasible candidate technologies, such as:

- remote sensing for heavy-duty vehicles;
- annual testing for high mileage vehicles (>100,000 miles);
- replace or upgrade emissions control systems at 100,000 mile intervals;
- on-board emission diagnostics with remote notification;
- low-cost test equipment for monitoring and identifying high emitters;
- test cycle development for different class vehicles (e.g. four wheel drive SUVs);
- electrical auxiliary power unit replacements; and
- development, deployment and demonstration of smart vehicle telematic systems

The second phase of the project is to validate the technology or strategy on a larger demonstration project over a longer period of time.

Potential Air Quality Benefits:

Many of the technologies identified can be applied to light-duty and heavy-duty vehicles to identify and subsequently remedy high-emitting vehicles in the current fleet inventory. Estimates suggest that 5 percent of existing fleets account for up to 80 percent of the emissions. Identification of higher emitting vehicles would assist with demand-side strategies, where higher emitting vehicles have correspondingly higher registration charges.

Health Impacts Studies

Proposed Project: Evaluate Ultrafine Particle Health Effects

Expected SCAQMD Cost: $250,000

Expected Total Cost: $3,000,000

Description of Technology and Application:

Reducing diesel exhaust from vehicles has become a high priority in the South Coast Air Basin since CARB identified the particulate phase of diesel exhaust as a surrogate for all of the toxic air contaminant emitted from diesel exhaust. Additionally, recent health studies indicate that the ultrafine portion of particulate matter may be more toxic on a per-mass basis than other fractions. Several technologies have been introduced and others are under development to reduce diesel emissions. These include among others low-sulfur diesel fuel, particulate matter traps and heavy-duty engines operating on alternative fuel such as CNG and LNG. Recent studies have shown that control technologies applied to mobile sources have been effective in reducing the mass of particulates emitted. However, there is also evidence that the number of ultrafine particles on and near roadways has increased, even while the mass of particulates has decreased. To have a better understanding of changes in ultrafine particulate emissions from the application of the new technologies and the health effects of these emissions, an evaluation and comparison of ultrafine particulate matter and the potential impacts on community exposures are necessary.

In this project, measurements and chemical composition of ultrafine particulates will be done, as well as studies conducted to characterize their toxicity. The composition of the particulates can further be used to determine the contribution from specific combustion sources. Additionally, engine or chassis dynamometer testing may be conducted on heavy-duty vehicles to measure, evaluate and compare ultrafine particulate matter, PAH and other relevant toxic emissions from different types of fuels such as CNG, low-sulfur diesel, biofuels and others. This project needs to be closely coordinated with the development of technologies for alternative fuels, aftertreatment and new engines in order to determine the health benefits of such technologies.

Potential Air Quality Benefits:

The AQMP for the South Coast Basin relies on significant penetration of low emission vehicles to attain federal clean air standards. Reduction of particulate emissions from the combustion of diesel and other fuels is a major priority in achieving these standards. This project would help to better understand the nature and amount of ultrafine particulates generated by different types of fuels and advanced control technologies as well as provide information on potential health effects of ultrafine particles. Such an understanding is important to assess the emission reduction potentials and health benefits of these technologies. In turn, this will have a direct effect on the policy and regulatory actions for commercial implementation of alternative fuel vehicles in the Basin.

Proposed Project: Conduct Monitoring to Assess Environmental Impacts

Expected SCAQMD Cost: $250,000

Expected Total Cost: $1,000,000

Description of Technology and Application:

Facilities, buildings, structures, or highways which attract mobile sources of pollution are considered "indirect" sources. Ambient and saturation air monitoring near sources such as ports, airports, rail yards, distribution centers and freeways is important to identify the emissions exposure to the surrounding communities and provide the data to then conduct the health impacts due to these sources. This project category would identify areas of interest and conduct ambient air monitoring, conduct emissions monitoring, analyze the data and assess the potential health impacts from mobile sources. The projects would need to be at least one year in duration in order to properly assess the air quality impacts in the area.

Potential Air Quality Benefits:

The proposed project will assist in the evaluation of adverse public health impacts associated with mobile sources. The information will be useful in (a) determining whether indirect sources have a relatively higher impact on residents living in close proximity; and (b) providing guidance to develop some area-specific control strategies in the future should it be necessary.

Proposed Project: Assess Sources and Health Impacts of Particulate Matter

Expected SCAQMD Cost: $250,000

Expected Total Cost: $300,000

Description of Technology and Application:

Previous studies of ambient levels of toxic air contaminants, such as the MATES series of studies, have found that diesel exhaust is the major contributor to health risk from air toxics. Analyses of diesel particulate matter in ambient samples have been based on measurements of elemental carbon. While the bulk of particulate elemental carbon in the South Coast Air Basin is thought to be from combustion of diesel fuels, it is not a unique tracer for diesel exhaust.

The MATES III study collected particulate samples at ten locations in the South Coast Air Basin. Analysis of particulate bound organic compounds was utilized as tracers to estimate levels of ambient diesel particulate matter as well as estimate levels of particulate matter from other major sources. Other major sources that were taken into consideration include automobile exhaust, meat charbroiling, road dust, wood smoke and fuel oil combustion. Analyzing for organic compounds and metals in conjunction with elemental carbon upon collected particulate samples was used to determine contributing sources.

MATES IV was initiated in mid-2012 and includes an air monitoring program, an updated emissions inventory of toxic air contaminants and a regional modeling effort to characterize risk across the Basin. The draft report was released for public review in October 2014. In addition to air toxics, MATES IV also measured ultrafine particle concentrations and black carbon at the monitoring sites as well as near sources such as airports, freeways, rail yards, busy intersections and warehouse operations.

This project category would include other related studies, such as toxicity assessment based on age, source (heavy-duty, light-duty engines) and composition (semi-volatile or non-volatile fractions) to better understand the health effects and potential community exposures.

Potential Air Quality Benefits:

Results of this work will provide a more robust, scientifically sound estimate of ambient levels of diesel particulate matter as well as levels of particulate matter from other significant combustion sources. This will allow a better estimation of potential exposures to and health effects from toxic air contaminants from diesel exhaust in the South Coast Air Basin. This information in turn can be used to determine the health benefits of promoting clean fuel technologies.

Stationary Clean Fuel Technologies

Proposed Project: Develop and Demonstrate Reliable, Low Emission Monitoring Systems and Test Methods

Expected SCAQMD Cost: $250,000

Expected Total Cost: $500,000

Description of Technology and Application:

Currently, the inability of air/fuel ratio control (AFRC) systems to keep rich-burn engines in compliance contributes significantly to air pollution in the basin. Reliable, low-cost emission monitoring systems are needed for small-to-intermediate size combustion devices, including stationary engines, boilers, heaters, furnaces and ovens that are not large enough to justify a continuous emission monitoring system (CEMS). This class of combustion device is often permitted on the basis of a single demonstration or periodic demonstrations of NO_x and CO emissions meeting SCAQMD rule requirements or a RECLAIM concentration limit. However, SCAQMD-unannounced tests on engines and boilers have found that in many cases NO_x and/or CO levels have increased significantly above levels that have been initially or periodically demonstrated due to equipment malfunction and/or inadequate operator attention. It is suspected that the same may be true of heaters, furnaces and ovens.

Demonstrations of newer technologies in recent years could result in a commercially viable alternative to CEMs that is both reliable and feasible in terms of lower costs. For example, manufacturers of flue gas analyzers have, in recent years, developed low-cost multi-gas analyzers suitable for portable or stack-mounted use. Some preliminary testing of a new type of AFRC, which uses a different type of O2 sensor known as a wide-band O2 sensor, is another alternative that can be analyzed. Another technical approach might be to deploy technology utilizing the O2 signature of a post-catalyst O2 sensor and additional control concepts being developed by manufacturers. Since an underlying problem has been that engine, catalyst and AFRC manufacturers have developed systems independently, a system being co-developed to perform continuous diagnostics to assist operators in keeping rich-burn engines in compliance is possibly another alternative for demonstration.

Potential Air Quality Benefits:

Stationary engines, boilers, heaters, furnaces and ovens account for approximately 11 percent of total NO_x emissions and about 6 percent of total CO emissions. There has been a long-standing compliance problem with rich-burn IC engines in the basin and evidence indicates that many of these devices are operating with NO_x and/or CO emissions above levels required in their permits. Projects could potentially reduce a significant class of NO_x and CO emissions that are in excess of the assumptions in the AQMP and further enhance SCAQMD‘s ability to enforce full-time compliance.

Proposed Project: Develop and Demonstrate Clean Stationary Technologies

Expected SCAQMD Cost: $250,000

Expected Total Cost: $750,000

Description of Technology and Application:

Stationary sources, including VOC sources such as large printing facilities and furniture manufacturers, have become cleaner and cleaner due to the regulatory requirements for low emissions and the advancements in technology to meet those requirements. Best Available Control Technology (BACT) regulations, however, are only required for new, modified, or relocated sources. This project category is to develop and demonstrate new technologies that can provide emissions reductions in new installations or as retrofit modifications. Possible technology examples include:

- low NO_x technologies (burners and ICEs);
- low-Btu gas technologies (e.g., digester, landfill, or diary gases);
- alternative fuels and hydrogen blends;
- alternative diesel fuels (emulsified, gas-to-liquids, biodiesel with aftertreatment);
- low emission refinery flares;
- catalytic combustion;
- cost-effective fuel cell and fuel cell hybrid distributed generation;
- fumes-to-fuel technology to replace thermal oxidizers and capture VOC emissions for electricity generation while ensuring no emission of air toxics; and
- boiler optimization design and strategies to improve efficiencies.

Depending on the technology, a proof-of-concept project, demonstration, or pre-commercial deployment would be considered to garner further information on the technology. Issues to investigate include viability (reliability, maintainability and durability) of the technology, cost-effectiveness and operator ease-of-use in order to assess commercialization.

Potential Air Quality Benefits:

The SCAQMD has a substantial number of older, small, stationary source technologies within its jurisdiction. Since these devices are not subject to continuous emissions monitoring system requirements, evidence suggests that these devices may not be operating at their permitted NO_x, CO, hydrocarbon and PM emissions levels. Replacing these devices with cleaner and more reliable technologies or technology/fuel combinations can have dramatic reductions in all of these criteria pollutants. VOC emission reductions may also be achieved at larger stationary VOC sources to achieve the new federal ozone and $PM_{2.5}$ standards.

Proposed Project: Develop and Demonstrate Renewables-Based Energy Generation Alternatives

Expected SCAQMD Cost: $200,000

Expected Total Cost: $1,000,000

Description of Technology and Application:

The objective of this proposed program is to support the development and demonstration of clean energy, renewable alternatives in stationary and mobile applications. The technologies to be considered include thermal, photovoltaic and other solar energy technologies; wind energy systems; energy storage and conservation potentially including vehicle to grid or vehicle to building functionalities for alternative energy storage; biomass conversion; and other renewable energy and recycling technologies. Innovative solar technologies, such as solar thermal air conditioning and photovoltaic-integrated roof shingles, are of particular interest. Also, in the agricultural sections of the Basin, wind technologies could potentially be applied to drive large electric motor-driven pumps to replace highly polluting diesel-fired pumps. Besides renewable technologies, electrolyzer technology could be used to generate hydrogen, a clean fuel. Hydrogen, when used in regular engines, can substantially reduce tail-pipe emissions, while in fuel cells the emissions are reduced to zero.

The project is expected to result in pilot-scale production demonstrations, scale-up process design and cost analysis, overall environmental impact analysis and projections for ultimate clean fuel costs and availability. This program is expected to result in several projects addressing technological advancements in these technologies that may improve performance and efficiency, potentially reduce capital and operating costs, enhance the quality of natural gas generated from renewable sources for injection into natural gas pipelines, improve reliability and user friendliness and identify markets that could expedite the implementation of successful technologies.

Potential Air Quality Benefits:

The 2012 AQMP identifies the development and ultimately the implementation of non-polluting power generation. To gain the maximum air quality benefit, polluting fossil fuel-fired electric power generation needs to be replaced with clean renewable energy resources or other advanced zero emission technologies, such as hydrogen fuel cells, particularly in a distributed generation context.

The proposed program is expected to accelerate the implementation of advanced zero emission energy sources. Expected benefits include directly reducing the emissions by the displacement of fossil generation; proof-of-concept and potential viability for such zero emission power generation systems; increased exposure and user acceptance of the new technology; reduced fossil fuel usage; and the potential for increased use, once successfully demonstrated, with resulting emission benefits, through expedited implementation. These technologies would also have a substantial influence in reducing global warming emissions.

Emission Control Technologies

Proposed Project: Develop and Demonstrate Advanced Aftertreatment Technologies

Expected SCAQMD Cost: $300,000

Expected Total Cost: $5,000,000

Description of Technology and Application:

There are a number of aftertreatment technologies which have shown substantial emission reductions in diesel engines. These technologies include diesel particulate filters (DPFs), oxidation catalysts, selective catalytic reduction (SCR) systems and NO_x adsorbers. This project category is to develop and demonstrate these aftertreatment technologies alone or in tandem with an alternative fuel to produce the lowest possible PM, ultrafine particles, nanoparticles, NO_x, CO, carbonyl and hydrocarbon emissions in retrofit and new applications. With the increasing focus on zero- and near-zero emission goods movement technologies, this category should examine idle reduction concepts and technologies that can be employed at ports and airports.

Possible projects include advancing the technologies for on-road retrofit applications such as heavy-duty line-haul diesel engines, street sweepers, waste haulers and transit buses. Applications for non-road may include construction equipment, yard hostlers, gantry cranes, locomotives, marine vessels, ground support equipment and other similar industrial applications. Potential fuels to be considered in tandem are low-sulfur diesel, emulsified diesel, biodiesel, gas-to-liquids, hydrogen and natural gas. This project category will also explore the performance, economic feasibility, viability (reliability, maintainability and durability) and ease-of-use to ensure a pathway to commercialization.

Potential Air Quality Benefits:

The transfer of mature emission control technologies, such as DPFs and oxidation catalysts, to the off-road sector is a potentially low-risk endeavor that can have immediate emissions reductions. Further development and demonstration of other technologies, such SCR and NO_x adsorbers, could also have NO_x reductions of up to 90%.

Proposed Project: Demonstrate On-Road Technologies in Off-Road and Retrofit Applications

Expected SCAQMD Cost: $250,000

Expected Total Cost: $1,000,000

Description of Technology and Application:

Heavy-duty on-road engines have demonstrated progress in meeting increasingly stringent Federal and state requirements. New heavy-duty engines have progressed from 2 g/bhp-hr NO_x in 2004 to 0.2 g/bhp-hr NO_x in 2010, which is an order of magnitude decrease in just six years. Off-road engines, however, have considerably higher emissions limits depending on the engine size. For example, Tier-3 standards for heavy-duty engines require only 3 g/bhp-hr NO_x. There are apparent opportunities to implement cleaner on-road technologies in off-road applications. There is also an opportunity to replace existing engines in both on-road and off-road applications with the cleanest available technology. Current regulations require a repower (engine exchange) to only meet the same emissions standards as the engine being retired. Unfortunately, this does not take advantage of recently developed clean technologies.

Exhaust gas cleanup strategies, such as SCR, electrostatic precipitators, baghouses and scrubbers, have been used successfully for many years on stationary sources. The exhaust from the combustion source is routed to the cleaning technology, which typically requires a large footprint for implementation. This large footprint has made installation of such technologies on some mobile sources prohibitive. However, in cases where the mobile source is required to idle for long periods of time, it may be more effective to route the emissions from the mobile source to a stationary device to clean the exhaust stream.

Projects in this category will include utilizing proven clean technologies in novel applications, such as:

- demonstrating certified LNG and CNG on-road engines in off-road applications including yard hostlers, switcher locomotives, gantry cranes, waste haulers and construction equipment;
- implementing lower emission engines in repower applications for both on-road and off-road applications; and
- application of stationary best available control technologies, such as SCR, scrubbers, baghouses and electrostatic precipitators, to appropriate on- and off-road applications, such as idling locomotives, marine vessels at dock and heavy-duty line-haul trucks at weigh stations.

Potential Air Quality Benefits:

The transfer of mature emission control technologies, such as certified engines and SCR, to the non-road and retrofit sectors offers high potential for immediate emissions reductions. Further development and demonstration of these technologies will assist in the regulatory efforts which could require such technologies and retrofits.

Outreach and Technology Transfer

Proposed Project: Assessment and Technical Support of Advanced Technologies and Information Dissemination

Expected SCAQMD Cost: $500,000

Expected Total Cost: $800,000

Description of Project:

This program supports the assessment of clean fuels and advanced technologies, their progress towards commercialization and the dissemination of information on demonstrated technologies. The objective of this program is to expedite the transfer of technology developed as a result of Technology Advancement Office projects to the public domain, industry, regulatory agencies and the scientific community. This program is a fundamental element in the SCAQMD's outreach efforts to expedite the implementation of low emission and clean fuels technologies and to coordinate these activities with other organizations.

This program may include the following:

- technical review and assessment of technologies, projects and proposals;
- support for alternative fuel refueling and infrastructure;
- advanced technology curriculum development, mentoring and outreach to local schools;
- emissions studies and assessments of zero emission alternatives;
- advanced technology vehicle demonstrations;
- preparation of reports, presentations at conferences, improved public relations and public communications of successful demonstrations of clean technologies;
- participation in and coordination of workshops and various meetings;
- support for training programs related to fleet operation, maintenance and refueling of alternative fuel vehicles;
- publication of technical papers, reports and bulletins; and
- production and dissemination of information, including web sites.

These objectives will be achieved by consulting with industry, scientific, health, medical and regulatory experts and co-sponsoring related conferences and organizations, resulting in multiple contracts. In addition, an ongoing outreach campaign will be conducted to encourage decision-makers to voluntarily switch to alternatively fueled vehicles and train operators to purchase, operate and maintain these vehicles and associated infrastructure.

Potential Air Quality Benefits:

SCAQMD adopted fleet regulations requiring public and private fleets within the Basin to acquire alternatively fueled vehicles when making new purchases. Expected benefits of highlighting success stories in the use of advanced alternatively fueled vehicles could potentially expedite the acceptance and commercialization of advanced technologies by operators seeking to comply with the provisions of the recently adopted SCAQMD fleet rules. The resulting future emissions benefits will contribute to the goals of the AQMP.

Proposed Project: Support for Implementation of Various Clean Fuels Vehicle Incentive Programs

Expected SCAQMD Cost: $400,000

Expected Total Cost: $400,000

Description of Project:

This program supports the implementation of zero emission vehicle incentive programs, the Carl Moyer incentives program and the school bus incentives program. Implementation support includes application approval, grant allocation, documentation to the CARB, verification of vehicle registration and other support as needed. Information dissemination is critical to successful implementation of a coordinated and comprehensive package of incentives. Outreach will be directed to vehicle dealers, individuals and fleets.

Potential Air Quality Benefits:

As described earlier, the SCAQMD will provide matching funds to implement several key incentives programs to reduce diesel emissions in the Basin. Furthermore, the SCAQMD recently adopted fleet regulations requiring public and private fleets within the Basin to acquire alternatively fueled vehicles when making new purchases. Expected benefits of highlighting zero emission vehicle incentives could potentially expedite the acceptance and commercialization of advanced technologies by operators seeking to comply with the provisions of the recently adopted SCAQMD fleet rules. The resulting future emissions benefits will contribute to the goals of the AQMP. The school bus program and the Carl Moyer incentives program will also reduce large amounts of NO_x and PM emissions in the basin in addition to reducing toxic air contaminants.

Appendix A

SCAQMD Advisory Groups

Technology Advancement Advisory Group

Dr. Matt Miyasato, Chair	SCAQMD
*Fabiola P. Lao	Coalition for Clean Air
Dr. Alberto Ayala	California Air Resources Board
Patrick Davis.	U.S. Department of Energy
Dr. John Froines	Professor Emeritus University of California, Los Angeles
Gretchen Hardison	Los Angeles Department of Water and Power; Chair of Technical Advisory Committee of the Mobile Source Air Pollution Reduction Review Committee
Ed Kjaer	Southern California Edison
Philip J. Hodgetts	Clean Air Now
Randall Lewis	Lewis Group of Companies
Tim Olson	California Energy Commission
**Pending*	Western States Petroleum Association
Cherif Youssef	Southern California Gas Company

*Newly appointed members

SB 98 Clean Fuels Advisory Group

Dr. Matt Miyasato, Chair	SCAQMD
Robert Bienenfeld	American Honda Motor Company Inc
Dr. Blair Folsom	Independent Consultant in Combustion Technology
Dr. Mridul Gautam	West Virginia University, Adjunct Professor, & University of Nevada-Reno
Dr. Fritz Kalhammer	Independent Consultant in Energy and Process Technology
Dr. Melanie Marty	California Environmental Protection Agency, Office of Environmental Health Hazard Assessment
Dr. Wayne Miller	University of California, Riverside, College of Engineering, Center for Environmental Research and Technology
Dr. Vernon Roan	University of Florida, Professor Emeritus
Dr. Scott Samuelsen	University of California, Irvine, Combustion Laboratory/National Fuel Cell Research Center
Dr. Robert Sawyer	Sawyer Associates
Kevin Walkowicz	National Renewable Energy Laboratory
Dr. Nicholas Vanderborgh	Independent Consultant in Fuel Cell Technologies
Michael Walsh	Independent Consultant in Motor Vehicle Pollution Control

*Newly appointed members

Appendix B

Open Clean Fuels Contracts as of January 1, 2015

Contract	Contractor	Project Title	Start Term	End Term	SCAQMD $	Project Total $
Infrastructure and Deployment						
05250	Downs Commercial Fueling, Inc.	Purchase & Install New L/CNG Fueling System at Commercial Fueling Station in Temecula	11/04/05	04/30/16	$203,137	$833,333
06042	University of California Los Angeles	Upgrade Existing CNG Public Access Station with Dispenser & Card Reader	09/05/06	12/31/16	15,921	31,842
06084	Clean Energy	Upgrade Existing LNG Facility to L/CNG at Riverside County Waste Management Dept's Aqua Mansa Facility in Riverside	04/13/06	02/28/16	120,000	400,000
06091	City of Whittier	Purchase & Install New Public Access CNG Fueling Station at City Yard	03/18/06	12/31/16	150,000	450,000
07153	Foothill Transit	Purchase & Install New Public Access CNG Refueling Station in Irwindale	11/02/09	06/30/16	250,000	3,350,000
07243	City of Commerce	Purchase & Install New Public Access L/CNG Station	05/16/07	12/31/15	250,000	1,300,000
07246	USA Waste of California, Inc., dba L.A. Metro	Purchase & Install New LNG Storage Tank at Long Beach LNG Refueling Station	12/24/08	06/30/17	200,000	440,000
07320	Orange County Transportation Authority	Install New CNG Station in the City of Santa Ana	12/21/07	03/31/16	350,000	5,841,729
08043	University of California Los Angeles	Public Access CNG Refueling Station Upgrade for UCLA Transportation	05/02/08	12/31/16	140,000	350,000
08044	Beaumont Unified School District	Install Limited Access CNG Refueling Station	03/05/09	12/31/16	288,000	615,994
08098	Redlands Unified School District	Purchase & Install New CNG Refueling Station	01/25/08	12/31/17	525,000	700,000
09165	California Cartage Company	Deployment of 2010 Emissions Standards Compliant LNG Trucks	10/31/08	07/31/16	358,000	11,880,000
09218	Rim of the World Unified School District	Install Mountain Safety Equipment on Five New CNG School Buses	01/05/10	12/31/16	65,850	65,850
09364	Rim of the World Unified School District	Construct & Install a CNG Fueling Station	12/30/10	03/31/15	257,000	425,000
10067	Rim of the World Unified School District	Install Mountain Safety Equipment on Seven New CNG School Buses	12/21/09	12/31/16	92,190	92,190
11548	Clean Energy (novated from Mansfield Gas Equipment Systems)	Buydown Incentive Program for CNG Home Refueling Appliance "Phill"	09/07/12	06/30/15	60,000	356,000
12135	Placentia-Yorba Linda Unified School District	Upgrade CNG Fueling Station	11/18/11	11/30/17	60,000	60,000
12267	West Covina Unified School District	Upgrade CNG Fueling Facility	10/12/12	12/31/17	60,000	60,000
12851	Clean Energy	Install, Operate and Maintain Three LNG Fueling Stations (Fontana, Coachella and Perris)	10/05/12	12/31/18	1,400,000	4,277,323
12852	City of Covina	Construct Public Access CNG Fueling Stations	10/12/12	12/31/18	200,000	618,429
12853	Rainbow Disposal Co. Inc.	Upgrade CNG Fueling Station	03/08/13	12/31/18	200,000	400,000

Contract	Contractor	Project Title	Start Term	End Term	SCAQMD $	Project Total $
Infrastructure and Deployment						
12854	Waste Management, Inc.	Upgrade LNG Fueling Station at Baldwin Park Facility	08/17/12	12/31/18	300,000	1,588,100
13401	Nite-Hawk Sweepers LLC	Demonstrate Natural Gas-Powered Parking Lot Sweepers	08/28/13	12/31/15	90,000	200,000
14219	City of West Covina	Upgrade CNG Station at City Yard	05/15/14	06/15/17	200,000	618,429
14311	Southern California Gas Company	Install and Maintain CNG Fueling Station in Murrieta for SoCalGas	07/11/14	12/31/17	217,000	1,385,000
15438	United Parcel Service, Inc.	Refurbish/Upgrade Ontario UPS LCNG Infrastructure	12/31/14	06/30/18	246,707	484,535
Fuels/Emission Studies						
07236	National Renewable Energy Laboratory	Investigate the Role of Lubricating Oil on PM Emissions from Vehicles	03/23/07	12/30/15	200,000	446,887
10066	National Renewable Energy Laboratory	CRADA – Loan of 70 MPa Hydrogen Quality Sampling Apparatus to AQMD	11/02/09	12/30/15	0	0
10722	University of California Riverside/CE-CERT	Re-Establish Testing Facility & Quantify PM Emission Reductions from Charbroiling Operations	08/06/10	06/30/15	60,000	60,000
13402	University of California Davis-Office of Research	Next Sustainable Transportation Energy Pathways (STEPS) Program	05/02/14	07/01/16	120,000	2,760,000
14162	National Renewable Energy Laboratory	Utilization of Fleet DNA Approach and Capabilities to Provide Vehicle Vocational Analysis in SCAQMD	02/26/14	12/30/15	174,985	199,985
Electric/Hybrid Technologies						
08063	Quantum Fuel Systems Technologies Worldwide, Inc.	Develop & Demonstrate 20 Plug-In Hybrid Electric Vehicles	01/22/08	12/31/15	2,165,613	2,885,266
08219	A123Systems Inc.	Develop & Demonstrate Ten Plug-In Hybrid Electric Vehicles	06/05/09	06/04/15	622,667	962,667
11204	AC Propulsion	Develop & Demonstrate Electric Drive Conversion for Fleet Vehicles	12/24/10	11/30/15	300,000	755,767
11606	Odyne Systems, LLC	Develop and Demonstrate Plug-In Hybrid Electric Drive System for Medium- and Heavy-Duty Vehicles	07/08/11	09/30/15	494,000	2,599,000
11615	Parker Hannifin Corporation	Develop & Demonstrate Up to Four Heavy-Duty Hydraulic Hybrid Vehicles	01/18/13	12/13/16	250,000	2,000,000
12028	Electric Vehicle International, Inc.	Demonstrate and Replace UPS Diesel Delivery Trucks with Zero-Emission Medium-Duty Trucks	09/09/11	09/08/17	1,400,000	4,872,000
12862	Volvo Technology of America, Inc.	Develop Class 8 Plug-In Hybrid Heavy-Duty Vehicle	12/07/12	07/31/15	1,200,000	2,400,000
13042	South Bay City Council of Governments	Demonstrate Medium-Speed Electric Vehicles	11/02/12	05/01/15	320,000	528,078
13058	Capstone Turbine Corporation	Develop Microturbine Series Hybrid System for Class 7 Heavy-Duty Vehicle Applications	08/12/13	03/30/16	360,000	1,210,000

Contract	Contractor	Project Title	Start Term	End Term	SCAQMD $	Project Total $
Electric/Hybrid Technologies & Infrastructure (cont'd)						
13251	Selman Chevrolet Company	Lease Two 2012 or Newer Chevrolet Volt Extended-Range Electric Vehicles for Three Years	11/28/12	05/01/15	31,375	31,375
13396	Transportation Power Inc.	Develop and Demonstrate Seven Class 8 Zero Emission Electric Trucks	04/19/13	12/31/16	375,000	2,285,368
13404	Penske Honda of Ontario	Lease Two Honda Fit Electric Vehicles for Three Years	05/02/13	05/01/16	31,307	31,307
13410	Selman Chevrolet Company	Lease Three 2013 Chevrolet Volt Extended-Range Electric Vehicles for Three Years	04/03/13	04/02/16	41,084	41,084
13418	City of Claremont	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	08/29/13	12/30/15	0	0
13419	California State University, Los Angeles	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	08/05/13	12/30/15	0	0
13420	University of California Irvine	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	08/28/13	12/30/15	0	0
13421	County of Los Angeles	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	09/06/13	12/15/14	0	0
13426	Transportation Power, Inc.	Develop & Demonstrate Catenary Class 8 Trucks (1 Electric & 1 CNG Platform)	06/07/13	06/06/16	2,617,887	3,182,795
13429	Longo Toyota	Lease One Toyota RAV4 Electric Vehicle for Three Years	04/19/13	04/18/16	19,618	19,618
13439	City of Carson	MOU for Catenary Zero Emission Goods Movement Project	10/01/13	09/30/16	0	0
14053	Electric Power Research Institute	PHEV Fleet Participation Agreement	10/01/13	07/31/15	0	0
14062	Siemens Industry Inc.	Develop and Demonstrate Catenary Zero Emissions Goods Movement System and Develop and Demonstrate Diesel Catenary Hybrid Electric Trucks	07/14/14	07/13/18	5,500,000	14,780,000
14074	City of Santa Monica	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	12/04/13	06/30/15	0	0
14095	City of Covina	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	01/22/14	06/30/15	0	0
14153	University of California, Santa Babara	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	02/04/14	06/30/15	0	0
14156	Galpin Motors Inc. (Galpin Ford)	Lease of Two Fusion Energi and One C-Max Energi PHEVs for a Three-Year Period	01/28/14	01/27/17	49,298	49,298
14184	Clean Fuel Connection Inc.	DC Fast Charging Network Provider	04/04/14	06/30/20	250,000	1,318,000
14199	Clean Fuel Connection Inc.	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	04/14/14	12/30/15	0	0

Contract	Contractor	Project Title	Start Term	End Term	SCAQMD $	Project Total $
Electric/Hybrid Technologies & Infrastructure (cont'd)						
14201	California State University San Bernardino	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	04/04/14	06/30/15	0	0
14202	Adopt-A-Charger	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	04/14/14	12/30/15	0	0
14204	Associated of Los Angeles	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	10/10/14	06/30/15	0	0
14207	City of Palmdale	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	07/11/14	06/30/15	0	0
14208	City of Lake Elsinore	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	10/15/14	06/30/15	0	0
14209	California State Polytechnic University Pomona	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	06/06/14	06/30/15	0	0
14210	California State University Long Beach Office of Research Programs and Sponsored Programs	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	07/11/14	06/30/15	0	0
14222	Odyne Systems,LLC	Develop and Demonstrate Plug-In Hybrid Electric Retrofit System for Class 6 to 78 Trucks	04/24/14	04/23/16	389,000	2,226,571
14224	Complete Coach Works	Develop and Test Retrofit All Electric Transit Bus	04/24/14	07/30/15	395,000	867,182
14236	California State University Fullerton	SoCalEV Infrastructure MOA to Install & Upgrade EV Charging Infrastructure	05/02/14	06/30/15	0	0
14256	National Strategies LLC	Develop and Demonstrate Vehicle-2-Grid Technology	09/05/14	03/04/18	250,000	3,377,689
14323	Selman Chevrolet Company	Lease Two 2014 Chevrolet Volt Extended-Range Electric Vehicles for Three Years	03/28/14	03/27/17	30,932	30,932
15021	Transportation Power Inc.	Upgrade and Demonstrate Two Electric Yard Tractors	07/14/14	12/31/15	75,000	405,000
Engine Systems						
13168	National Renewable Energy Laboratory	Develop, Integrate and Demonstrate Heavy-Duty Natural Gas Engines and Vehicles	05/22/13	12/31/15	1,300,000	1,300,000
14364	Cummins Inc.	Develop, Integrate and Demonstrate Ultra-Low Emission Natural Gas Engines for On-Road Heavy-Duty Vehicles	07/14/14	08/20/16	2,061,000	5,308,000
Mobile Fuel Cell Technologies						
12155	University of California Irvine	Toyota Fuel Cell Hybrid Vehicle Lease	09/27/13	12/31/15	0	0
13155	Fletcher Jones Motor Cars (Mercedes-Benz)	Lease Two F-Cell Fuel Cell Vehicles for Two Years	02/08/13	02/08/15	30,397	30,397
14139	Hyundai America Technical Center Inc.	No-Cost Lease of Fuel Cell Vehicle for Two Years	12/13/13	12/12/15	0	0

Contract	Contractor	Project Title	Start Term	End Term	SCAQMD $	Project Total $
Mobile Fuel Cell Technologies (cont'd)						
14622	California State University Long Beach Foundation	CSULB CEERS Student Educational Project to Demonstrate Graphene Fuel Cell Catalyst	08/05/14	05/31/15	28,000	28,000
15388	Bevilacqua-Knight Inc.	Participate in California Fuel Cell Partnership for Calendar Year 2014 and Provide Support for Regional Coordinator	01/01/14	12/31/14	137,800	1,676,800
Hydrogen Technologies and Infrastructure						
10046	Air Products and Chemicals Inc.	Develop & Demonstrate Renewable Hydrogen Energy and Refueling Station	12/21/09	04/30/15	750,000	8,436,735
10061	Hydrogenics Corporation	Maintenance & Data Management for the AQMD Hydrogen Refueling Station	10/30/09	12/30/13	368,000	368,000
11150	Hydrogen Frontier, Inc.	Maintenance & Operation of City of Burbank Hydrogen Fueling Station	11/24/10	01/23/16	475,000	1,635,000
10482	California State University Los Angeles	Install and Demonstrate PEM Electrolyzer, Providing Hydrogen Fueling for Vehicles and Utilizing the Technology in the Engineering Technology Curriculum at the University	03/04/11	10/03/17	250,000	1,662,000
11555	University of California Los Angeles	Construct Hydrogen Fueling Infrastructure	12/07/12	12/31/19	400,000	2,589,990
12075	Linde, LLC	Expand Hydrogen Fueling Infrastructure	11/02/12	11/02/18	250,000	2,732,177
13259	Air Products and Chemicals Inc.	Hydrogen Station Operation and Maintenance for Five Cities Hydrogen Program	03/26/13	03/31/15	390,000	390,000
13400	Energy Independence Now	Develop Hydrogen Station Investment Plan	04/05/13	01/04/15	50,000	130,000
14067	University of California Irvine	Develop Hydrogen Storage Capability for the Gas Blending Facility	12/31/13	07/16/15	200,000	688,000
15020	University of California Irvine	Develop Sampling and Testing Protocols for Analyzing Impurities in Hydrogen	08/31/14	04/12/15	114,500	114,500
15150	Air Products and Chemicals Inc.	Install and Upgrade Eight Hydrogen Fueling Stations Throughout SCAB (including SCAQMD's Diamond Bar Hydrogen Station)	10/10/14	04/09/19	1,000,000	17,335,439
15366	EPC LLC	Operate and Maintain Publicly Accessible Hydrogen Fueling Station at SCAQMD's Headquarters	10/10/14	09/14/17	0	0
15419	SunLine Transit Agency	Disposition of Dispenser from Electrolyzer Hydrogen Station Demonstration at SCAQMD's Headquarters	12/24/12	12/23/15	0	0

Contract	Contractor	Project Title	Start Term	End Term	SCAQMD $	Project Total $
Health Impacts Studies						
12208	University of California Riverside/CE-CERT	Determine the Physical and Chemical Composition and Associated Health Effects of Tailpipe PM Emissions	01/21/12	01/31/16	175,000	1,375,000
12865	University of California Los Angeles	Develop Quantitative Cellular Assays for Use in Understanding the Chemical Basis of Air Pollutant Toxicity	06/08/12	07/31/15	368,457	368,457
14171	Southern California Research Center/Allergy & Asthma Associates of Southern California	Risk of Incident Asthma Among Children from In-Utero Exposures to Traffic Related Pollutants	09/22/14	03/21/16	99,670	317,119
14172	University of California Irvine	The Relation of Airway and Systemic Oxidative Stress to Particulate Air Pollution Exposures in an Elderly Cohort	02/17/14	08/16/15	159,974	376,368
Stationary Clean Fuels Technology						
09303	Permacity Solar	Install 40kW (AC) Crystalline Silicon System at AQMD HQs	01/30/09	01/29/15	387,162	387,162
10723	Eastern Municipal Water District	Retrofit Digester Gas Engine with NO_x Tech Aftertreatment Emission Control Technology	03/16/12	06/15/15	85,000	889,000
13030	University of California Irvine	Demonstrate 300 kW Molten Fuel Cell with Exhaust-Fired Absorption Chiller	10/12/12	04/11/15	257,500	257,500
13045	ClearEdge (novated from UTC Power Corp.)	Energy Supply and Services Agreement to Install One 400 kW Phosphoric Acid Fuel Cell at SCAQMD Headquarters	09/28/12	09/27/22	450,000	4,252,680
Outreach and Technology Transfer						
00069	Walsh Consulting	Technical Assistance Relating to the Use of Alternative Fuels in Mobile Sources	02/17/00	02/28/16	35,000	35,000
05128	Mid-Atlantic Research Institute LLC	Development, Outreach & Commercialization of Advanced Heavy-Duty and Off-Road Technologies	08/08/05	03/31/15	40,000	40,000
07062	The Tioga Group, Inc.	Technical Assistance Related to Air Quality Impacts of Regional Goods	12/19/06	11/30/16	58,000	58,000
08210	Sawyer Associates	Technical Assistance on Mobile Source Control Measures and Future Consultation on TAO Activities	02/22/08	02/28/16	25,000	25,000
09252	JWM Consulting Services	Technical Assistance with Review & Assessment of Advanced Technologies, Heavy-Duty Engines, and Conventional & Alternative Fuels	12/20/08	06/30/16	30,000	30,000
09337	Mark Weekly, CPA	Follow-Up Assessment of AQMD's Compliance with Special Revenue Funds	03/03/09	01/31/15	35,000	35,000

Contract	Contractor	Project Title	Start Term	End Term	SCAQMD $	Project Total $
Outreach and Technology Transfer (cont'd)						
11028	Martin Kay	Technical Assistance on Stationary Source Control Measures & Future Consultation on TAO Activities	08/04/10	12/31/15	40,000	40,000
11484	Gladstein, Neandross & Associates, LLC	Develop and Implement Two Customer Centers to Provide Education and Outreach to Truck Owners and Operators	01/27/11	01/31/15	150,000	150,000
12376	University of California Riverside	Technical Assistance with Alternative Fuels, Biofuels, Emissions Testing and Zero-Emission Transportation Technology	06/13/14	05/31/16	75,000	75,000
12380	The Tioga Group	Technical Assistance Related to Emissions, Advanced Technologies and Goods Movement	04/13/12	04/30/16	25,000	25,000
12381	Integra Environmental Consulting Inc.	Technical Assistance Related to Emission Inventories, Goods Movement and Off-Road Sources	04/06/12	04/30/16	110,000	110,000
12453	Tech Compass	Technical Assistance with Alternative Fuels, Fuel Cells, Emissions Analysis and Aftertreatment Technologies	06/21/12	05/30/16	75,000	75,000
12486	ICF Resources LLC	Technical Assistance with Goods Movement and Zero Emission Transportation Technologies	09/24/13	09/23/15	50,000	50,000
13194	Clean Fuel Connection Inc.	Technical Assistance with Alternative Fuels, Renewable Energy and Electric Vehicles	12/07/12	06/15/15	80,000	80,000
13198	Gladstein, Neandross & Associates, LLC	Technical Assistance with Alternative Fuels, Emissions Analysis and On-Road Sources	12/14/12	12/13/15	75,000	75,000
13408	University of California Irvine	Demonstrate Building Integration of Electric Vehicles, Photovoltaics and Stationary Fuel Cells	09/30/13	09/29/15	150,000	270,000
14185	Three Squares Inc.	Conduct Education Outreach for the Basin DC Fast Charging Network Project	04/11/15	06/30/15	49,183	49,183
15344	Clean Fuel Connection, Inc.	Technical Asssistance with Alternative Fuels, Electric Vehicles, Charging and Fueling Infrastructure and Renewable Energy	09/22/14	09/22/16	60,000	60,000
15369	Breakthrough Technologies Institute, Inc.	Technical Assistance with Low- and Zero-Emission Vehicles, Fuel Cells, Stationary Applications and Emissions Analysis	11/07/14	11/06/16	30,000	30,000
15380	ICF Resources LLC	Technical Assistance with Goods Movement, Alternative Fuels and Zero-Emission Transportation Technologies	12/12/14	12/11/16	30,000	30,000
15415	Gladstein, Neandross & Associates, LLC	Technical Assistance with Alternative Fuels and Fueling Infrastructure, Emissions Analysis and On-Road Sources	11/07/14	11/06/16	60,000	60,000

Appendix C

Final Reports for 2014

SCAQMD Contract #06028 **July 2014**

Purchase & Install CNG Fueling System at Long Beach Waste Transfer Station

Contractor
Consolidated Disposal Service, LLC

Cosponsors
CDS
MSRC/AB2766 Discretionary Fund
SCAQMD

Project Officer
Larry Watkins

Background

Consolidated Disposal Service (CDS), a subsidiary of Republic Services, is a solid waste collection and transfer business that operates from a 7 acre facility located on 67th and 68th Streets near Paramount Avenue in Long Beach, CA. The company has over 220 heavy duty vehicles that are used to support many local public and private customers in southern California. The facility has an existing gasoline/diesel fueling station and a maintenance repair garage originally designed for repairing heavy-duty diesel vehicles.

The SCAQMD adopted and later amended in April 2004 Rule 1193- for Clean On-Road Residential and Commercial Refuse Collection Vehicles that required any new heavy duty vehicles purchased by CDS be alternative fuel. CDS decided to purchase new LNG vehicles and consequently, to upgrade its existing repair garage to comply with California Fire Code requirements for LNG vehicles. Therefore, a new onsite LNG station must be constructed and the repair garage must be upgraded with mechanical ventilation/gas detection for LNG vehicle repair.

Project Objective

The objective was to design, permit, install, maintain and operate a new, publicly accessible LNG fueling station at CDS's facility located at 67th Street, Long Beach, California, in order to support CDS's existing LNG fleet of 42 heavy-duty vehicles.

Technology Description

The station features include the following:

- 20,000 Gallon Vertical Storage Tank -12 Foot Diameter X 55 Foot High
- 10,000 scf Vaporizer
- Tanker Offload Pump Skid
- 2 Each LNG Fill Pump Skids
- 2 Each – 10 Gpm LNG Dispensers
- Universal card reader
- 28' X 28' X 3.5' High CMU Containment Wall
- LNG Control Panel
- LNG Electrical Panel (Power In Existing Building)
- Safety, Alarms Detection Systems

Status

The following tasks were completed:

1. Obtain City environmental and planning permits via city agencies and Boards
2. Provide calculations and conduct water pressure tests for the Fire Department
3. Identify all equipment components
4. Complete all engineering designs, drawings and specifications for the project using Weaver Electric as a sub-contractor
5. Obtain all City permits including electrical, mechanical, civil and fire permits
6. Fabricate the LNG tank, vaporizer and all other LNG specific equipment
7. Construct the LNG station and install equipment
8. Supervise the construction sub-contractor, General Physics, during the construction phase.
9. Connect the new LNG station to the existing CDS electric power supply system
10. Obtain approval from the City of Long Beach for a "Permit To Operate"
11. Fill the LNG tank and piping system with nitrogen and test for leaks
12. Fill the LNG tank, pumps and piping system with LNG and test the system for proper operation
13. Safety test all alarms, horns and shutdown systems

The station was completed on July 17, 2009. The 42 LNG refuse trucks in CDS's LNG fleet are now

fueling at the facility on a daily basis and public access is open.

Results

The new CDS LNG station has been fueling LNG vehicles since December 2009. The first month throughput was 86,000 gallons. The staff has been trained to use the new facility and CDS has negotiated competitive LNG fuel purchase contracts with local suppliers.

CDS was also responsible for the operation of the station for at least five years after commissioning, including providing annual reports and throughput data to SCAQMD through the life of this Contract.

Table 1: Actual & Projected LNG Fuel Throughput

Category	Current	2010	2014	2016 (Projected)
Number of CDS LNG Trucks	42	61	100	140
CDS Trucks*	655,200	951,600	1,560,000	2,184,000
Public Access Station**	50,000	50,000	100,000	100,000
Total Annual Throughput	**705,000**	**1,001,600**	**1,660,000**	**2,284,000**

CDS expects the emission reductions below from the LNG truck fleet:

BY END OF 2010 WITH 61 TRUCKS
(NOx) - 0.2 tons/year per truck = 12.2 T/yr
(PM10) - 0.01 tons/yr/ truck = 0.61 T/yr
BY END OF 2016 WITH 140 TRUCKS
(NOx)- = 28.0 T/yr
(PM10)- = 1.40 T/yr

There were many complex administrative, budget, permitting, design and construction obstacles during the 4 ½ year project cycle that were addressed and resolved.

Figure 1: Original Site Layout

Figure 2: New LNG Facility

Benefits

CDS trucks will no longer have to be driven over 15 miles roundtrip to a public LNG station for refueling nor repaired outside the garage. The new LNG station at CDS will provide LNG fuel for the CDS heavy-duty vehicle fleet, reducing both NOx and PM emissions. CDS can now purchase more LNG trucks with the goal of reaching a full LNG fleet by 2016.

Figure 3: Modified 12 Bay Truck Repair Garage with Gas Detection, Mechanical Ventilation and Alarms

Project Costs

The original projected costs were $880,000. CDS incurred a cost increase of approximately $370,000. Of this amount, $270,000 is attributable to Chart's construction costs from its subcontractors, additional technical consulting due to the complexities of the permitting process, and from additional work required by the City of Long Beach during extended permit negotiations. CDS also spent an additional $100,000 on consulting and additional permit-required work. Final actual project costs totaled $1,250,000. Co-funding was as follows: MSRC - $297,981, SCAQMD - $222,038, and CDS - $729,981.

SCAQMD Contract #07051 **March 2014**

Purchase & Install New Public Access CNG Fueling Station

Contractor
City of Pasadena

Cosponsors
MSRC/AB2766 Discretionary Fund
SCAQMD

Project Officer
Larry Watkins

Background
In 2001, the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB) began to adopt regulations that mandate public agencies to embark on effectively reducing vehicle Particulate Matter (PM) and Oxides of Nitrogen (NOx) emissions. These regulations pertain to On-Road medium and heavy-duty trucks; refuse collection vehicles, street sweepers, and transit buses.

In 2004, the City of Pasadena began an aggressive campaign to replace its heavy duty diesel fleet with clean CNG fueled vehicles. Since that time, the City of Pasadena has replaced 10 refuse trucks, and converted eight heavy duty diesel refuse trucks to dual fuel CNG/ diesel (a total of 60% of the refuse fleet). Also, the City has replaced two street sweepers, three sewer trucks and one aerial bucket truck with CNG powered vehicles.

Project Objective
The objective of this project was to construct a CNG fueling facility to support the City of Pasadena natural gas powered vehicles and equipment, comply with all rules and regulations issued by CARB and the SCAQMD, while maintaining full services for the general public and to promote the use of alternative fuel. The limited access facility is also available on an emergency basis to the general public.

Technology Description
When the City of Pasadena began to explore the alternative fuel market, natural gas was recognized as the most popular and economical alternative fuel in this region. Utilizing natural gas powered vehicles, the City is able to significantly lower its vehicle emission levels while maintaining public service levels, lower overall fuel costs, and lower our dependence on imported oil.

Status
On June 25, 2007, City Council authorized a contract to Gas Equipment Systems, Inc. in an amount not to exceed $886,695 for the construction of a CNG Fueling Station. The total estimated cost for this project, including future expansion, increased from the engineers' original estimate of $850,000 to $1,230,520. This increase was due to rising costs of specialized equipment and services necessary for completion. To offset this overage, funds were appropriated and approved by the City Council to complete project construction. Station construction began on November 10, 2008 and passed building permit and Fire Department Compliance inspection on April 30, 2009. The station is now complete and the City has been fueling vehicles since March 12, 2009. The Final Report is being submitted at the same time of this report.

Figure 1: CNG Station Filter Dryer & Compressor at City Yard

Figure 2: City CNG Refuse Trucks at Slow-fill Filling Posts

Results/ Benefits

The City of Pasadena has replaced 16 and converted eight heavy-duty trucks. We also have three heavy-duty refuse collection trucks in line for replacement and are preparing to advertise a notice inviting bids in the upcoming months. By replacing these diesel vehicles with CNG powered vehicles, the City of Pasadena has reduced Nitrous Oxide emissions by more than 1.8 tons while diesel particulate matter is also being reduced.

CNG Use by Therms

March Therms Used	4,152
April Therms Used	8,806
May Therms Used	8,658
June Therms Used	10,130
July Therms Used	9,606
Total Therms to Date	41,352

Funding Sources

City of Pasadena	$870,520
SCAQMD	$165,000
MSRC	$195,000
TOTAL	$1,230,520

Commercialization and Applications

The City of Pasadena has been replacing its heavy-duty diesel engine fleet to vehicles powered by cleaner Compressed Natural Gas (CNG) engines. We also experienced a longer than expected construction time. We presented the contractor with the "Notice to Proceed" on September 21, 2007 with final permits signed off April 30, 2009 one year and seven months later. The initial fuel station design was based upon the 2001 California Building Code. In January 2008, the City adopted the 2007 California Building Code. To reflect changes in the 2007 California Building Code and receive Plan Check approval, the station's engineering design needed revisions, thus requiring additional labor and material to comply with this regulation. Additionally, data lines and conduits required an upgrade in order to transmit station data to the existing Fuel Management Database and Software System. Repairs to asphalt areas were needed due to damage caused by open trenches and normal traffic patterns at the station location. Also the installation of additional safety measures to protect the gas line necessitated additional change orders.

The City plans to operate this facility for many years while continuing to convert its heavy duty diesel fleet to CNG where available, and expand the station capacity when needed.

The City's largest obstacle currently, is vehicle and engine manufacturers not producing an OEM product. Currently refuse chassis are available in a 50,000 – 60,000 pound Gross Vehicle Weight Rating (gvwr) chassis. Smaller 25,000 – 40,000 pound gvwr chassis are not available in an OEM CNG powered configuration such as dump trucks. Additionally, heavy duty engine manufacturers such as Detroit Diesel and John Deere have stopped producing CNG engines. The only company currently manufacturing the heavy duty CNG engine is Cummins. As the use of natural gas has become more popular and if manufacturers could produce more vehicles, state governments, municipalities, and the general public would be more likely to purchase them. This would lower emission levels and we could lower our dependence on imported oil.

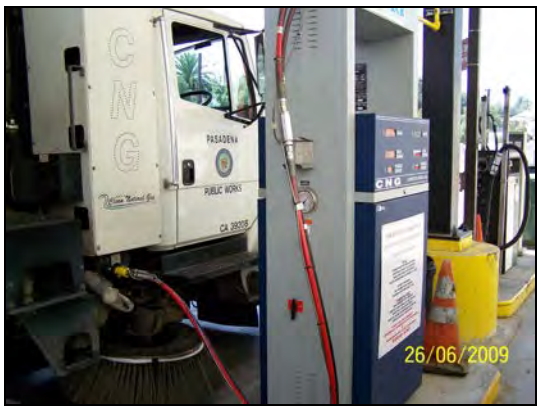


Figure 3: City CNG Street Sweeper at Fast-fill Dispenser

SCAQMD Contract #07244 **April 2014**

Upgrade Existing Public Access CNG Fueling Stations in Thousand Palms & Indio

Contractor
SunLine Transit Agency

Cosponsors
SunLine Transit Agency
SCAQMD

Project Officer
Larry Watkins

Background
Over the last four years, SunLine has had complaints with 3600 psig vehicle customers because the CNG public fueling stations could not fully fill these vehicles to about 4200 psig temperature compensated during the summer months. Currently, all new CNG vehicles are designed with the 3600 psig option and 100% of all CNG vehicles in the Coachella Valley are designed with 3600 psig.

Project Objective
The main objective was to upgrade the CNG stations and incorporate new transit 3600/3000 psig dispensers, upgrade the priority panel, install new 4500 psig storage and upgrade the public fuel island dispenser.

A facility performance specification was developed for the station that met SunLine's short- and long-term fueling requirements for a fast-fill and time-fill CNG fueling station. This included detailed plot plans, P&IDs, electrical 1 line drawing, a ROM schedule, and a 10% accuracy project estimate. SunLine and the construction contractor provided generic equipment specifications for major equipment such as the CNG compressors, CNG dispensers, CNG storage vessels/tanks, and etc. for either purchase. There were two (2) projects at the Thousand Palms facility to resolve the low pressure issues and problems and there were also two (2) projects at the Indio facility to resolve these same issues and problems.

Technology Description
There were many changes done to both stations with this project. Upgrades to the Thousand Palms transit island consisted of a new dispenser, adding additional storage and modification to the public access dispenser program to the dispenser EPROM with no additional modification to the dispenser. The Indio station had similar changes to the transit island along with an identical new dispenser, new card reader; and the public access island was widened to accommodate larger vehicles.

Status
This project has been in operation at various stages since November 2008. With the upgrades completed, both stations are now able to provide adequate fills to the 3600 vehicles at the transit and public fuel islands. As of April 2009 the station upgrades have been completed and are in full operation.

Figure 1: Public Fuel Island

Once commissioned SunLine was required to provide the SCAQMD five years of annual reporting including throughput through 2013-14 under this Contract.

Results

After completion of the project no further complaints have been documented. Transit buses can now be filled to the required 3,600 psig. The transit buses have not been towed in and are not being exchanged for low fuel. The Thousand Palms public fuel island has been able to fast-fill medium size vehicles up to the temperature compensated amount of 4200 psig or more and no problems are expected during the summer months.

The Indio public access upgrade was accomplished with little impact to public fueling. Large vehicles are now able to get in and out of the fuel island with relative ease. The Transit Island now accepts fleet cards and is used for overflow traffic and emergencies when the public access is down for maintenance. This project-- even though it was initially delayed due to competitive bid approvals, personnel and contracts reviews and equipment delivery delays-- had immediate positive impact on the station operation and customer satisfaction.

Benefits

Efficiency in the transit and dial-a-ride service has been observed from the 3600 psig fills. Other medium-size fleet vehicles are now receiving full fills to 3600 psig which also increase their efficiency; less time refueling and less number of fill per day but an increase in volume.

With the additional buses it was anticipated the fleet would grow to 66 CNG buses with at least a 5% increase in throughput for both stations. The upgraded stations were anticipated to increase throughput by 60,000 to 70,000 GGE per year.

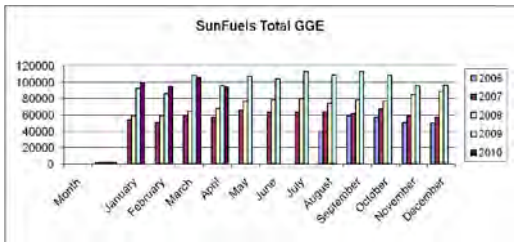


Figure 2: Throughput 2006 to April 2010

This contract required five years of annual reporting including throughput, which was reported as follows:

Throughput in GGEs	
2009-2010	1,244,978
2010-2011	1,262,315
2011-2012	1,417,419
2012-2013	1,548,619
2013-2014	1,664,929

This throughput met the projected throughput for this project.

Project Costs

The final cost of the project was higher than the original estimate of $180,000 by 12%; final equipment and costs were $200,792. The SCAQMD provided $90,000 toward this project, with the remaining funds provided by SunLine. The card reader along with the internal cost to manage the project and support the contractors was an additional $45,800, all of which was funded by SunLine, for overall project costs of $246,834.

Commercialization and Applications

Overall, the improvements of the project were well received.

SCAQMD Contract #07245 **December 2014**

Purchase & Install New LNG Production Facility Using Landfill Gas from Altamont Landfill in Livermore

Contractors

USA Waste of California, Inc.

Cosponsors

SCAQMD
CARB
California Integrated Waste Management Board

Project Officer

Larry Watkins

Background

The project involves the construction and development of a landfill gas to liquefied natural gas (LNG) plant facility at the Altamont Landfill located near Livermore, California, which will be used to fuel WM's fleet of LNG vehicles in California and to supply other customers. A joint venture (High Mountain Fuels, LLC) between Waste Management (WM), the largest provider of solid waste collection, recycling and disposal services in North America, and Linde BOC, one of the largest industrial gas and cryogenics companies in the world.

Project Objective

The objective of the project was the design and installation of an LNG production facility at WM's Altamont Landfill in Livermore CA, through the development of an onsite purification and liquefaction facility for the recovery and conversion of renewable biomethane to LNG as a transportation grade fuel. It represents the largest demonstration of onsite purification and liquefaction of landfill gas recovery in North America and further exhibits the technical and economic viability of this renewable resource as a transportation fuel. By providing an additional LNG source for WM's LNG fleet and other California LNG fleets, the project helps expand the supply of lower carbon, renewable LNG and promotes overall LNG consumption in the South Coast Air Basin and other areas in California.

LNG Facility at WM's Altamont Landfill

Technology Description

The process implemented at the project facility uses a multi-stage gas clean-up approach which targets the removal of chemical families of compounds rather than "key" species. The technology processes raw landfill gas by removing unwanted components such as carbon dioxide, nitrogen, hydrogen sulfide, moisture, and reactive compounds. Third party patented liquefaction technology is then used to liquefy the processed landfill gas into LNG. Additional methane recovery from the landfill co-produces all power requirements for the system (gas and refrigeration compressors, controls, transfer pumps, auxiliaries, etc.) through onsite electricity generation. The final product is stored on-site in an insulated cryogenic tank until it is trucked via 10,000 gallon capacity tanker truck to existing LNG dispensing locations within California.

Status

Construction of the plant facility was completed and in September 2009 it first began commercial operation successfully producing LNG. At that time the plant was still in start-up phase, with certain operational debugging activities ongoing.

It was anticipated the facility would operate at 60% of capacity during the first year.

Preliminary engineering for the site was completed in December 2007 and the site design and gas analysis were completed in August 2008. The majority of the equipment was delivered and installed in March and April of 2009. Commissioning of the facility began in May 2009. Feed gas was introduced in mid-July 2009 and the plant first began producing LNG in September 2009.

Once commissioned, USA Waste of California was required to provide the SCAQMD five years of annual reporting including throughput through CY 2013 as below:

Volume (gallons)	
2009	375,363
2010	1,951,448
2011	2,687,108
2012	2,739,365
2013	2,128,144

Results

At the commencement of the project, the primary goal was to construct an LNG production facility with an operational capacity to consume approximately 2,600 scfm of collected landfill gas and produce 13,000 gallons per day of LNG. The technical goals were to remove contaminants to purify the methane fraction, liquefy it by cooling to cryogenic temperatures, storing on-site, and supplying LNG to WM's waste hauling fleet and other customers. These goals will all be met by the facility. The initial volume of LNG produced by the facility appears to yield a high quality transportation fuel, with methane content greater than 98%. The rated capacity of the plant should meet or exceed the performance specifications when running at full capacity. The facility will continually collect performance data for the systems operation.

Benefits

Use of this LNG as a transportation fuel will displace 2.8 million gallons of diesel fuel consumption and reduce CO2 emissions by 31,800 tons per year, while lowering NOx and particulate emissions and helping reduce reliance on foreign petroleum imports. WM plans to use the LNG from this facility to fuel a portion of its waste collection fleet, thereby offering a true "closed loop" sustainability solution. Moreover, by expanding the supply of renewable LNG produced in California, this plant will help promote overall LNG consumption in the South Coast Air Basin and other areas of California, thereby helping to achieve California's low carbon fuel standard and its desire to reduce greenhouse gas emissions.

Project Costs

The budget to construct and commission the facility was $15.38M. Actual costs have been close to these budgeted amounts. Funding for the project was provided primarily by the High Mountain Fuels joint venture partners (WM and Linde BOC), with $300,000 in funding being provided by the SCAQMD, and an additional $1.15M provided by CARB and CIWMB collectively.

Commercialization and Applications

A brief examination of the population of landfills in California provided by the Landfill Methane Outreach Program indicates that there are between 17-36 landfills in the state that are sized to generate landfill gas quantities necessary to develop similar commercial-scale LNG facilities. Current estimates indicate that if all of the sites were developed, they would displace diesel fuel supply by approximately 250,000 gallons per day. Additionally, California's total current biomethane resources (which also includes waste water treatment plants, and dairy and swine sources) are estimated at 125 bcf, which could displace over 900 million gallons of diesel fuel a year if converted to LNG and used as a transportation fuel. If only 10% of this biomethane is used for vehicle fueling, it could offset California's need for imported diesel fuel by over 90 million gallons per year, which would avoid fossil fuel CO2 emissions of 1.9 million pounds on an annual basis.

This facility will hopefully serve as a model for similar facilities in California to utilize indigenous biogas resources and displace non-renewable fossil fuels.

SCAQMD Contract #08030 **June 2014**

Repower Four Off-Road Construction Vehicles

Contractor
TNT Blanchard (formerly TNT Grading, Inc.)

Cosponsors
SCAQMD
TNT Blanchard

Project Officer
Richard Carlson

Background
Based on the California Air Resources Board (CARB) OFFROAD 2006 emission model, there were approximately 68,600 diesel-powered off-road construction vehicles in the Basin in 2006, which together produced approximately 120 tons per day of NOx and 7.5 tons per day of PM emissions. In order to reduce diesel emissions of NOx and PM, the SCAQMD provided incentive funding to operators of diesel-powered off-road construction vehicles to upgrade and modernize their fleets.

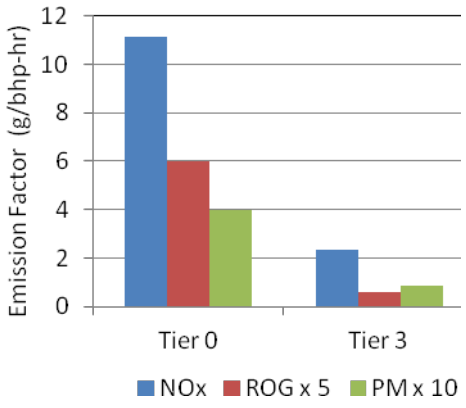
On July 13, 2007, the SCAQMD Board awarded a contract to TNT Grading, Inc., to repower thirteen Tier 0 diesel-powered off-road construction vehicles with new Tier 3 diesel engines in an amount not to exceed of $1,231,481 from the Clean Fuels Fund. This project was one of several funded as part of a required match for Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) projects and was administered according to the 2007 Carl Moyer Program Guidelines.

Project Objective
The purpose of this contract was to reduce emissions from diesel-powered off-road construction vehicles by repowering them to meet CARB Tier 3 emission standards, the most stringent at that time.

Technology Description
A repower is the replacement of the existing engine with a new lower emission CARB certified-engine. The repower consisted of removing the existing engines and accessory components and installing new engines and associated accessory components. The repower was performed by an independent Caterpillar mechanic using Caterpillar factory engines and accessories along with specially fabricated components (brackets, wire harnesses, hoses, etc.) needed to fit the new engine into the old vehicle.

Repower is typically more cost effective in reducing emissions than replacing a vehicle, due to the higher cost of a new vehicle compared to just a new engine. The emission reduction from Tier 0 to Tier 3 is 78% for NOx and PM and 90% for ROG (reactive organic gases). The following chart illustrates the difference in emissions between Tier 0 and Tier 3 engine emission factors.

Carl Moyer Program Emission Factors



Status
Four scrapers of the type shown below were repowered in 2007 and 2008. Beginning in 2008, construction activity was substantially reduced in the Southern California region due to the severe economic recession. As a result, the contractor did not repower the remaining off-road construction vehicles. The unused contract funds

were returned to the Clean Fuels Fund for use on other projects.

Caterpillar 657B Scraper Repowered to Tier 3

Results

The repowered vehicles were inspected to confirm that the repower was completed properly, the old engines were functionally destroyed, and the repowered equipment was fully operational.

Benefits

The emission benefit of the repowers was calculated according to the Carl Moyer Program Guidelines. The Tier 3 engines in the four repowered scrapers were estimated to reduce emissions by 23 tons/year NOX+ROG and 0.81 tons/year PM compared to the original Tier 0 engines.

Project Costs

A total of $377,801 from the Clean Fuels Fund was paid to the contractor. In addition, the contractor paid another $124,336 for a total project cost of $502,137. A total of $853,680 was returned to the Clean Fuels Fund as a result of the reduced project scope.

Commercialization and Applications

Repower technologies using Tier 3 diesel engines for off-road construction vehicles are commercially available for a variety of off-road vehicles. However, the current emission standard is Tier 4, and repowers using Tier 4 engines are generally not technically feasible in older off-road vehicles. Incentive funds are now mainly used for new equipment replacement projects meeting Tier 4 standards.

SCAQMD Contract #08101 **June 2014**

Upgrade Existing Full Public Access CNG Fueling Station in Whittier

Contractor
Pupil Transportation Cooperative

Cosponsors
SCAQMD
Pupil Transportation Cooperative

Project Officer
Larry Watkins

Background

Pupil Transportation Cooperative (PTC) is a state sanctioned Joint Powers Authority serving seven area public school districts in the Whittier area. The agency serves over 4,000 students daily and operates 138 school buses, 25% of which are powered by compressed natural gas (CNG). PTC uses a time-fill system to fuel its alternative fuel buses and operates a public access CNG station first built with the help of SCAQMD funding in 1998.

PTC is committed to improving air quality and providing a safe and healthy environment for its student riders by expanding its fleet of alternative fuel school buses. PTC operates in a highly polluted region bounded by Interstate 5 on the south, State Highway 60 on the north, Interstate 605 on the west and the Orange County boundary on the east. The agency qualifies for funding based in part on the area's AB 1390-Environmental Justice designation due to its low-income status and disproportionate impact caused by air pollution in the area.

Project Objective

It was the goal of this project to upgrade the agency's CNG fueling infrastructure to support its growing fleet of clean-air school buses and offer a reliable CNG fueling station for public use.

The existing ten-year old fueling infrastructure had experienced numerous maintenance failures and operational problems dating back to May 2005. In addition to jeopardizing the efficiency of the daily school bus operation dependent on the time-fill system, the public access fueling station was routinely out of order, effectively discouraging its use by operators of CNG-powered vehicles.

The upgrade was to include installing a new compressor and relegating the existing compressor system as backup; installing a new CNG fuel dispenser for the public access station; making safety modifications to the vehicle maintenance shop; and installing related electrical upgrades. Burnett & Burnette was enlisted for engineering, design and project management services for the project.

Technology Description

The new CNG public access fueling station upgrade includes a new ANGI two-hose dispenser for 3000 and 3600 psi fueling certified by the Los Angeles County Department of Weights & Measures; a new ANGI 75 scfm compressor as the primary with the existing twin 58 scfm compressors in stand-by; related electrical upgrades; and maintenance garage modifications that include removal of ignition sources and flame hazards and the installation of Scott mechanical ventilation fans in each of the three work bays and a Rel Tek gas detection and alarm system.

Status

PTC's consultant Burnett & Burnette issued a formal project completion notice based on a final inspection and acceptance on April 30, 2009, on schedule and slightly under budget. This contract was complete on June 2014 after five years of annual reporting was provided to the SCAQMD.

The capacity of the new compressor was changed from 100 scfm to 75 scfm to meet available site supply gas pressure and to conserve costs. No other significant problems with the procurement of equipment, installation and related construction activities were encountered. System upgrades have resolved the maintenance and operational problems that had plagued the system in past years. To help ensure continued trouble-free operation, PTC also switched station maintenance providers.

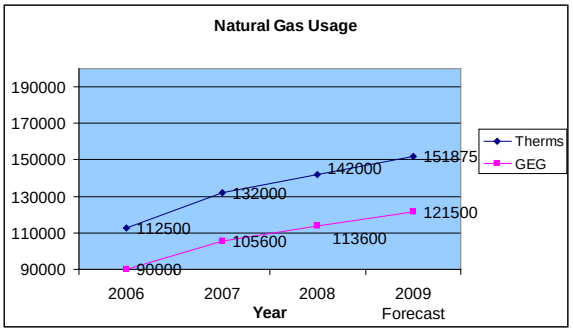
Figure 1: Public Access Fueling Station

Figure 2: Time-fill Posts Refueling School Buses

Results

As depicted in the graph below, the increase in CNG usage has exceeded the projections contained in the October 2006 grant submittal by nearly 20%. The change in the station's ownership and a renewed focus on the station's operational readiness and reliability has resulted in increased fuel throughput at the public access station beyond projections. The addition of seven CNG school buses to the PTC fleet also contributed to increased CNG throughput overall.

The upgraded fueling infrastructure, with its primary and back-up compressors, will support increased usage of the public access station, the fueling needs of a significantly expanded fleet of CNG school buses, and will serve to reduce pollution and improve air quality overall by reducing diesel fuel consumption.



Benefits

Since the submittal of the grant application, the fleet of alternative fuel school buses at the agency has increased by 25% to a total of 35 CNG buses. There has been a reduction in CO, NOx and PM of 20% - 30% when compared to tailpipe emissions from diesel-powered buses. A new customer to the public access station operates a fleet of CNG-powered trash collection trucks which has resulted in a reduction of approximately 40% in CO, NOx and PM when compared to diesel-powered refuse trucks.

An added benefit of using CNG is fuel cost savings realized by operating CNG buses instead of buses powered by higher-priced diesel fuel.

Project Costs

Original Estimated Project Costs

Funding Source	Fueling Station	Garage	Total
Infrastructure Funds from School Bus Grant	$42,846	0	$42,846
Total PTC Contribution*	$70,000	0	$70,000
SCAQMD Contract	$132,154	$55,000	$187,154
Total	$245,000	$55,000	$300,000

* Note: Funds will be recovered by PTC from future Federal Excise Tax Rebate Program proceeds and projected fuel savings due to lower costs for CNG versus diesel.

The SCAQMD contract covered up to $187,154 or 63% of project costs, whichever is less. Pupils' funding share was estimated at $112,846, or 37.6%.

Project Costs - Actual	
Compressor/Fuel Dispenser	$111,700
Panels/Controls	$24,000
Electrical	$24,300
Equipment-Garage	$38,000
Construction-CNG	$24,800
Construction-Garage	$26,900
Training	$3,000
Sub-total	$252,700
Project Management	$19,000
Total Project Costs	**$271,700**

PTC Contributions – Actual

Total PTC Contributions	100,529

Because SCAQMD Contract #08101 could not exceed 63% of the project costs, PTC was only eligible for $171,171. PTC's final funding share was $100,529 or 37%.

Commercialization and Applications

The primary applications for this project are the establishment of a reliable, on-site time-fill fueling system for the agency's school bus fleet which currently comprises 35 CNG-powered buses and the provision of a CNG public access fueling station for public and private operators of CNG vehicles in the area. The updated fueling infrastructure will support current fueling needs and planned future expansion of the CNG school bus fleet. The updated public access station will provide reliable, 24-hour access to CNG fuel for commercial fleets and private vehicles. Fuel throughput has increased steadily for the last three years as the reliability and availability of the fueling station has improved. The public access station is situated on a busy thoroughfare and it is expected that directional signage on surrounding streets and freeways will help increase station usage. The redundant compressors on the upgraded system will support expanded public access station use and increased fuel throughput.

SCAQMD Contract #09308 **November 2014**

Maintain & Manage SCAQMD's Diamond Bar Headquarters' Fast-Fill CNG Refueling Station

Contractor
Trillium CNG (formerly Pinnacle)

Cosponsor
SCAQMD

Project Officer
Phil Barroca

Background

The SCAQMD has maintained a fast-fill CNG station at its Diamond Bar Headquarters (HQ) since January 2003. Since the station's opening, SCAQMD has contracted with Trillium CNG (formerly Pinnacle) to operate, maintain and manage the station. Since commissioning in 2003, average throughput has risen by 1,000 gasoline gallon equivalents (GGEs) per month each year. The current monthly throughput rate of CNG dispensed is 14,000 GGEs per month.

Given the demand and equipment age as well as evolving operating conditions, SCAQMD recognized the need to evaluate how to move forward with its station, which serves SCAQMD, visitors doing business with the SCAQMD and the general public.

In consultation with Trillium and evaluation of state-of-the-art natural gas stations, it was estimated that it would cost nearly $900,000 to upgrade the station including replacement of compressors and dispensers. Consequently, the SCAQMD decided the optimal course would be to seek a qualified CNG fuel supplier to assume ownership of the existing CNG station by purchasing existing fueling station equipment from SCAQMD and upgrade the station with the latest state-of-the-art fueling system equipment.

Project Objective

The objective of this project was to ensure uninterrupted CNG refueling service at SCAQMD's publicly accessible CNG station in Diamond Bar while deliberations were undertaken on how best to move forward given the aging station. This project provided additional funds to Trillium CNG to extend its contract for another six months.

Figure 1: Public Access CNG, SCAQMD Headquarters, Diamond Bar, CA

Technology Description

The SCAQMD public access station utilizes a Pinnacle Systems CNG three stage ariel compressor and a proprietary two-stage, non-lubricated hydraulic intensifier compressor that delivers 400 scfm of CNG through three (3) two-hose dispensers, each with a 3600 psi and a 3000 psi delivery. The station utilizes a single tower gas dryer to reduce moisture content. Three CNG tanks provide 30,000 scf of onsite storage. Each dispenser has a credit card reader system accepting Visa, MasterCard, and Discover cards.

Status

In late 2014, the SCAQMD Board approved the release of an RFP to solicit bids from contractors interested in assuming ownership and improving the SCAQMD CNG refueling facility. The Board also authorized execution of a consecutive contract with Trillium CNG to ensure continued operation of the station while the RFP process is undertaken. This contract, originally executed in 2009 with Pinnacle before their name change, was allowed to expire so a new interim contract could be negotiated with Trillium CNG. The CNG

station is currently operating without interruption and the RFP for a new owner/operator has closed and proposals are being evaluated.

Over the ten year life of this station there has been a steady increase in throughput, averaging 1,000 GGE/month year-to-year, with the average monthly throughput standing at nearly 14,000 GGE/month. The amount of fuel used by the SCAQMD vehicles has remained fairly consistent over the ten year operation of this facility at approximately 2,000 GGE/month. Fig 2. shows the steady increase in fuel throughput during this period, signifying a steady increase in public demand for CNG in this area.

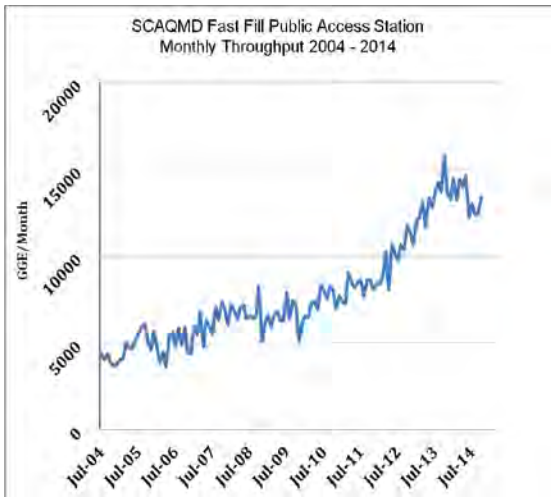


Figure 2: GGE/Month Dispensed 2004-2014

Results

Currently, there has been no disruption in the operation and service of the SCAQMD's public access CNG station. Furthermore, within a few months a new contractor should be taking over ownership and upgrading the CNG station with state-of-the-art equipment to not only meet current needs but future growth in demand.

Benefits

The benefits associated with ensuring uninterrupted operation of SCAQMD's public access CNG station is continued displacement of petroleum-based fuels and public support for natural gas vehicles. Figure 2 clearly demonstrates the continued and steadily increasing public demand for CNG in this region.

Project Costs

Funding for this project was $54,000. Costs for this project are based on a $0.60/GGE service charge by Trillium CNG; an estimated monthly throughput of 14,000 GGE/month, and up to six months of service. The current service and maintenance contract with Trillium CNG does not include electrical costs and revenue generated from this station is used to pay for the gas dispensed at this facility, the cost of the service contract, taxes and other costs directly associated with the operation and maintenance of this facility.

Commercialization and Applications

The growing demand at SCAQMD's public access CNG station parallels on a smaller scale the growing demand for natural gas vehicles ranging from passenger class personal to commercial vehicles, e.g. taxis to heavy-duty vehicles such as school buses and refuse collection vehicles. Figures 3 and 4 provide a snapshot of the average amounts of CNG dispensed and the number of individual fueling events during a 24-hour period using a Sunday through Saturday from midnight to midnight in March 2014.

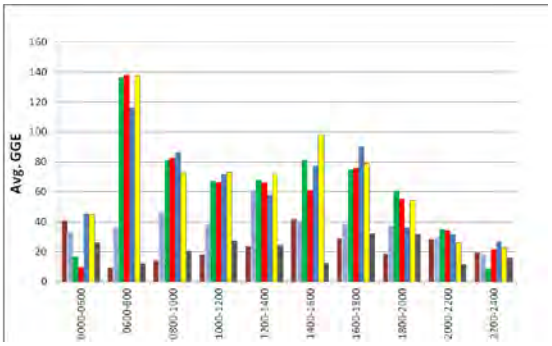


Figure 3: Avg. GGE Sun-Sat. (Mar.'14)

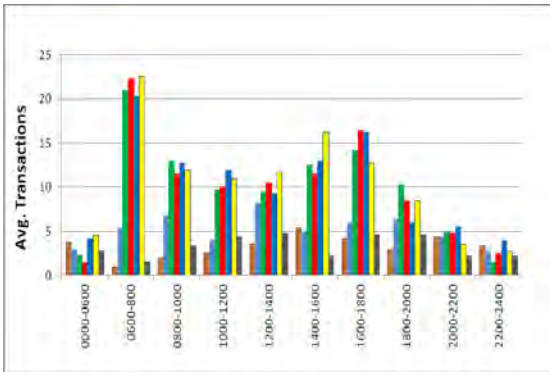


Figure 4: Avg. Fueling Episodes Sun.-Sat.(Mar.'14)

SCAQMD Contract #10034 **November 2014**

Install Two LNG Fueling Stations at the Ports

Contractor
California Cartage Company

Cosponsors
Port of Los Angeles
Port of Long Beach
SCAQMD

Project Officers
Dipankar Sarkar/Larry Watkins

Background
California Cartage Company (Cal Cartage) has facilitated the deployment of 320 LNG alternative fuel heavy duty class 8 drayage tractors for use in the Southern California Ports of Los Angeles and Long Beach. These trucks have gone into service over the last two years as part of the San Pedro Bay Clean Truck Program.

Since 50% of the Cal Cartage truck fleet operates on LNG with limited retail availability, the possibility of fuel supply disruption was of great concern, especially since at the time there was only one LNG dispensing facility in the entire port area. Consequently, Cal Cartage applied for and was awarded funding from the SCAQMD to install two 6,000 gallon LNG storage and dispenser units in separate truck yard facilities. It is notable to recognize that while Cal Cartage was undergoing its alternative fuel installations this capacity increased to four dispensing facilities in the port area.

Project Objective
The overall objective of this project was to increase the stability of the LNG supply to the overall port drayage fleet. This objective could be achieved by installing two LNG storage and dispenser units at two of Cal Cartage's truck yard facilities. The first dispenser would be installed at 6150 Paramount Blvd. in Long Beach; the second, at 1500 East Lomita in Wilmington.

Technology Description
The two LNG storage and dispensing units are built by Chart Industries. They are self-contained skid mounted tanks and dispensing systems with point of sale card readers to control inventory and record sales. In addition, these self-contained dispensers have all necessary methane and fire detection sensors. Refurbishment of these two units included new pumps, metering sensors, PLC and control cabinet, valves rebuilt and all controls rewired.

Figure 1: Completed Project Paramount Blvd.

Status
Cal Cartage contracted with Burnett & Burnett on April 27, 2010 to complete plans, drawings and permits for both Lomita and Paramount. Final permits were approved and construction started on the Paramount project on March 11, 2011. The Lomita Project was approved and started on July 7, 2011. General Physics was contracted to refurbish both QRS units on April 26, 2010. Work was completed on March 11, 2011.

Installation of the Long Beach unit was completed and signed off in February 2012; the Lomita unit was installed and signed off in early March 2012. Both systems are now up and running. The SCAQMD requires five years of annual reporting commencing one year after commissioning so this contract ends in April 2017.

Under the SCAQMD's contract annual reporting on the station operation and throughput is required until early 2017.

Results

As a result of this project and the help from the SCAQMD and other partners, Cal Cartage has increased the use of natural gas vehicles over the last two and one-half years. The two LNG dispensers added to the local alternative fuel infrastructure are an important component to the continued successful operation and deployment of LNG trucks in the ports and surrounding operating environment. These two units bring added consistency and reliability to LNG availability in the Southern California Port area.

For the first six months of operation the two units have dispensed 912,982 gallons or 748,645 therms.

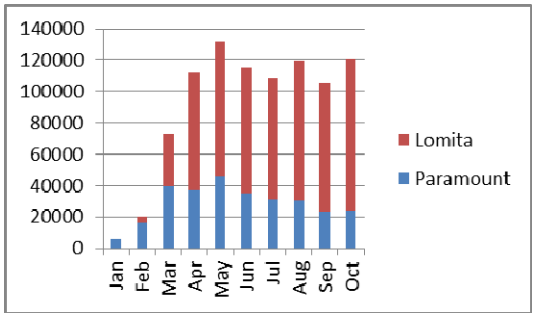


Figure 2: Volume Throughput Jan-Oct 2012

Benefits

At the time of this application there was only one LNG fueling facility available for port drayage trucks using LNG. Wait times for fuel at that location was up to two hours as LNG trucks must be fueled every day. Cal Cartage had 132 trucks and there were about 100 other LNG trucks in the port. There was real concern as to the future availability and stability of a consistent fuel supply. California Cartage Company decided to host two LNG dispensers at two of their truck yards to increase the infrastructure and availability of fuel. Since then the LNG fleet has grown to about 900 trucks total with Cal Cartage having over 300 in use today. Counting the two dispensers at these facilities there are now a total of six locations to get LNG for alternative fuel trucks.

The following chart demonstrates the increasing expansion of LNG fleets in the port area.

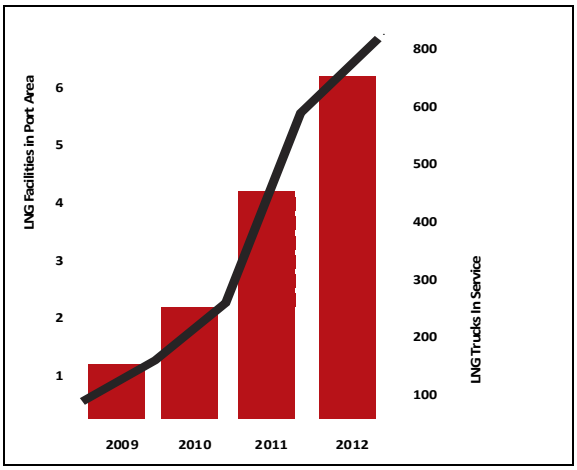


Figure 3: LNG Facilities vs Truck Service in Port Area

The additional LNG infrastructure afforded the industry the confidence to place additional LNG trucks into service at the two ports. As a result, the total LNG truck count is upwards of 900 LNG trucks. The air quality benefit of operating the LNG trucks versus diesel is as follows: 20% less GHG, 97% less carbon, and 1,000 tons per year in NO_X reduction.

Project Costs

Original project costs were estimated at $1,193,391. Cal Cartage applied for and was granted $1,065,000 from the SCAQMD toward this project. Actual costs of the completed project were $1,207,601, funded as follows:

SCAQMD	$532,500
Port of Los Angeles*	$266,250
Port of Long Beach*	$266,250
Cal Cartage	$142,601
Project Total	**$1,207,601**

*The Ports' funds were pass-through via SCAQMD's contract.

Commercialization & Applications

This project, although not new technology itself did support the growth of the LNG truck population in the port area. Additionally the project demonstrated to other potential LNG truck users that there is an opportunity to place fuel anywhere needed to support a fleet of low-emission alternative fuel trucks.

SCAQMD Contract #10055 **December 2014**

Install New Public Access CNG Refueling Station in Santa Ana

Contractor
Waste Management

Cosponsor
SCAQMD

Project Officer
Larry Watkins

Background
Waste Management owns and maintains a facility for waste hauling trucks located at 1800 S. Grand Avenue in Santa Ana, California. The company planned for the installation of a compressed natural gas (CNG) fueling station, and received emergency funding assistance from the SCAQMD to help defray the capital costs for installing a new fast-fill fueling island that would be made accessible to other public and private vehicles during normal business hours at that location.

Project Objective
Waste Management's objective was to install and operate a compressed natural gas fueling station at its location in Santa Ana, California.

The purpose of this project is to reduce emissions from heavy-duty refuse collection vehicles by installing the necessary infrastructure to fuel extremely low-emission natural gas vehicles. Waste Management will operate the compressed natural gas (CNG) station at its facility in Santa Ana, California.

Figure 1: Interior View of Completed Fast-Fill Fueling Island

Technology Description
This project involves construction of a CNG station with the following new equipment and components:

- Three compressors, skid mounted
- Natural gas storage vessels
- Two 2-hose fast-fill dispensers capable of providing 3,600 psig fill pressures and certified by the California Bureau of Weights and Measures
- Regenerative dryer capable of meeting SAE J1616 moisture requirements
- Development of a separate fueling island area requiring the construction of a "U" shaped access area, the fuel islands and associated lighting, canopy and security systems
- Relocate existing refuse vehicle entry, security gate and fencing to allow entrance and exit for public and private fleet vehicles.

All equipment meets API, ASME, ISA, AGA, NEC, ISA and NFPA requirements.

Status
Waste Management has completed construction of the fast-fill CNG station. The station has been operational since August 24, 2011.

Under the scope of this agreement with the SCAQMD, Waste Management constructed the CNG refueling station, including components to provide public and private fleet access with new equipment and components.

Waste Management was also responsible for the operation of the station for at least five years after installation and start of dispensing fuel, including providing annual reports and throughput data to SCAQMD through the life of this Contract. This administrative task was contracted to Gladstein, Neandross & Associates, Inc. (GNA).

Results
The station will be responsible for cost-savings due to the lower cost of natural gas as a fuel, as

well as for the reduction of emissions that are ordinarily caused by diesel.

After construction of the fast-fill CNG refueling station was completed, it was made accessible to all public and private fleets. Some examples of fleets currently using the station include: the City of Santa Ana, Orange Cab, Yellow Cab, Santa Ana Public Works, CEVA Logistics, and the Dollar Store. Waste Management shall operate the station for at least five (5) years.

Annual throughput was anticipated around 100,000 GGEs. Actual throughput for the first three years was as follows:

Throughput in GGEs	
9/1/11-8/31/12	817,471
9/1/12-8/31/13	910,389
9/1/13-8/31/14	836,575

Benefits

The successful installation of this fueling station will provide the necessary infrastructure to fuel natural gas vehicles operated by Waste Management and other public and private fleets. Natural gas is a clean, safe and abundant fuel that is domestically produced, with 99 percent used in the U.S. coming from North America.

Natural gas contains less carbon than any other fossil fuel and thus produces lower carbon dioxide (CO2) and greenhouse gas (GHG) emissions per year. In fact, natural gas vehicles produce 20-30 percent less greenhouse gas emissions than comparable diesel vehicles. Natural gas is less expensive than diesel, costing less per energy unit.

Waste Management is quite familiar with the many benefits of natural gas, and maintains the largest fleet of heavy-duty natural gas trucks in North America. The fleet is currently comprised of over 1,000 natural gas vehicles. Approximately 80 percent of these natural gas trucks operate in Southern California. Waste Management is dedicated to doing business in the most sustainable way possible, as well as offering its customers more ways to live green via the air quality benefits of CNG.

Project Costs

The total cost of the new CNG fueling station was $1,665,514. Waste Management was awarded $250,000 from the SCAQMD as cost-share for the fast-fill public access portion of the CNG station project. All other costs were paid by Waste Management.

Commercialization and Applications

This project will provide the additional necessary infrastructure needed in order to make alternative fuels such as natural gas a commercially available and preferable fueling option. Commercial fleet drivers and owners of CNG–equipped vehicles can now fuel at Waste Management's new Santa Ana station.

Figure 2: Front View of Fast-Fill Island

Additionally, public and private fleets will be encouraged to switch to natural gas as additional infrastructure is available due to both the environmental and cost-saving benefits. This project is also beneficial to those vehicles subject to Rule 1193, which requires public and private solid waste collection fleets having exclusive contracts with public entities and greater than 15 trucks to purchase or replace existing vehicles with alternative fuel vehicles when procuring vehicles.

Waste Management remains committed to reducing emissions and creating cleaner solutions, such as the construction of alternative fuel natural gas fueling stations for its fleet and others within the neighborhoods where Waste Management's employees work and live.

SCAQMD Contract #11561 **October 2014**

Purchase & Deploy 34 CNG Shuttle Vans

Contractor
SuperShuttle International, Inc.

Cosponsors
SCAQMD
SuperShuttle
U.S. Dept. of Energy

Project Officer
Phil Barroca

Background
In 2009, the SCAQMD Board recognized funding from the U.S. Department of Energy (DOE) Clean Cities Petroleum Reduction Technologies for the Transportation Sector, and also provided match funds of $750,000 from the Clean Fuels Fund for alternative fuel-powered airport ground transportation projects.

Project Objective
The project objective is to increase the use of alternative fuel and reduce petroleum dependency in the on-road transportation sector through the deployment of natural gas fueled airport ground transportation vehicles operating in the South Coast Air Basin. The project provided co-funding with SuperShuttle to purchase and deploy thirty-four (34) Ford E-350 passenger vans converted to operate exclusively on compressed natural gas (CNG) for a minimum of two years.

Technology Description
The project involves the purchase of thirty-four (34) new Ford E-350 Super-Duty XLT 12-person vans converted to operate on dedicated CNG. The base vehicle is equipped with an OEM installed gasoline-powered engine, specifically a Ford 5.4-liter V-8, Flex Fuel engine with 16 valves, electronic fuel injection, 255 rated h.p., 33 gallon gasoline fuel capacity, with a city / highway rated fuel economy of 12 and 16 miles per gallon, respectively. The vehicle is classified as medium-duty with a gross vehicle weight rating (GVWR) of 8,000-lbs. The base, gasoline-powered vehicle is CARB-certified and emission categorized as an ULEV. Following conversion to dedicated CNG, the vehicle is CARB-certified and emission categorized as a SULEV. Each vehicle has 20 gasoline gallon equivalents (GGE) of on-board CNG fuel capacity and three Type 1 CNG tanks.

Status
All thirty-four (34) Ford E-350 Super Duty XLT vans were purchased and all 34 vehicles converted to dedicated CNG with a CARB-certified conversion system. All CNG conversion systems were manufactured by BAF Technologies and were installed at BAF in Dallas, TX. The purchase, conversion, and subsequent deployment of these vehicles occurred in two phases. The first phase included twenty (20) 2011 model year vehicles, and the second phase included the remaining fourteen (14), all 2012 model year vehicles. The first vehicle was deployed in the fourth quarter of 2011, with additional vehicles phased into service over a one-and-a-half year period. Full deployment of all 34 vehicles was achieved in the second quarter of 2013. All vehicles were used to provide ground transportation passenger shuttle service to and from Los Angeles International Airport (LAX), Long Beach Airport, Ontario International Airport, John Wayne Orange County Airport and various destinations extending as far as 140 miles from LAX. Per DOE requirements, the project requires quarterly reports on both fuel usage and mileage for each vehicle.

Ford E-350 Super Duty XLT Vans

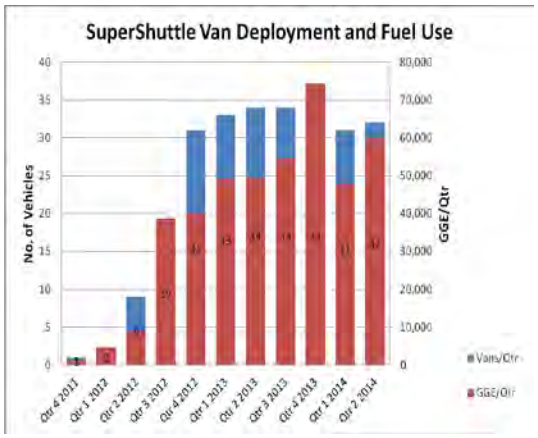


Table 1 – Van Deployment and Fuel Use

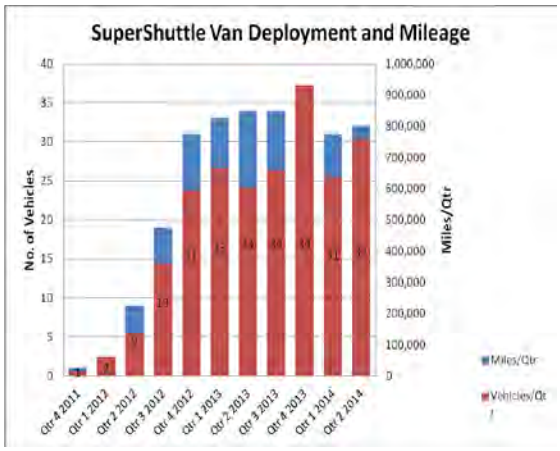


Table 2 – Van Deployment and Miles

Thirty-four vehicles were deployed over a two year period; and all 34 were in operation concurrently from the second quarter of 2013 through the fourth quarter of 2013. The last quarter of 2013 was also the highest quarter of miles accrued during this project.

Results

During the seven quarter period in which all or most of the vehicles were in continuous operation, the vehicles collectively amassed more than 4.6 million miles, and displaced more than 400,000 gallons of gasoline. Vehicle miles ranged from 66,000 to 230,000 miles over the project life; for the 34 vehicles the average vehicle miles travelled was 135,000 miles, and the average fuel consumed per vehicle over the project life was 9,750 GGE, resulting in a fuel consumption rate of 14 miles per gallon.

The 2012 Ford E-350 Super-Duty XLT van is classified as a medium-duty vehicle with a GVWR of 8,000-lbs. Based on CARB Executive Orders and the certified emissions for both the Ford OEM gasoline-powered version of this vehicle and the BAF CNG-powered version of this vehicle, the CNG-powered vehicle emits 47% less emissions in terms of hydrocarbon + NOx emissions. All 34 vehicles produced over 700 lbs per year less emissions than their gasoline counterparts.

Benefits

Relative to its gasoline-powered counterpart, the CNG version of this vehicle is 47% cleaner in hydrocarbon + NOx emissions. The vehicles are also helping to displace the use of petroleum based fuels. The full benefits of this program are yet to be determined as these vehicles are expected to produce increased benefits over their full life. Based on full-life projections of 200,000 to 300,000 miles per vehicle, these 34 vehicles collectively will displace the use of 480,000 to 720,000 gallons of gasoline over this projected lifetime/usage.

Project Costs

The total amount spent on vehicle purchase and conversion to dedicated CNG is calculated at $1,431,894. The total funding award to this project was $464,900 comprising $123,000 from the DOE and $341,900 from the SCAQMD. A Final Report on this project has been completed and is on file.

Commercialization and Applications

The technology utilized in this project has been successfully demonstrated. The expected outcome of this project is to increase awareness and viability of using alternative fuel vehicles and to promote the use of non-petroleum based fuel sources, and the concurrent displacement of petroleum based fuels.

SCAQMD Contract #12259 **October 2014**

Demonstrate Natural Gas-Powered Police Pursuit Vehicle

Contractor
A-1 Alternative Fuel Systems

Cosponsor
SCAQMD

Project Officer
Phil Barroca

Background
In November 2011, the SCAQMD Board approved $65,000 from the Clean Fuels Fund to lease and demonstrate with local police jurisdictions a new 2011 dedicated compressed natural gas (CNG)-powered Ford Crown Victoria (FCV) Police Pursuit Vehicle (PPV). The Contractor on this project was A-1 Alternative Fuel Systems (A-1), based in Fresno, CA. A-1 performed the conversion of the vehicle to CNG, coordinated with Wondries (Alhambra, CA) on a two year lease and maintenance of the vehicle, and with 10-8 Retrofit (Ontario, CA) on the various vehicle up-fittings. At the outset of the program, fifteen (15) cities and police jurisdictions expressed an interest in demonstrating this vehicle.

Project Objective
The project objective was to provide local law enforcement agencies the opportunity to demonstrate a fully equipped police pursuit vehicle that is powered by dedicated CNG to both reduce emissions and to potentially reduce department operating costs. The demonstration vehicle was built on the same platform as the ubiquitous gasoline FCV used by law enforcement agencies for many years and prepared for regular deployment and routine police service. The police departments and officers demonstrating this vehicle were asked to subject the CNG vehicle to the same rigors as their regular PPV and to evaluate and assess the CNG vehicle's performance. Officers were provided with a prepared survey to score various parameters, and to provide comments. The survey was considered critical to better assess the vehicle needs of police departments and their officers.

Status
The contract to demonstrate the CNG PPV was executed in April 2012. The FCV PPV was secured from Wondries Ford and the vehicle was converted to dedicated CNG by A-1 in June 2012. The vehicle was transferred to 10-8 Retrofit for up-fitting of the hard rear seat, light bar and siren, push bumper, prisoner screen, shotgun rack, and multijurisdictional radio. All up-fits were completed by October 2012. The first city to demonstrate the vehicle was Monterey Park, followed by Sierra Madre, Pomona, San Fernando, and Orange. The vehicle was also showcased at the Alt Fuel Expo in Santa Monica in September 2013. The demonstration program concluded in December 2014; the vehicle was returned to Wondries Ford with approximately 6,000 miles, for potential sale.

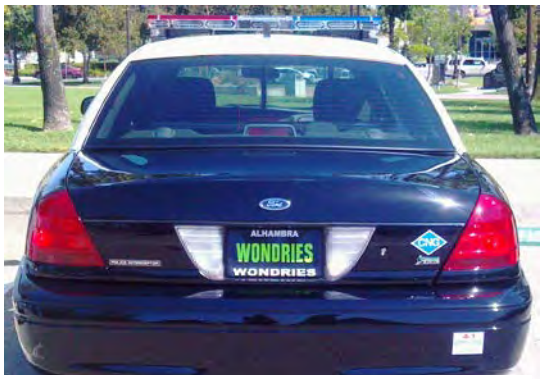


Figure 1: 2011 CNG FCV Police Pursuit Vehicle

The demonstration vehicle was a new 2011 gasoline-powered Ford Crown Victoria (FCV) that was converted to dedicated CNG-power using an EPA-certified Evotek (Impco Technologies) CNG conversion system with a CARB equivalent emission ranking of LEV2 SULEV. The 2011 FCV is equipped with a 4.6L V8 flex fuel engine with 250 h.p. and 297 lb-ft. torque. The gasoline vehicle is equipped with a 19 gallon fuel tank; an estimated city/highway fuel economy of 14/21 mpg, and is CARB certified LEV 2 ULEV. The CNG-powered vehicle's gasoline tank was

removed and initially replaced with two 3.4 GGE tanks in the trunk, and two 2.7 GGE tanks under body. An additional 2.7 GGE tank was added in the trunk to provide extra use and range bringing the total CNG fuel capacity to 14.9 GGE. The net added weight to the vehicle, primarily from the CNG tanks, was 450-lbs. The added weight and positioning of the fuel tanks in the trunk area prompted comments about "bottoming-out" of the rear of the vehicle and the subsequent installation of heavy-duty rear springs. Fuel economy estimates for the CNG version averaged 16 mpGGE.

Results

The dedicated CNG-powered police pursuit vehicle was successfully demonstrated to five police departments and at least nineteen police officers within the jurisdictional boundaries of the SCAQMD over a two-year and two-month period. The vehicle accumulated approximately 6,000 miles. Survey scoring ranged from 1 (poor) to 5 (excellent) for overall satisfaction, drivability and performance, fuel economy, and recommending the vehicle. The vehicle scored an overall 2.6 and a 2.95 for drivability and performance. Comments included lack of trunk space, frequency of refueling, lack of power relative to the gasoline version, stalling and rear suspension issues.

The City of Monterey Park cited the need for more fuel capacity, and that the rear of the vehicle was "bottoming-out" on driveways. In response to fueling needs, an additional 2.7 GGE CNG tank was installed by A-1 (not Clean Fuels funded). Following similar rear suspension comments from the City of Sierra Madre, the vehicle was retro-fitted with heavy-duty rear coil springs by Wondries. The vehicle was subsequently tested again by the sergeant at Monterey Park along with the project officer. The sergeant subjected the vehicle to: acceleration tests, braking tests, high speed right-angle and slalom turns, various grade transitions both up-hill and down-hill and at various speeds, and transmission changes from drive to stop to reverse, to test for engine stalling.

The acceleration test occurred on a stretch of public road and the vehicle achieved 95 mph. The officer noted that the vehicle still lacked acceleration above 70 mph compared to the gasoline FCV and attributed that to less "high-end" torque than the gasoline-powered model. The sergeant noted that the vehicle's braking from high speed was good and that the vehicle's handling had improved significantly from the prior demonstration and performed notably well in executing all turns.

The vehicle was subjected to various grade transitions at various speeds, including a slow speed grade transition on an upward exit ramp from an underground parking garage (the officer recalled this same grade transition caused the vehicle to bottom-out during the preliminary demonstration). The vehicle was also driven at higher speeds (25-30 mph) through grade transitions from flat (0% grade) to an immediate upward pitch of 10% -15% grade. The Sgt. was unable to cause the vehicle to "bottom-out" at any time during the test drive. The vehicle was subjected to various grade transitions at extreme speeds, but presumably indicative of what is required of police pursuit vehicles operating under real-world conditions. The officer also subjected the vehicle to numerous "reverse-tests" to see if the vehicle stalled when the transmission was changed from drive to reverse (after bringing the vehicle to a complete stop). At no time during the "reverse-tests" did the engine stall.

Benefits

Relative to its gasoline-powered counterpart, the CNG version of this vehicle is more than four times cleaner in hydrocarbon + NOx emissions and use of CNG helps to displace the use of petroleum based fuels. Costs of CNG relative to gasoline are available. The full benefits of this program are yet to be determined.

Project Costs

Funding for this project was $65,000; actual costs will slightly under this amount. Costs included a two-year vehicle lease, the conversion from gasoline to dedicated CNG, the up-fits from a base model to a fully deployable police vehicle, e.g. lights and sirens, push bar, radio, etc., vehicle maintenance, vehicle refueling (if unavailable), and vehicle demonstration.

Commercialization and Applications

The technology utilized in this project has been successfully demonstrated. The expected outcome of this project is to increase awareness and viability of using alternative fuel vehicles and to promote the use of non-petroleum based fuel sources.

SCAQMD Contract #10696 **December 2014**

Optimize & Demonstrate Selective Catalytic Regenerating Technology (SCRT) for NO_x & PM Emissions Control

Contractor
Johnson Matthey, Inc.

Cosponsors
U.S. EPA
SCAQMD

Project Officer
Jeff Cox

Background

There is a great deal of test data and field experience that demonstrate the performance and reliability of passive technologies for the reduction of PM. There has been little data collected that demonstrates the performance and impact on fleet operations of the newer retrofit NOx reduction technologies using SCR. A demonstration of the emission reduction and the impact on fleet operations of these new technologies is necessary to evaluate the potential impact of the retrofit technology.

Project Objective

This project was undertaken to demonstrate the emission reduction possible with a retrofit 4-way emission control technology on sixty-nine (69) heavy-duty diesel trucks operating in the South Coast Air Basin. Since SCR based NOx reduction is affected by the exhaust temperature profile of the application, special attention was paid to the relationship between system performance and exhaust temperature. Of secondary concern is the impact that such a technology will have on a fleet from an operation and maintenance standpoint.

Technology Description

Johnson Matthey (JM) has developed a product that combines their Continuously Regenerating Technology (CRT®) with Urea based Selective Catalytic Reduction (SCR) to be retrofit on Heavy Duty Diesel vehicles. The SCRT consists of several subsystems; CRT, SCR Catalyst module and urea dosing system. The CRT was previously verified by CARB as a level 3 PM control device (>85% reduction) that also meets the 20% NO2 requirement for 1998-2002 MY heavy duty diesel engines. The SCRT system uses NH3, carried on the vehicle as urea, to reduce NOx over a vanadium based SCR catalyst. The precise air assisted injection of urea is performed using an OE dosing pump controlled by an ECU developed by JM.

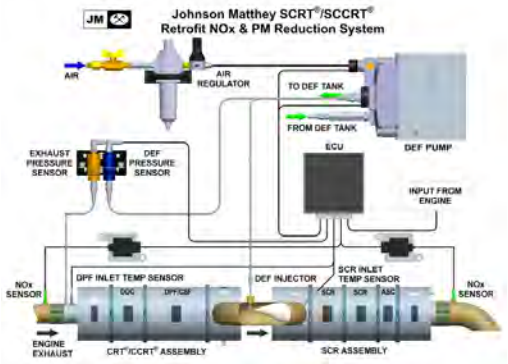


Figure 1: System Schematic

Status

The phases of this project were:

- 38 systems were installed and operated on trucks within five fleets. The trucks were equipped with Detroit Diesel Series 60, Cummins ISM, Mercedes-Benz OM460LA, and Navistar DT466E/HT engines built between 1998 and 2002.

Figure 2: SCRT Typical System Installation

- Data monitoring on select trucks.

- Chassis Dyno Emissions Testing that was originally part of the program was not performed.
- CARB Verification
  A CARB test plan was completed and submitted on September 15, 2010 in reference to a passive diesel particulate filter plus urea-based SCR. There was an SCR catalyst formulation change that occurred during the program. All program field installations were vanadium SCR.

Results

Emissions data was gathered using NOx sensors to compare system out and engine out NOx levels during actual operation. The daily operational NOx reduction was as high as 78% as seen below.

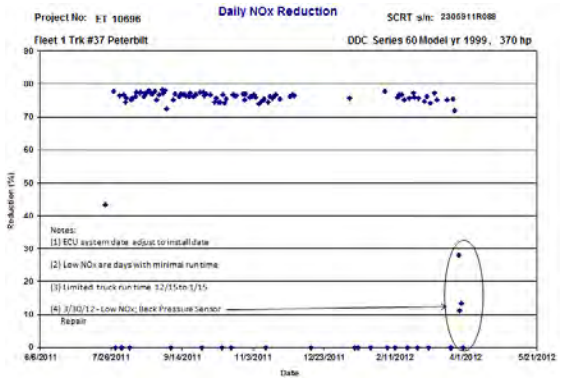


Figure 3: Daily NO_x Reduction Graph - 569 Hours of Operation

Other information generated by the project included:

- Verification that 70% NOx reduction can be achieved with a CRT inlet temperature over 240°C for 40% of the operating time.
- Some earlier model year engines did not meet requirements for J1939 CAN Network availability.
- Wire splices in the electrical harness had failure issues during installation where harness routing had aggressive bend radius during installation.
- A universal Class 8 system bracket design was integrated on all of the participating vehicles.
- DEF connections (flareless tube, pipe and JIC fittings) from tank to pump proved to be a challenge at initial system commissioning requiring some post installation service downtime.

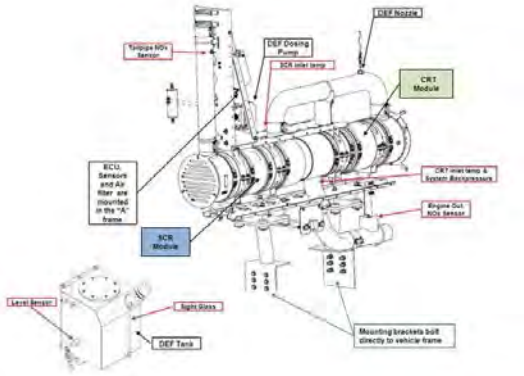


Figure 4: Vehicle Integration Application Schematic

- Calibration of DEF level sensor at installation was not always accomplished requiring some post installation service downtime.
- The installation location and orientation of the tailpipe NOx sensor was demonstrated as un-reliable in some installations.

Benefits

Besides the percentage of NOx reduction shown, the data gathered during this program was able to show that some applications could remove as much as 4.1 lbs. of NOx per daily average.

Project Costs

The contract executed for this program was in the amount of $2,300,000. The U.S. EPA provided funding in the amount of $2,000,000 and SCAQMD provided $300,000. The program was subsequently reduced in scope from 69 to 38 retrofits and chassis dynamometer testing was not performed. Consequently, final program costs totaled $1,561,181; thereby, de-obligating $738,819 from the contract.

Commercialization and Applications

This demonstration program identified areas in the system that needed improvement like the wiring harness, DEF line connection methods, and tailpipe NOx sensor orientation to increase the system reliability. The universal class 8 bracket design system behind the vehicle cab integrated well with various over-the-road bulk delivery applications. The universal bracket design allowed for the system to be assembled with common parts with better volume purchasing potential.

SCAQMD Contract #10697 **December 2014**

Optimize & Demonstrate Selective Catalytic Continuously Regenerating Technology (SCCRT) for NO_x & PM Emissions Control

Contractor
Johnson Matthey, Inc.

Cosponsors
U.S. EPA
SCAQMD

Project Officer
Jeff Cox

Background

There is a great deal of test data and field experience that demonstrate the performance and reliability of passive technologies for the reduction of PM. There has been little data collected that demonstrates the performance and impact on fleet operations of the newer retrofit NO_x reduction technologies using SCR. A demonstration of the emission reduction and the impact on fleet operations of these new technologies is necessary to evaluate the potential impact of the retrofit technology.

Project Objective

This project was undertaken to demonstrate the emission reduction possible with a retrofit 4-way emission control technology on sixty-nine (69) heavy-duty diesel trucks operating in the South Coast Air Basin. Since SCR based NOx reduction is affected by the exhaust temperature profile of the application, special attention was paid to the relationship between system performance and exhaust temperature. Of secondary concern is the impact that such a technology will have on a fleet from an operation and maintenance standpoint.

Technology Description

Johnson Matthey (JM) has developed a product that combines their Catalyzed Continuously Regenerating Technology (CCRT®) filter with Urea based Selective Catalytic Reduction (SCR) to be retrofit on Heavy Duty Diesel vehicles. The SCCRT consists of several subsystems; DOC, CSF, SCR Catalyst module and urea dosing system. The CCRT filter technology was previously verified by CARB as a level 3 PM control device (>85% reduction) for 1994-2006 MY heavy duty diesel engines. The SCR system uses NH3, carried on the vehicle as urea, to reduce NOx over a non-vanadium based SCR catalyst. The precise air assisted injection of urea is performed using an OE dosing pump controlled by an ECU developed by JM.

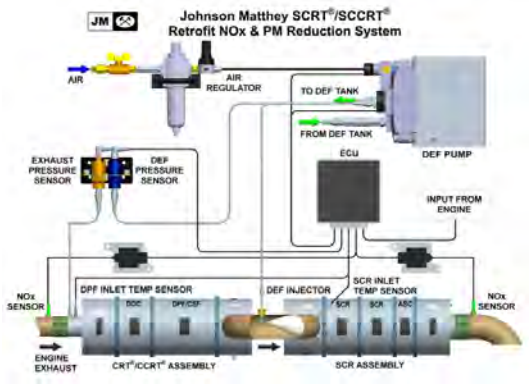


Figure 1: System Schematic

Status

The phases of this project were:

- 69 systems were installed and operated on trucks within two (2) fleets. The trucks were equipped with Cummins ISX and Mercedes-Benz MBE4000 engines built between 2005 and 2006.

Figure 2: SCCRT Typical System Installation

- Data monitoring on select trucks.

- Chassis Dyno Emissions Testing that was originally part of the program was not performed.
- CARB Verification
  A CARB test plan was completed and submitted during the program on November 15, 2011 in reference to a passive diesel particulate filter plus urea-based SCR.

Results

Emissions data was gathered using NO_x sensors to compare system out and engine out NO_x levels during actual operation. The daily operational NO_x reduction was as high as 90% as seen below.

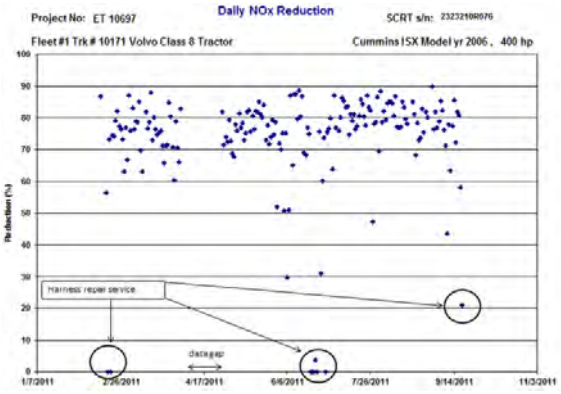


Figure 3: Daily NOx Reduction Graph – 1,260 Hours of Operation

Other information generated by the project included:

- Verification that 70% NO_x reduction can be achieved with a CRT inlet temperature over 240°C for 40% of the operating time.
- Wire splices in the electrical harness had failure issues during installation where harness routing had aggressive bend radius during installation.
- A universal Class 8 system bracket design was integrated on all of the participating vehicles.

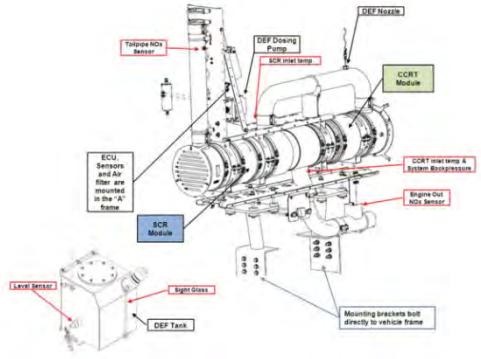


Figure 4: Vehicle Integration Application Schematic

- Operation on a long haul route on California Interstate I-15 targeting Baker Grade, Cajon Pass, and Mountain Pass experienced system backpressure warnings and alarms. These routes demanded sustained maximum engine loads during hauls up sustained grades , with ambient temperatures exceeding 110°F during the peak summer season, and high elevations.
- DEF connections (flareless tube, pipe and JIC fittings) from tank to pump proved to be a challenge at initial system commissioning requiring some post installation service downtime.
- Calibration of DEF level sensor at installation was not always accomplished requiring some post installation service downtime.
- The installation location and orientation of the tailpipe NO_x sensor was demonstrated as un-reliable in some installations.
- Bracket system durability failures were observed on some trucks on one fleet.

Benefits

Besides the percentage of NO_x reduction shown, the data gathered during this program was able to show that some applications could remove as much as 8 lbs. of NO_x per daily averages.

Project Costs

The contract executed for this program was in the amount of $2,300,000. The U.S. EPA provided funding in the amount of $2,000,000 and SCAQMD provided $300,000. Because the chassis dynamometer testing was not performed, the total program costs were $2,223,500; thereby, de-obligating $76,500 from the contract.

Commercialization and Applications

This demonstration program identified areas in the system that needed improvement like the wiring harness, DEF line connection methods, and tailpipe NO_x sensor orientation to increase the system reliability. The universal class 8 bracket design system behind the vehicle cab integrated well with various over-the-road applications for bulk goods delivery. Certain vehicle applications challenged the bracket system where improvements are required before commercialization. The universal bracket design allowed for the system to be assembled with common parts and the price of the system to be lowered because of better volume purchasing.

SCAQMD Contracts #12113, et al. **March 2014**

Retrofit 200 Heavy-Duty Diesel Trucks with DPFs

Contractors

Southern Counties Terminals dba Griley Air Freight
South Bound Express, Inc.
National Ready Mixed Concrete, Co.
Standard Concrete Products, Inc.
Challenge Dairy Products, Inc.
Bear Trucking, Inc.
RRM Properties, Inc.
Gaio Trucking, Inc.
Spragues Ready Mix
Pipeline Carriers, Inc.

Cosponsor

SCAQMD

Project Officer

Mei Wang

Background

Diesel pollution from current goods movement operations greatly impacts the health of community resident near ports, rail yards, distribution centers, and roads with high truck traffic. In the Los Angeles/Inland Empire region, which includes California's largest concentration of goods movement facilities, the result has been major health risks associated with very high regional levels of ozone and particulate pollution. This project provides grants to heavy-duty diesel truck owners/operators on a competitive basis to upgrade their equipment to cleaner technologies.

Project Objective

The objective of this project was to provide funding to heavy-duty diesel truck owners/operators to retrofit their trucks with diesel particulate filters (DPFs) and reduce their particulate matter (PM) emissions in a cost-effective and expeditious manner.

Technology Description

Retrofit technology modifies the diesel exhaust system by replacing the existing muffler with an emission control diesel retrofit device that removes (PM) and other pollutants from the diesel exhaust stream and traps them inside the device.

DPFs are diesel emission control strategy (DECS) that traps particulate matter and other pollutants from diesel exhaust before entering the atmosphere. The captured materials are then combusted using the diesel engine's exhaust temperature or an external source of heat such as a diesel burner or electric heater.

Status

The retrofit devices were successfully installed on all the trucks under this project before December 2011. The retrofitted trucks have been operating without issues.

DPF on an RRM Properties Truck

Results

This project provided direct PM emission reductions as listed in the table on the next page. Table 1 also provides individual contract numbers.

Table 1: PM Emission Reductions by Contract

Contractor	PM Emission Reduction (lb)/Project Life (2 Years)
Southern Counties Terminals dba Griley Air Freight Contract #12113	134.5
South Bound Express, Inc. Contract #12114	181.8
National Ready Mixed Concrete, Co. Contract #12118	913.8
Standard Concrete Products, Inc. Contract #12120	2563.2
Challenge Dairy Products, Inc. Contract #12121	62.5
Bear Trucking, Inc. Contract #12122	179.8
RRM Properties Ltd. Contracts #12123 & #12175	16535.6
Gaio Trucking, Inc. Contract #12124	2346.1
Spragues Ready Mix Contract #12125	103.4
Pipeline Carriers Inc. Contract #12186	1841.4

Benefits

The implementation of the project provides direct and cost-effective PM emission reductions. The retrofitted trucks are likely to operate many more years in the South Coast Air Basin even after the contract ends.

Project Costs

The SCAQMD's total contribution from the Clean Fuels Fund was $1,035,000. Project participants contributed the remaining costs. Project costs are broken down as follows.

Table 2: Total Project Costs by Contractor

Contractor	No. of Trucks	Total Cost of Devices	Total Cost of Instal-lation	Total Project Cost
Southern Counties Terminals dba Griley Air Freight	9	$30,392	$6,585	$39,750
South Bound Express, Inc.	3	$33,018	$4,274	$37,292
National Ready Mixed Concrete, Co.	13	$154,960	$39,975	$168,285
Standard Concrete Products, Inc.	15	$176,930	$25,450	$218,235
Challenge Dairy Products, Inc.	3	$26,475	$6,000	$34,394
Bear Trucking, Inc.	1	$11,255	$3,041	$14,296
RRM Properties Ltd.	134	$991,248	$327,000	$1,695,551
Gaio Trucking, Inc.	8	$69,156	$12,299	$81,455
Spragues Ready Mix	4	$26,407	$6,703	$30,704
Pipeline Carriers Incorporated	10	$122,500	$18,000	$149,994
Total	**200**	**$1,642,341**	**$449,327**	**$2,469,956**

Commercialization and Applications

The DPFs used for this project are fully commercialized CARB-verified Level 3 Plus devices that reduce PM by at least 85%. The DPFs are installed on many on-road heavy-duty diesel trucks to reduce PM emissions.

SCAQMD Contract #13407 **March 2014**

Demonstrate DPF Technology on Two School Buses

Contractor
Chaffey Joint Union High School District

Cosponsors
SCAQMD

Project Officer
Richard Carlson

Background

Chaffey Joint Union High School District (Chaffey) operates a large fleet of school buses. Sixteen buses equipped with diesel engines using hydraulic electronic unit injectors (HEUI) had previously been retrofitted with Cleaire Horizon diesel particulate filters (DPFs) under the Lower Emission School Bus Program. However, immediately following the installation of the Horizon DPFs, the buses began to experience higher rates of injector failures, oil leaks, turbo failures, power loss, and other engine-related problems on these buses than previously experienced. These engine problems were attributed to high backpressure caused by plugged Horizon DPFs.

Chaffey presented their concerns about the apparent problems created by the Horizon DPFs to the SCAQMD and California Air Resources Board (CARB). As a result, a cooperative study was undertaken to review Chaffey's bus utilization and duty cycles, engine conditions, and maintenance practices. As a result of this, it was agreed that Chaffey could evaluate alternate DPF technologies to determine if the performance and maintenance problems were due to the Horizon design.

On March 1, 2013, the SCAQMD Board awarded a contract to Chaffey to purchase, demonstrate, and evaluate two retrofit DPF technologies in the amount of $30,000.

Project Objective

The objective of this project was to evaluate two alternate DPF technologies to the Horizon and determine if one was better suited to the Chaffey buses and would provide better bus operation and less maintenance expense.

Technology Description

The Horizon technology consisted of a manually operated, externally powered electric heater coil in front of a DPF substrate. When the bus was in operation, the DPF collected exhaust particulate. When the bus was parked, and when indicated by a warning lamp that regeneration was required, the operator/mechanic plugged in the heater system. The heater operated for a fixed time to raise the temperature of the DPF enough to burn off the collected soot.

Two alternate technologies were chosen for this demonstration: 1) the ESW *Thermacat* actively regenerated DPF and 2) the Donaldson *LNF* passively regenerated DPF. The ESW DPF uses diesel fuel injected in front of a catalyzed wall-flow DPF while the bus is in normal operation. The fuel injection start, rate, and duration is automatically controlled by the Thermacat control module without operator involvement whenever the exhaust backpressure builds up to a set value. The LNF continuously regenerates by reacting NO2 in the exhaust gas with the collected particulate. The LNF consists of a flow-through catalyzed DPF followed by a conventional non-catalyzed wall flow DPF. The catalyzed section reacts NO in the exhaust to NO2. The system provides high collection efficiency along with continuous regeneration at low exhaust temperatures.

These two technologies were selected because they were the only ones approved by the California Highway Patrol for use on the school buses operated by Chaffey. The Thermacat was more expensive than the LNF but was expected to provide more consistent and reliable operation compared to the Horizon and LNF due to the automatic regeneration feature during normal driving. The LNF was attractive due to its simplicity and lower cost, provided its performance was acceptable. The two DPFs are shown in the photographs below.

Figure 1: ESW Thermacat installed on Bus 62

Figure 2: Donaldson LNF installed on Bus 55

Status

Two buses previously equipped with Horizon DPFs which had experienced repeated incidents of severe power loss were selected for the demonstrations. Both had new engines installed in 2011. The Horizon DPFs were removed and the engines checked. Both engines were found to be in good condition without excessive oil or fuel consumption leaks and fuel injectors operating within specification. Exhaust temperatures were recorded using data loggers.

The buses were both 60 passenger Type D school buses with 7.2-liter Caterpillar 3126 engines. The engine uses hydraulically actuated electronic unit injectors (HEUIs). Bus 62 has the ESW Thermacat DPF. Bus 55 has the Donaldson LNF DPF.

As of December 18, 2013, both buses had operated for approximately three months and accumulated 8,616 miles on the Thermacat and 6,538 miles on the LNF. Regular maintenance was performed on the buses and monthly inspections of the engines and checks of fuel for contamination with oil or water were performed. No oil was added to either engine during this period. The buses remained in operation continuing the demonstration through the end of the school year.

Results

Both buses operated satisfactorily without any performance losses or engine mechanical issues (turbocharger or injector failures). With the Horizon DPF, problems would have already occurred on these buses during these time and mileage periods.

Chaffey recommends that all Horizon units be replaced with Thermacat DPFs and is requesting additional funding for their replacement from SCAQMD.

Benefits

The study demonstrated that both alternate DPF technologies operated satisfactorily without the performance, operational, and maintenance issues experienced with the Horizon DPF. The study demonstrated that not all DPFs are appropriate for any particular engine design or and vehicle duty cycle.

Project Costs

DPF Costs

ESW Thermacat	-	$20,300
Donaldson LNF	-	$17,822
Total Cost	-	$38,122

Funding Source

SCAQMD	-	$30,000
Chaffey JUHSD	-	$ 8,122

Commercialization and Applications

Both ESW Thermacat and Donaldson LNF DPF technologies are currently in production, verified, and commercially available. .

SCAQMD Contract #11614 **September 2014**

Demonstrate Battery-Electric Heavy-Duty Trucks

Contractors

Transportation Power, Inc. ("TransPower")

EPC Power Corp.

Cosponsors

CEC
SCAQMD
U.S. EPA

Project Officer

Joseph Impullitti

Background

In August 2010, SCAQMD applied for a $400,000 award from U.S. EPA Region 9's Clean Air Technology Initiative (CATI) Program. SCAQMD was awarded $300,000 to demonstrate battery electric heavy-duty trucks traveling from the Ports to intermodal facilities, enabling the SCAQMD to fund an unsolicited proposal that had been submitted by TransPower, which offered to leverage California Energy Commission funds and create an expanded electric truck demonstration program involving two vehicles.

Project Objective

TransPower was tasked to develop and demonstrate two heavy-duty battery electric Class 8 trucks as well as develop the manufacturing capability for the electric drive system in California. The project had two overarching objectives: to demonstrate a superior electric drive technology for heavy-duty trucks and to use this demonstration project as a springboard for rapid commercialization of a modular electric drive system.

Technology Description

A zero-emission battery-electric drive system was to be installed by TransPower into two Class 8 truck tractors. Each drive system was intended to utilize a network control architecture to control modular components, including high-power drive motors and inverters along with electrically-driven accessories, powered by lithium battery packs. A key technology advancement enabled by this project was development of a new onboard inverter-charger unit (ICU), which combines the functions of a motor inverter and battery charger. Other key advances included application of a new automated manual transmission and advanced battery management technologies to Class 8 electric trucks.

Status

The ElecTruck period of performance began on July 8, 2011, and was originally scheduled to end after 28 months (November 8, 2013), but was extended to September 30, 2014, to allow more time for manufacturing and testing the second truck built under the project, the "Pilot Truck." The Pilot Truck (shown here) was successfully operated under real-world conditions for nearly a full year and is now being upgraded to utilize more advanced components whose designs were enabled by the many lessons learned during the ElecTruck project. By the end of 2015, at least 20 medium- and heavy-duty electric vehicles will be in operation in California demonstration projects, using technologies and components developed or first demonstrated in Class 8 trucks during the ElecTruck project.

Figure 1: Pilot Truck

Results

The ElecTruck project was highly successful in its core long term objectives of achieving major technology advances in two key areas: (1) vehicle control and integration and (2) advanced energy storage. More generally, the ElecTruck project

successfully advanced the state of the art in application of electric propulsion technology to Class 8 trucks, and provided valuable lessons learned that enabled TransPower to proceed to even more advanced component and integrated subsystem designs, which – as indicated above – are being incorporated into a growing fleet of fully operational electric Class 8 trucks, tractors, and school buses.

Benefits

The ElecTruck project demonstrated the essential feasibility of eliminating emissions from the largest and most polluting road vehicles, Class 8 trucks. If 5,000 electric trucks of the ElecTruck design were deployed in California by 2020, this would achieve an estimated aggregate emissions reduction of 378,500 tons of carbon per year – a significant step toward achieving the ARB 2020 limit of 427 million tons. Electric trucks of this design also eliminate criteria pollutants at the point of operation and reduce noise.

The project also resulted in valuable lessons learned that will result in future reductions in the costs of manufacturing electric trucks. For example, it was learned that manufacturing costs could be reduced by consolidating power components into a single structure before installing them onto the truck. This resulted in development of a new integrated "Power Control and Accessory Subsystem," pictured here, which is now being incorporated into all future trucks.

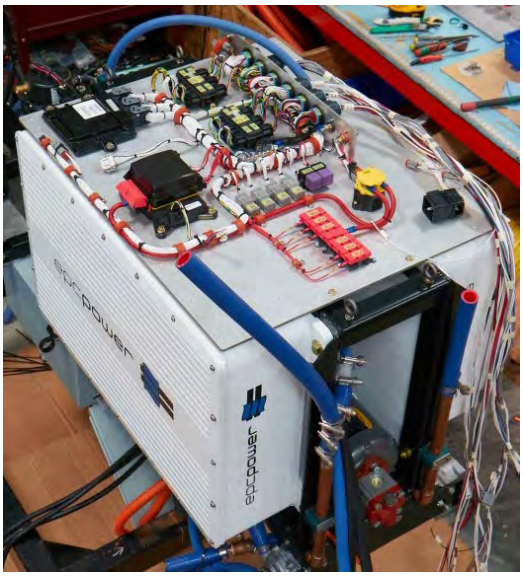


Figure 2: Power Control & Accessory Subsystem

Project Costs

The total cost of the ElecTruck project was approximately $$2,693,939. The SCAQMD contribution to this total was $496,500, including the $300,000 pass-through funding from U.S. EPA.

Partner	Contribution
SCAQMD/Clean Fuels Fund	$196,505
U.S. EPA	$300,000
CEC	$1,000,000
TransPower	$1,197,434
Total Project Costs	$2,693,939

Total project costs were in line with initial expectations; the project was initially scoped as a $2 million project that would involve manufacturing of one truck and was expanded to a two-truck project with a total budget of $2.6 million when the SCAQMD funds were committed. The recurring cost of each truck manufactured with ElecTruck components is presently estimated to be less than $500,000, and in volume this cost is expected to decline to $300,000 to $400,000.

Commercialization and Applications

Technologies and components developed or demonstrated on the ElecTruck project are also being applied to other heavy-duty vehicles, including electric off-road yard tractors and electric school buses. In addition, the ElecTruck project has led to funded efforts to develop a zero-emission range extender for heavy-duty electric trucks, using a hydrogen fuel cell to recharge batteries. These expanded applications and variants of the system demonstrated during the ElecTruck project have the potential to greatly expand the range of commercial applications to which these technologies can be applied.

SCAQMD Contract #12020 **April 2014**

Upgrade & Install Electric Charging Infrastructure

Contractor
Chargepoint (formerly Coulomb Technologies)

Cosponsor
SCAQMD

Project Officer
Patricia Kwon

Background

There are approximately 1,800 PEV chargers in need of upgrading in the South Coast Air Basin. These sites are ideal locations to upgrade electrical vehicle service equipment (EVSE) for Level 2 charging at a lower cost than to install EVSE at new site locations. Leveraging the DOE and/or CEC funding, SCAQMD executed a contract with Chargepoint to install new or upgraded Level 2 EVSE at high usage site locations identified by SCAQMD and Chargepoint. Chargepoint received DOE and CEC funding to pay for hardware and partial installation costs for Level 2 EVSE at 70 site locations. SCAQMD is providing cofunding of $1,000 per charger to offset installation costs at these locations. Data will be collected from these chargers and provided to SCAQMD to assist in SCAQMD's PEV infrastructure planning process for the DOE and CEC PEV infrastructure grants for the South Coast region.

Project Objective

SCAQMD executed a contract with Chargepoint to leverage DOE and CEC support for installation of Level 2 EVSE as part of Chargepoint America, a DOE/ARRA project for installation of EVSE in key markets. Chargepoint upgraded existing EVSE which were obsolete and installed new EVSE. Chargepoint submitted a list of approved sites. As part of the SCAQMD program, Chargepoint dedicated full time resources to identify potential site hosts eligible for replacement of obsolete units.

Chargepoint completed installation of 8 of the planned 70 EVSE. Some costs were in excess of $1,000, with those costs supplemented by Chargepoint America funding and/or the site hosts. Using the approved site list for sites with obsolete equipment proved challenging. For a three month period, Chargepoint dedicated staff to contact site hosts and owners of obsolete EVSE to assess replacement opportunities. From October 2012 to April 2014, these employees were largely unable to secure approval for replacement of obsolete EVSEs. Some significant challenges encountered were:

- Site hosts did not understand or recognize that the site had EVSE
- Site hosts felt the new EVSE was another passing fad
- Site hosts felt obsolete equipment was not used and new EVSE would be under utilized
- Site hosts felt the EVSE offered little benefit to their business
- Site hosts did not believe enough PEVs existed to support the replacement of EVSE
- Site hosts did not want to enter into business agreements

After attempting to improve contact and replacement of obsolete EVSE through the use of experienced skilled sales and support staff, Chargepoint approached SCAQMD to request approval of funds to contribute to new sites. By agreement, Chargepoint followed the same procedures for submission to SCAQMD and provided site locations for approval or denial. Some prominent locations included workplaces and major destinations including Cedars Sinai Hospital, Disneyland/Downtown Disney, and Burbank Water and Power. All sites are public access.

Technology Description

Level 2 EVSE with J1772 connectors were installed. EVSE were either pedestal mounted or wall mounted depending on the site configuration. As a requirement for new construction and electrical work, permits were required and obtained for projects. There were no significant issues presented with permitting of EVSE.

Status

Chargepoint changed its name from Coulomb Technologies in late 2012. Due to various unforeseen delays, Chargepoint was unable to complete all 70 Level 2 EVSE installations under the original term. In the meantime, fellow EVSE entity ECOtality declared bankruptcy and CarCharging Group assumed control of ECOtality's assets in late 2013. Clipper Creek was also unable to execute a contract to upgrade 70 Level 2 EVSE. Hence staff executed a new contract with Chargepoint to install 162 Level 2 EVSE in 2015 at workplaces and destinations.

Figure 1: Chargepoint EVSE

Results

Chargepoint's Level 2 EVSE installations are shown in the following map:

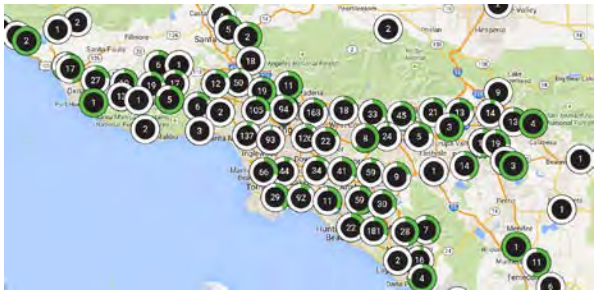


Figure 2: Chargepoint's Level 2 EVSE Installations
Source: http://chargepoint.com

Benefits

This project will assist in advancing PEV readiness in California by creating additional public charging that is convenient and affordable for PEV drivers.

Project Costs

EV infrastructure hardware and installation costs were through DOE and CEC funding from Chargepoint America, and remaining installation costs were cost shared between Chargepoint America and the site owner. SCAQMD funding provided $1,000 per EVSE towards installation costs for a total of $70,000.

Commercialization and Applications

Level 2 EVSE is currently commercially available, with installations worldwide. Chargepoint America has installed about 20,000 chargers and 3,000 sites in North America, the world's largest charging network. About 25% of these sites are in California.

SCAQMD Contract #13149 **March 2014**

Develop Southern California PEV Readiness Plan

Contractor

UCLA Luskin Center for Innovation (Luskin Center)

Cosponsors

Southern California Association of Governments (SCAG), via award from the CEC
SCAQMD, via award from the U.S. DOE

Project Officer

Patricia Kwon

Background

Every day, more and more plug-in electric vehicles (PEVs) can be spotted on the roads of Southern California. Volatile gasoline prices, state zero emission vehicles programs, federal fuel economy and vehicle emission standards, improved battery technology, and concerns over meeting federal ambient air quality standards and state climate change goals have created a growing market for PEVs.

Project Objective

SCAQMD supported the Luskin Center in development of the *Southern California Plug-In Readiness Plan* and specifically six chapters of this report. These chapters focus on addressing the barriers and opportunities for both workplace and multi-unit dwelling (MUD) charging in Southern California.

Technology Description

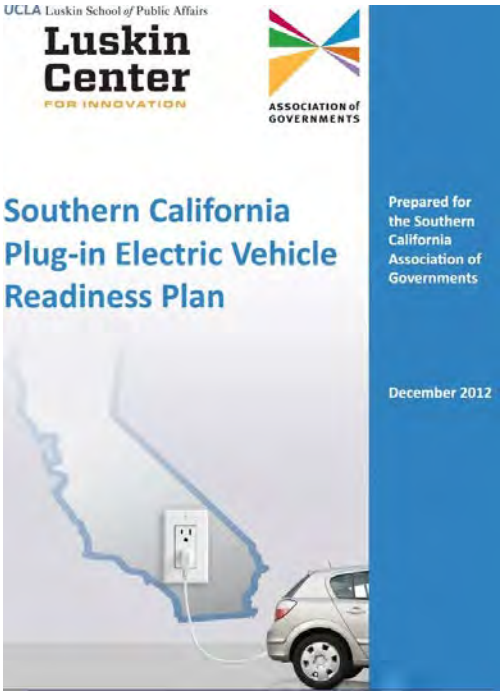
PEVs can lower greenhouse gas emissions, improve air quality, increase electric grid efficiency, and reduce fuel costs. PEV deployment, however, will depend in part on how effectively PEV infrastructure is planned. The Luskin Center's PEV Readiness Plan explored the ecosystem of PEV stakeholders whose actions shape the technology's viability and success. This includes various types of property owners (including in the residential and workforce setting) and different levels of government.

Status

The Luskin Center submitted the *Southern California Plug-In Electric Vehicle Readiness Plan* in December of 2012.

Results

With support from SCAQMD, the Luskin Center completed six chapters in the *Southern California PEV Readiness Plan* consisting of recommendations for stakeholders on the following:



1. Streamlining construction permitting and inspection processes;
2. Updating building codes;
3. Updating zoning and parking rules;
4. Making public charging station site selection (regional planning). This involved creating a methodology and a 3-5yr charging station site plan for deploying workplace and publicly available charging infrastructure; and
5. Creating and implementing a plan for effective marketing and outreach.

Benefits

Since the release of the Southern California PEV Readiness Plan, municipalities and other stakeholders in the South Coast basin have been using the plan and adopting recommendations in it. The plan is helping stakeholders make efficient and effective decisions to support the deployment of clean vehicles that reduce air pollution in the region. The Luskin Center continues to promote the report supported by SCAG and the SCAQMD and educate regional stakeholders about its recommendations.

Project Costs

The costs were estimated to be approximately $35,000 based on staffing requirements for the six chapters. SCAQMD has agreed to contribute $32,000. The Southern California Association of Governments contributed the majority of the funding for the project, at nearly $200,000.

Commercialization and Applications

The main deliverable is a public document.

SCAQMD Contract #15388 **December 2014**

Participate in California Fuel Cell Partnership for CY 2014 & Provide Support for Regional Coordinator

Contractor

Bevilacqua-Knight, Inc.

Cosponsors

8 automakers; 5 government agencies; 1 technology provider; 9 associate members and 14 affiliate members

Project Officer

Lisa Mirisola

Background

Established with eight members in 1999, the California Fuel Cell Partnership (CaFCP) is a collaboration in which private and public entities are independent participants. It is not a joint venture, legal partnership or unincorporated association. Therefore, each participant contracts with Bevilacqua-Knight, Inc. (BKi) for their portion of CaFCP administration. SCAQMD joined the CaFCP in April 2000, and the CaFCP currently includes 37 organizations interested in demonstrating fuel cell vehicle and fueling infrastructure technology.

Project Objectives

Several key goals for 2014:

- Provide education and outreach to support agencies to provide funding opportunities and to encourage transit agencies to become a Center of Excellence. Identify logical options for other heavy-duty fuel cell vehicles;
- Identify, explore and recommend action on issues that help or hinder deployment;
- Begin full implementation of national ER template into existing programs;
- Support station performance codes & standards and activities that improve station performance and development;
- Identify and address key barriers and prepare recommendations to improve timeline to 68 stations. Explore innovative methods of building demand;
- Provide education and training for emergency responders, permitters, and station builders, including expanding future technician & other training programs;.
- Identify and work with the stakeholders and members in early market communities to provide information and resources about fuel cells and hydrogen. Bring in targeted training at right time. Participate in ZEV Action Plan team with OPR and Go-BIZ;
- Conduct one-on-one briefings with California state and federal elected officials, their district and capitol staff and NGOs.
- Raise awareness about the availability and benefits of ZEVs and offer driving opportunities. Provide outreach and education through events, materials, video, web and social media that increase awareness, build support in early market communities and support other projects' specific goals.

Status

The members of the CaFCP intend to continue their cooperative demonstration efforts and have set goals through 2016, subject to a budget approved annually. This final report covers the SCAQMD Contract #15388 for 2014 membership. This contract was completed on schedule.

Congressman Mark Takano talks to SunLine Transit general manager Lauren Skiver during CaFCP-organized tour of four fuel cell electric buses under construction at ElDorado facility in Riverside. State Senator Richard Roth and ARB staff also attended.

Technology Description

The CaFCP members together or individually are demonstrating fuel cell passenger cars and transit buses and associated fueling infrastructure in

California. The passenger cars include Daimler's B Class F-CELL, GM's Chevy Fuel Cell Vehicle, Honda's FCX Clarity, Hyundai's Tucson, Nissan's XTrail, Toyota's FCHV-*adv* and VW/Audi's Golf Sportwagen HyMotion and A7 h-tron. The fuel cell transit buses include 12 placed at AC Transit (Van Hool buses with UTC fuel cells) and 4 placed at Sunline Transit (1 Ballard/New Flyer and 3 Ballard/BAE/ElDorado).

Results

Specific accomplishments include:

- Automotive members placed over 500 fuel cell passenger vehicles on California roads from 1999 through 2014, including the first retail customers starting in 2005;
- Transit agency members have demonstrated 25 fuel cell buses since 1999, with 16 currently in operation (see technology description);
- There are eight public hydrogen fueling stations in operation in California. There are also 49 in development in California;
- CaFCP staff and members continue to train local fire departments and work with emergency response organizations to coordinate with state and national efforts;
- CaFCP, the Governor's Office of Business and Economic Development and the California Energy Commission, began briefing city staff across California state to optimize station permitting.
- CaFCP, GO-BIZ, CEC and others, hosted briefings and permitting workshops across the state for local government staff and elected officials.

Benefits

Compared to conventional vehicles, fuel cell vehicles can offer zero or near-zero smog-forming emissions, reduced water pollution from oil leaks, higher efficiency and much quieter and smoother operation. If alternative or renewable fuels are used as a source for hydrogen, fuel cell vehicles will also encourage greater energy diversity and lower greenhouse gas emissions (CO_2).

By combining efforts, the CaFCP can accelerate and improve the commercialization process. The members have a shared vision about the potential of fuel cells as a practical solution to California's environmental issues and similar issues around the world. The CaFCP provides a unique forum where technical and interface challenges can be identified early, discussed, and potentially resolved through cooperative efforts.

Project Costs

Auto members provide vehicles, the staff and facilities to support them. Energy members engage in fueling infrastructure activities. The CaFCP's annual operating budget is about $2 million, and includes facility operating costs, program administration, joint studies and public outreach and education. Each member makes an annual contribution of approximately $88,000 towards the common budget. Some government agencies contribute additional in-kind products and services. SCAQMD provides an additional $50,000 annually to support a Southern California Regional Coordinator and provides office space for additional staff in-kind at SCAQMD. SCAQMD's contribution for 2014 was $137,800.

Commercialization and Applications

While research by multiple entities will be needed to reduce the cost of fuel cells and improve fuel storage and infrastructure, the CaFCP can play a vital role in demonstrating fuel cell vehicle reliability and durability, fueling infrastructure and storage options and increasing public knowledge and acceptance of the vehicles and fueling.

From 2013 to 2016, CaFCP's goals relate to Preparing for Market Launch through coordinated individual and collective effort. During this fourth phase, CaFCP members, individually or in groups, will focus on important goals.

- Prepare for larger-scale manufacturing, which encompasses cost reduction, supply chain and production.
- Work on the customer channel, including identifying and training dealers and service technicians.
- Reduce costs of station equipment, increase supply of renewable hydrogen at lower cost, and develop new retail station approaches.
- Support cost reduction through incentives and targeted RD&D projects
- Continue research, development and demonstration of advanced concepts in renewable and other low-carbon hydrogen.
- Provide education and outreach to the public and community stakeholders on the role of FCEVs and hydrogen in the evolution to electric drive.

SCAQMD Contract #04185 **April 2014**

Develop & Demonstrate Hydrogen ICE Vehicles for Five Cities Program

Contractor

Quantum Fuel Systems Technologies Worldwide, Inc.

Cosponsor

SCAQMD

Project Officer

Patricia Kwon

Background

This program was part of a larger demonstration of hydrogen internal combustion vehicles (ICE) and infrastructure started in 2003. SCAQMD initiated an effort to establish a network of hydrogen fueling stations and several fleets consisting of vehicles equipped with hydrogen powered internal combustion engines. To date, the high cost and limited availability of fuel cell vehicles have been a limiting factor in the deployment of hydrogen infrastructure. It is anticipated that hybrid electric and conventional vehicles equipped with hydrogen fueled internal combustion engines will stimulate the demand for hydrogen, expedite the development of infrastructure and provide a bridge to fuel cell vehicles. Conventional and hybrid electric vehicles equipped with hydrogen powered internal combustion engines have the potential to eliminate VOC, CO and CO2, and significantly reduce NOx and air toxics.

Project Objective

This program consisted of 30 model year 2004 Toyota Prius vehicles, located at five cities (Santa Monica, Burbank, Santa Ana, Riverside, and Ontario) and SCAQMD Headquarters, all within the South Coast Air Basin in Southern California. Each city was also awarded a hydrogen fueling station to provide fuel for the five hydrogen vehicles located within each particular city. The plan was that this initial hydrogen program consisting of stations and vehicles would spur additional hydrogen infrastructure to be established within the SCAQMD region.

Technology Description

The engine development and calibration on the Prius was developed around the Quantum engine controller and Quantum experience using gaseous fueled engines. On this program there was not support from Toyota for the calibration of the engine control. This drove Quantum to use the Huntington engine controller and implement this as an add-on controller. The control strategy for the engine was to use a lean-burn approach to avoid a high level of NOx emissions that are typically associated with combustion engines.

Emission testing was performed periodically on all vehicles to ensure compliance with SULEV standards. This program was limited in scope with respect to On Board Diagnostics (OBD) due to the lack of OEM level support to tie directly into the engine ECU and modify the OBD algorithms, calibration and add enhancement for gaseous fuels. The vehicles have limited OBD features, as described below but are not fully OBD-II compliant. Quantum has done a significant amount of work to make the vehicle as compliant as possible with current OBD-II requirements.

Figure 1:2008 Toyota Prius Converted to Operate on Hydrogen Fuel

Status

Vehicles were converted and deployed between December 2005 and March 2006 and a CARB experimental permit was issued for five years. An extension of this experimental permit obtained two more years, and then a third extension of the

experimental permit was obtained for seven vehicles until April 2014. Four of SCAQMD's vehicles were transferred to DOE Sandia and Livermore Laboratories for demonstrating hydrogen storage technologies, and one vehicle was transferred to California State University Los Angeles for testing their upgraded hydrogen station. The remaining vehicles had hydrogen system components removed and were crushed according to the terms of the experimental permit.

Results

All of the emission testing for the program was conducted at the Quantum SULEV emissions lab. This is a laboratory grade test facility which is recognized by both CARB and U.S. EPA. The vehicle was run through all of the mandatory emissions tests to ensure compliance with the applicable SULEV standards. The vehicles were also tested on a regular basis in compliance with the CARB experimental permit.

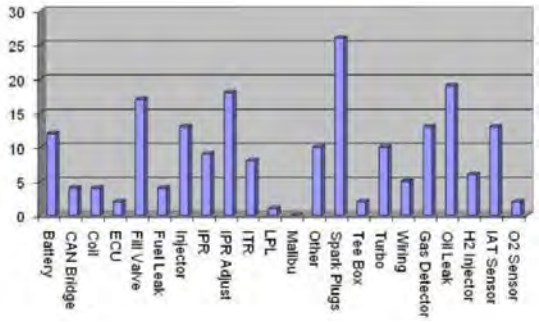
The fleet was polled in March 2012 for the current mileage of their vehicles. The table below shows the mileage of each fleet. Ontario and Santa Monica had previously reported their data to SCAQMD (8/2011 and 3/2010 respectively). The bottom row shows the average mileage for each cities hydrogen fleet. The vehicle mileages that are highlighted indicate vehicles that continued operation beyond March 2012.

Table 1: Mileage by City

AQMD (3/12)	Burbank (3/12)	Ontario (8/11)	Riverside (3/12)	Santa Ana (3/12)	Santa Monica (3/10)
6,083	7,748	8,097	8,080	5,136	7,789
9,765	23,916	5,448	11,154	7,772	5,211
8,794	10,993	5,941	7,886	5,392	13,699
6,712	8,480	7,709	15,015	5,143	4,349
10,519	6,563	5,405	--	6,900	6,468
8,375	11,540	6,520	10,534	6,069	7,503

Over the course of the five year service and maintenance program, Quantum performed numerous repairs on the fleet. Below is a summary of each repair performed on the fleet. Spark plugs were by far the most frequently serviced item, as they fouled due to water in the combustion chamber coming into contact with the spark plug tip (or electrode). Rust around the electrode would cause the spark plug to fail, and the vehicle would immediately begin running rough.

Table 2: Common Types of Vehicle Repairs



Benefits

The Five Cities program successfully demonstrated interim hydrogen fuel vehicle technology and infrastructure (electrolyzers and mobile fuelers), and was one of the largest scale combined vehicle and infrastructure deployments when the project was funded in 2004. It accelerated the development of a sustainable hydrogen market by demonstrating the feasibility of hydrogen as a vehicle fuel while directly reducing vehicle pollutants, greenhouse gas emissions, and petroleum usage. These vehicles displayed a Clean Fuel decal and were extensively used for public outreach events (e.g., public meetings, conferences, automobile shows, etc.), as well as education and training at local high schools and universities in order to expose the next generation of clean technologies.

Project Costs

Total cost was $2.35 million for this vehicle project, all contributed by SCAQMD. The hydrogen station portion of this project, through a separate contract with Air Products and Chemicals, Inc., again fully funded by SCAQMD, was $4.16 million (comprising construction, maintenance and closing costs).

Commercialization and Applications

Quantum recognized the challenges of developing a fully OBD-II compliant conversion on a commercially available vehicle, and suggested that future conversions also have the support of the vehicle OEM as part of the team that develops the conversion. Some support from the OEM can significantly reduce the conversion time, and complexity of the conversion, along with ensuring the final product is fully OBD-II compliant.

SCAQMD Contract #11527 **December 2014**

Study Sources, Composition, Variability & Toxicological Characteristics of Ultrafine Particles in Southern California

Contractor

University of Southern California

Cosponsor

SCAQMD

Project Officer

Jean Ospital

Background

Many of the health effects associated with exposure to particulate matter (PM) derive from the ability of PM to generate oxidative stress. Ultrafine particles (UFP) (dp < 0.1- 0.2 μm), in particular, may be more toxic than coarse or fine PM. Despite their very low contribution to PM mass, UFP dominate particle number concentrations as well as have a large surface area relative to fine or coarse particles and a high pulmonary deposition efficiency. These particles can thus carry considerable amounts of toxic air pollutants, such as organic carbon and transition metals.

Project Objective

24-hour time-integrated samples were concurrently collected once a week for a year-long period at 10 distinctly different areas across the Los Angeles Basin, followed by comprehensive chemical and toxicological analyses, to provide insight on the seasonal and spatial variability in the chemical composition, sources and oxidative potential of quasi-UFP ($PM_{0.25}$, dp < 0.25 μm)

Method Description

Sites included source, near-freeway, semi-rural receptor and desert locations. They can be classified according to their geographical location into Long Beach (HUD), western LA (GRD, LDS), central LA (CCL, USC), eastern LA (HMS, FRE), Riverside County (VBR, GRA) and Lancaster (LAN); in respective order of their increasing distance from the coast. Sources contributing to total and elemental mass of quasi-UFP were determined using a molecular marker-based chemical mass balance (MM-CMB) model and principal component analysis (PCA), respectively. Redox activity of the PM samples was measured using both chemical (dithiothreitol (DTT) assay) and cell-based macrophage (reactive oxygen species (ROS) assay) assays. The association of oxidative potential with chemical species and sources was evaluated using univariate and multivariate regression analyses. Furthermore, ROS-activity levels of quasi-UFP in Los Angeles were compared across different seasons, worldwide urban locations and particle-size fractions. The impact of atmospheric aging on quasi-UFP PM oxidative potential was also investigated.

Status

This project is completed and a list of relevant publications are attached to this report. A few additional field experiments were run with the aim of evaluating the effect of atmospheric aging on the oxidative potential of ultrafine particles, which are a very minor and mostly confirmatory part of the study, and are expected to be completed by the Spring of 2015.

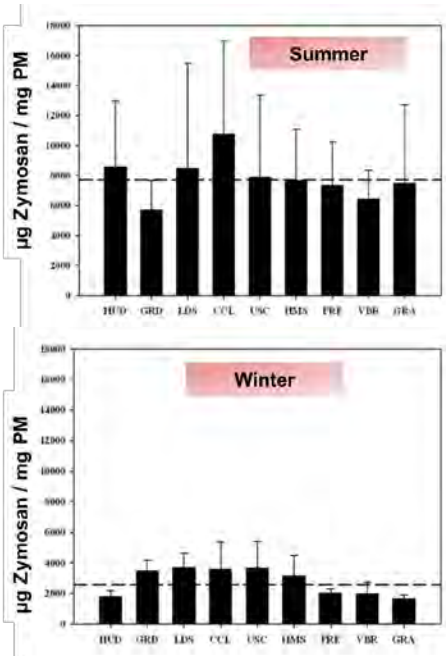
Results

Average $PM_{0.25}$ mass concentration ranged from 5.9 to 16.1 $\mu g/m^3$ across the basin and seasons. Wintertime levels were highest at the source HUD site, while lowest at the desert-like LAN site. On the other hand, summertime concentrations peaked at the inland receptor locations. Chemical mass closure showed that that quasi-UFP in the basin consisted of 49–64% organic matter, 3–6.4% elemental carbon (EC), 9–15% secondary ions (SI), 0.7–1.3% trace ions, and 5.7–17% crustal material and trace elements, on a yearly average basis.

Among all measured organic compounds, n-alkanes, which were predominantly of anthropogenic source (carbon preference index (CPI) ~1), were the most abundant species in

$PM_{0.25}$ with cumulative levels ranging from 9.34 to 48.08 ng m^{-3} over all sites and seasons. Seasonal averages of total polycyclic aromatic hydrocarbons (PAHs), hopanes and steranes, molecular makers of vehicular emissions, were highest in winter while lowest in summer. Primary sources, which were determined using the MM-CMB model, included mobile sources (combined gasoline and diesel vehicles), wood smoke, natural gas combustion, vegetative detritus, and ship emissions. To characterize sources of trace elements and metals, PCA was applied to site-pooled elemental data as well as urban and rural receptor site clusters. Five major sources were identified, including road dust (influenced by vehicular emissions as well as re-suspended soil), vehicular abrasion, residual oil combustion, cadmium sources and metal plating. These sources collectively accounted for about 85% of the total variance of quasi-UFP elemental content.

The redox activity of $PM_{0.25}$ samples was also assessed by means of a biological ROS assay (generation of ROS in rat alveolar macrophage cells). Seasonally, fall and summer displayed higher volume-based ROS-activity (i.e. ROS-activity per unit volume of air) compared to spring and winter. ROS levels were generally higher at near source and urban background sites compared to rural receptor locations, except for summer when comparable ROS-activity was observed at the rural receptor sites.



A multivariate regression method was also used to obtain a model for predicting the ROS-activity of $PM_{0.25}$, based on its water-soluble components. The most important species associated with ROS were Cu and La at the source site of Long Beach, and Fe and V at urban LA sites. These metals are tracers of road dust enriched with vehicular emissions (Fe and Cu) and residual oil combustion (V and La). At Riverside, a rural receptor location, WSOC and Ni (tracers of SOA formation and metal plating, respectively) were the dominant species driving the ROS-activity. To further investigate the potential role of water-soluble and water-insoluble portions of ambient PM in the potential toxicity of PM, size-fractionated ambient particle samples (coarse, fine and ultrafine PM) were collected in August-September of 2012 at the urban USC site, using the Versatile Aerosol Concentration Enrichment System (VACES)/BioSampler tandem system. While water-soluble species contribute to the large majority of the ROS-activity per volume of sampled air, high intrinsic ROS-activity (i.e. PM mass-normalized) is observed for the water-insoluble portions. Organic compounds in both water-soluble and water-insoluble portions of ambient PM, as well as transition metals, several with recognized redox activity (Mn, V, Cu and Zn), are highly correlated with ROS-activity.

Benefits

Findings help establish the association between sources, composition and toxicity of UFP and provide a strong scientific basis for developing more targeted and cost-effective regulatory strategies at both the federal and state level. Moreover, the extensive database on UFP generated from this project constitutes an invaluable resource to PM exposure and health studies in the L.A. Basin.

Project Costs

Total estimated project cost was $470,969, including $300,000 in U.S. EPA funding through a pass-through contract. Final cost of the project is pending final invoice and financial close out by the USC Office of Sponsored Projects.

SCAQMD Contract #12197 **March 2014**

Health Effects of PM Emissions from Heavy-Duty Vehicles – A Comparison Between Different Biodiesel Fuels

Contractor

University of California Riverside

Cosponsor

SCAQMD

Project Officer

Brian Choe

Background

Governmental agencies around the world have been implementing legislation that targets growing the use of renewable fuels in the transportation sector. In the U.S., the Energy Independence and Security Act of 2007 mandate the use of 36 billion gallons of biofuels in the transportation fuel pool by 2022. In California, the low carbon fuel standard (LCFS) was implemented in 2011 to promote the reduction of greenhouse gas emissions by targeting a reduction in the carbon intensity of transportation fuels by 10% by 2020. In addition, the implementation of more stringent standards for heavy-duty vehicles is a key strategy for the improvement of air quality in the SCAQMD. These facts, coupled with the continuously growing concern over global warming and environmental degradation, have accentuated public and scientific awareness and led to a substantial effort to develop alternative fuel sources including biofuels and to improve engine technologies.

Project Objective

The main goal of this study was to investigate the physical and chemical properties as well as toxicological characteristics of PM emissions from heavy-duty vehicles operating on various types of biodiesel blends to evaluate the air quality impacts and associated health risks from the use of biodiesel as a transportation fuel.

Technology Description

Experiments were conducted with two heavy-duty diesel vehicles: a MY 2002 truck without any emission control technologies and a MY 2010 truck fitted with a diesel oxidation catalyst (DOC) followed by a diesel particle filter (DPF) and selective catalytic reduction (SCR) to comply with current U.S. EPA emissions standards. The biodiesels tested include a soy-based methyl ester (SME), a waste cooking oil methyl ester (WCO), and a methyl ester obtained from animal fat (AFME). The biodiesels were blended at a 50% proportion by volume with the CARB ULSD. The vehicles were tested on a heavy-duty chassis dynamometer at the UCR facility over the EPA UDDS test cycle to measure: 1) regulated emissions; 2) unregulated emissions such as ammonia, carbonyl compounds, and volatile organic compounds; 3) the physical properties of PM emissions (e.g., PM mass, number, and size distributions); 4) the chemical properties of PM emissions (e.g., PAHs, WSOC, inorganic ions, organic compounds, and metals); and 5) the toxicological characteristics of PM emissions (e.g., redox activity, electrophilic properties, and pro-inflammatory properties).

Status

This project was completed in March of 2014. The results have been presented at several conferences and in an SAE technical paper with two additional peer review journal articles being prepared for publication.

Results

THC, NMHC, CO, and PM mass emissions showed reductions with the use of biodiesel blends for the uncontrolled 2002 truck. These phenomena can be explained by the higher oxygen content in the methyl ester moiety which helps reduce rich combustion zones and promote more complete combustion and reduce the sooting tendency of biodiesel. For the heavily controlled 2010 truck, THC, NMHC, CO, and PM emissions

were very low due to the DOC/DPF system, and did not show any strong fuel effects.

Overall, NO_x emissions exhibited increases with the use of biodiesel for both vehicles, with the differences in NO_x emissions relative to CARB ULSD being statistically significant for the 2010 truck. In addition, NO_x emissions showed some feedstock dependency with the unsaturated SME-50 producing higher NO_x than the more saturated AFME-50 blend.

Particle number emissions did not show any strong fuel effects for the 2002 truck while they were below the tunnel background levels for the 2010 truck. As for particle distributions, CARB ULSD produced more accumulation mode particles compared to biodiesel blends while the more unsaturated SME-50 showed higher nucleation mode particle counts relative to CARB ULSD and other biodiesel blends.

Ammonia emissions were significantly higher for the SCR-fitted vehicle. This is likely due to the use of urea injection to suppress NOx emissions. Biodiesel blends also produced higher NH3 emissions in comparison to the baseline CARB ULSD.

Overall, the use of biodiesel resulted in decrease of PAHs. For the 2002 truck, biodiesel blends reduced PAH emissions, although the absence of emission aftertreatment technologies led to greater levels of higher molecular weight PAHs. For the heavily controlled 2010 truck, most PAH compounds were practically undetectable as a result of the DOC/DPF system although some light molecular-weight PAHs were detected.

The redox activity measured with the macrophage ROS assay did not show any strong fuel trends for either test vehicle whereas the oxidative potential, as measured with the DTT assay, showed some large reductions with the use of biodiesel blends relative to CARB ULSD for the 2002 truck. The DTT assay showed that biodiesel exhaust was less potent than CARB ULSD. This observation was supported by the vapor-phase PM results where the redox activity of biodiesel blends was lower than for CARB ULSD. For the 2010 truck, the DTT values for the particle-phase components were well below the filter blank levels due to the very low PM mass.

To assess the inflammatory response of diesel and biodiesel blends for both vehicles, the expression of cytokine tumor necrosis alpha (TNF-α) by a mouse macrophage cell line (Raw 264.7) was used. The PM samples from the 2002 truck were capable of increasing TNF-α while the PM samples from the 2010 truck exhibited very low activity. The vapor-phase samples, on the other hand, showed high negative values that we hypothesize are real and important effects, which could reflect suppression of the TNF-α response.

To assess the protective response of diesel and biodiesel blends for both vehicles, the cellular hemeoxygenase-1 (HO-1) expression was determined. The biodiesel particle-phase samples collected from the 2002 truck increased the expression of HO-1 at greater levels than those exhibited by the CARB ULSD. In contrast to the particle-phase PM samples, the vapor-phase samples collected showed greater expression of HO-1 for the CARB ULSD than the biodiesel blends.

The DTT redox activity of the emitted PM was found to correlate well with the WSOC, the redox-active transition metals, alkanes, hopanes and steranes. This indicates that these species are likely to be involved in the oxidation stress mechanism by the generation of ROS.

Benefits

The information obtained from this program will be valuable in evaluating and mitigating any potential air quality impacts from the increased use of biodiesel. By understanding the impacts of alternative fuels on vehicle emissions, we can better ensure these fuels can be implemented in a way that preserves or improves air quality, while meeting goals for petroleum displacement and reductions in greenhouse gases.

Project Costs

The project cost was $207,500 funded by the SCAQMD.

Commercialization and Applications

Currently, there is insufficient information to fully understand the air quality impacts of widespread implementation of biodiesel. This research will have important implications for the expanded use of biodiesel in commercial vehicles, and what impacts this might have on vehicle performance.

SCAQMD Contract #09304 **December 2014**

Install & Evaluate Two 40kW (AC) PV Systems at SCAQMD Headquarters

Contractor
Solar Integrated Technologies, Inc.

Consponsor
SCAQMD

Project Officer
Patricia Kwon

Background

On October 3, 2008, the SCAQMD Board approved the execution of contracts to install two new photovoltaic (PV) systems at the SCAQMD facility in Diamond Bar, CA. One is a conventional multi-crystalline silicon PV system and the other is a building integrated PV (BIPV) system. The SCAQMD currently owns and operates two solar electric systems, including an 80 kW (AC) PV system on the main building and a 20 kW PV system on a carport in the parking lot.

Project Objectives

The objective of this project is to compare the performance of BIPV and crystalline silicon PV systems, as well as add solar capacity and generate additional clean, renewable electricity for the facility. The project involves a demonstration of two different PV technologies on the same roof above the conference center. SCAQMD will test the performance and reliability of the two systems under similar light conditions for a period of at least fve years.

Technology Description

The BIPV system combined a Sarnafil thermoplastic PVC roofing membrane and a Uni-Solar amorphous silicon PV laminate. The BIPV panels were welded together at Solar Integrated's (SIT's) manufacturing facility in Los Angeles. The roofing membrane has a class A fire rating, is resistant to water and bacterial growth, and energy efficient (listed under U.S. EPA's Energy Star program). The amorphous thin film silicon laminate uses a thin stainless steel substrate that is produced through a proprietary continuous vapor deposition process. The BIPV panels weigh 12 ounces per square foot and are suitable for lightweight structures. BIPV is known for its ability to utilize a wider spectrum of light for increased power output during cloudy, low-light conditions. The BIPV system was installed at a zero degree tilt.

Solar Roof Panels on SCAQMD Building

Status

This installation was completed and on June 17, 2009, the system was turned on, following approval for interconnection by Southern California Edison. Edison approved the payment of the first monthly performance based incentive (PBI) check on November 23, 2009. During and after installation, several problems arose.

Since there were two separate systems and one rebate, the project had to combine the single lines. It was solved by working with SIT's engineer and teamwork. SCAQMD's single line diagram was several years old and did not include four of its turbine engines. When the issue was uncovered, it was resolved by updating the single line for the entire building to include the two PV systems.

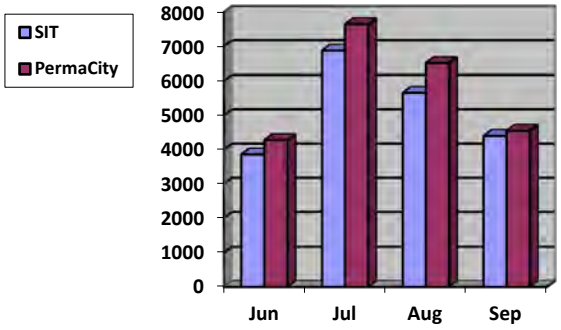
SIT was contracted to re-roof underneath the modules and ended up putting more modules down.

Edison mandated a $1,041 new meter charge that was previously unknown. This problem is being solved by splitting the cost between PermaCity and SIT.

Monitoring and the SCAQMD kiosk have been an ongoing challenge. Working together, SCAQMD, Fat Spaniel, and PermaCity now have the monitoring system and kiosk running. The kiosk shows the performance of the two new solar PV installations as well as the first 80 kW solar PV installation. Testing of the performance and reliability of the two systems continued under similar light conditions for five years after installation.

Results

The BIPV system is projected to produce 77,672 kWh annually, with an estimated annual cost savings in electricity of $11,000. Production data for both systems are below.



Benefits

Estimated CO2 reductions for both solar PV installations are approximately 78 tons/year using the California GREET model. ([*Environmental impacts of PV electricity generation - a critical comparison of energy supply options*)

Project Cost

The total project cost for the PV system installation was $390,695. All funds were paid by the SCAQMD.

Commercialization and Applications

Both crystalline and thin film solar modules are already commercial products. They have both demonstrated their efficacy and applications in the renewable energy generation field. The increased demand for renewable energy has led to mass production of solar modules making them an affordable, widely available commercial product.

SCAQMD Contract #13078 **December 2014**

Steam Hydrogasification Process Demonstration

Contractor
University of California Riverside

Cosponsors
CEC
SCAQMD

Project Officer
Brian Choe

Background
Utilization of renewable energy sources is an integral part of California's strategy to reduce greenhouse gas emissions and to diversify domestic energy sources. Renewable Natural Gas (RNG) can be produced from carbonaceous and renewable feedstocks through a number of technologies including anaerobic digestion, landfill gas collection, gasification and pyrolysis. However, these technologies are often inefficient and the product gas is typically of low quality and inferior to fossil source-based natural gas. The Steam Hydrogasification Reaction (SHR), which has been developed by UCR, is a thermochemical process that can produce high quality RNG from organic waste in a cost-effective and efficient manner. The SHR is also capable of handling wet feedstocks providing an attractive option to utilize solid waste with high moisture contents such as biosolids from wastewater sludge that pose more environmental challenges and issues in disposal.

Project Objective
The objective of this project was to demonstrate the SHR system in a Process Development Unit (PDU) scale reactor to produce RNG from wet organic waste, namely biosolids comingled with food and green waste , to validate and refine the process and develop a preliminary engineering design for a pilot plant.

Technology Description
SHR is a thermochemical process to produce high quality RNG from organic waste in a hydrogen rich environment. The process can handle wet feedstock without drying, does not require an expensive oxygen plant, and operates at relatively lower temperatures compared to conventional gasification processes. In addition, the SHR utilizes steam in the reactor to enhance the rate of methane formation.

Figure 1: PDU SHR-WGS System

The reactor system used for this experiment was a PDU with a 5 lb/hr feed rate consisting of a bubbling fluidized bed SHR and a fixed bed type water gas shift reactor (WGS) to increase the methane production. The PDU was used to convert slurry composed of biomass and bio solids into a syngas and eventually to RNG. The slurry is fed into the PDU by a rotating auger through a 1-inch tube which enters the SHR reactor above the fluidized bed. When the slurry reaches the reaction zone, it reacts with hydrogen and water to produce methane, CO and CO_2. Once the product gas leaves the reaction zone, it passes through a cyclone to separate out solid particles from the product gas stream. The product gas then passes through the WGS to be further converted into methane rich gas. A heat exchanger then cools down the gas to about room temperature condensing steam back into water. The dry gas is then further processed and compressed into high quality RNG. For this project, a gas recirculation loop was designed and added to recycle internally generated hydrogen back to the reactor for a self-sustained operation without external hydrogen supply.

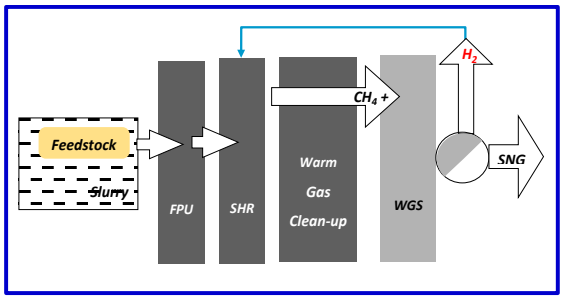


Figure 2: SHR-WGS Process Diagram

Status

This project was completed in November 2014 and a final report is on file with complete technical details and findings.

Results

The demonstration yielded a final gas composition of 73% CH4 and 27% CO after CO2 separation (43% CH4, 16% CO and 41% CO 2 before CO2 separation). The methane content can be further increased close to 90% through additional methanation process. Carbon conversion efficiency was 75% meaning that 75% of carbon in the feedstock was utilized to produce the product gas. Remaining 25% was converted into char which can be utilized as fuel for heat source. Through this project, the process condition was optimized at 1.0 H2/C mole ratio, 1.5 H20/feedstock mass ratio, nominal reactor temperature of 750oC and pressure of 400 psia, and 320-380oC WGS operation temperature.

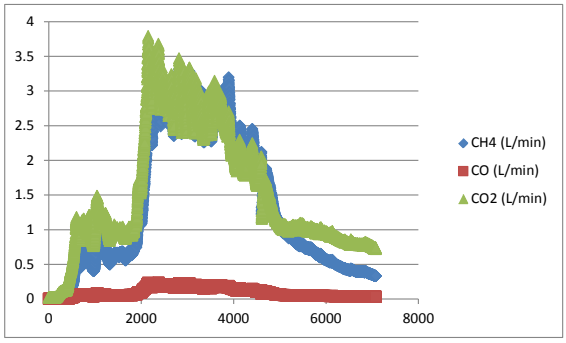


Figure 3: Product Gas Composition

Based on the demonstration results, a preliminary engineering design was developed for a 5 ton/day pilot plant to produce 20,000 diesel equivalent gallons of RNG annually. In addition, an economic analysis for a commercial scale plant was also performed. The analysis showed that the RNG production cost will range from $5 to $15/MMBtu depending on site capacity and applications.

Benefits

Biofuels derived from waste-based feedstocks typically have lower carbon intensities compared to other biofuels and alternative fuels. The SHR process has demonstrated potentials to produce high quality RNG from biomass waste more efficiently than competing renewable fuels and energy technologies including anaerobic digestion. Based an estimate of green waste and biosolid resources that can be technically converted into RNG, a wide-scale implementation of this technology can help to replace about 4.9% of the natural gas consumption in California.

Project Costs

The total project cost was approximately $922,000. SCAQMD funded $72,916 leveraging cost shares from project partners including $650,000 from CEC.

Commercialization and Applications

For the next phase, a demonstration with a circulated fluidized bed reactor to simulate a real world operation is recommended to validate and refine the pilot plant design. A successful validation of the process will then lead to a pilot plant demonstration at the Riverside Waste Quality Control Plant.

Appendix D

List of Acronyms

LIST OF ACRONYMS

AFRC—air/fuel ratio control
AFVs—Alternative Fuel Vehicles
APCD—Air Pollution Control District
AQMD—Air Quality Management District
AQMP—Air Quality Management Plan
ARB—Air Resources Board
ARRA—American Recovery & Reinvestment Act
AWMA—Air & Waste Management Association
BACT—Best Available Control Technology
BSNOx—brake specific NOx
BMS—battery management system
CAAP—Clean Air Action Plan
CAFR—Comprehensive Annual Financial Report
CARB—California Air Resources Board
CATI—Clean Air Technology Initiative
CCF—California Clean Fuels
CDFA/DMS—California Department of Food & Agriculture/Division of Measurement Standards
CEC—California Energy Commission
CE-CERT—College of Engineering – Center for Environmental Research and Technology
CEMS—continuous emission monitoring system
CFCI—Clean Fuel Connection, Inc.
CFD—computational fluid dynamic
CNG—compressed natural gas
CO_2—carbon dioxide
CO—carbon monoxide
CRT—continuously regenerating technology
DC—direct connection
CY—calendar year
DCM—dichloromethane
DEG—diesel equivalent gallons
DGE—diesel gallon equivalents
DF—deterioration factor
DMS—Division of Measurement Standards
DMV—Department of Motor Vehicles
DOC—diesel oxidation catalysts
DOE—Department of Energy
DOT—Department of Transportation
DPF—diesel particulate filters
DRI—Desert Research Institute
ECM—emission control monitoring
EGR—exhaust gas recirculation
EPRI—Electric Power Research Institute
ESD—emergency shut down
EV—electric vehicle
FCV—fuel cell vehicle
FTA—Federal Transit Administration
FTP—federal test procedures
g/bhp-hr—grams per brake horsepower per hour
GC/MS—gas chromatography/mass spectrometry
GGE—gasoline gallon equivalents
GHG—Greenhouse Gas
GTL—gas to liquid
H&SC—California Health and Safety Code
HCCI—Homogeneous Charge Combustion Ignition
HCNG—hydrogen-compressed natural gas (blend)
HDDT—highway dynamometer driving schedule
HD-FTP—Heavy-Duty Federal Test Procedure
HDV—heavy-duty vehicle
HEV—Hybrid electric vehicle
HPDI—High Pressure Diesel Injection
HT—high throughput
HTPH—high throughput pretreatment and enzymatic hydrolysis
ICE—internal combustion engine
ICEV—internal combustion engine vehicle
ICTC—Interstate Clean Transportation Corridor
LCFS—Low Carbon Fuel Standard
Li—lithium ion
LIMS—Laboratory Information Management System
LNG—liquefied natural gas
LPG—liquefied petroleum gas or propane
LSV—low-speed vehicle
MATES—Multiple Air Toxics Exposure Study
MECA—Manufacturers of Emission Controls Association
MPFI—Multi-Port Fuel Injection
MPG—miles per gallon
MSRC—Mobile Source Air Pollution Reduction Review Committee
MSW—municipal solid wastes
MY—model year
MTA—Metropolitan Transportation Authority (Los Angeles County "Metro")
NAFA—National Association of Fleet Administrators
NFPA—National Fire Protection Association
NCP—nonconformance penalty
NEV—neighborhood electric vehicles
NextSTEPS—Next Sustainable Transportation Energy Pathways
NGV—natural gas vehicle
NHTSA—Natural Highway Traffic Safety Administration
NMHC—non-methane hydrocarbon
NO—nitrogen monoxide
NO_2—nitrogen dioxide
$NO + NO_2$—nitrous oxide
NOPA—Notice of Proposed Award
NOx—oxides of nitrogen
NREL—National Renewables Energy Laboratory
OBD—On-Board Diagnostics

LIST OF ACRONYMS (cont'd)

OCTA—Orange County Transit Authority
OEM—original equipment manufacturer
PAH—polyaromatic hydrocarbons
PbA—lead acid
PCM—powertrain control module
PEMFC—proton exchange membrane fuel cell
PEV—plug-in electric vehicle
PHEV—plug-in hybrid vehicle
PM—particulate matter
PM2.5—particulate matter ≤ 2.5 microns
PM10—particulate matter ≤ 10 microns
ppm—parts per million
ppb—parts per billion
RDD&D—research, development, demonstration and deployment
RFS—renewable fuel standards
RI—reactive intermediates
RRC—rolling resistance co-efficient
RTA—Riverside Transit Agency
SCAB—South Coast Air Basin or "Basin"
SCAQMD—South Coast Air Quality Management District
SCE—Southern California Edison
SCR—selective catalytic reduction
SI—spark ignited
SIP—State Implementation Plan
SoCalGas—Southern California Gas Company (A Sempra Energy Utility)
SULEV—super ultra-low emission vehicle
TAO—Technology Advancement Office
TC—total carbon
THC—total hydrocarbons
TO—task order
TRB—Transportation Research Board
TSI—Three Squares, Inc.
UDDS—urban dynamometer driving schedule
$\mu g/m^3$—microgram per cubic meter
U.S.EPA—United States Environmental Protection Agency
U.S. —United States
ULEV—ultra low emission vehicle
VMT—vehicle miles traveled
VOC—volatile organic compounds
WVU—West Virginia University
ZEV—zero emission vehicle

CHAPTER IV
ANNUAL RECLAIM AUDIT REPORT
FOR 2013 COMPLIANCE YEAR

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Annual RECLAIM Audit Report for 2013 Compliance Year

March 6, 2015

Executive Officer
Barry R. Wallerstein, D.Env.

Deputy Executive Officer
Engineering & Compliance
Mohsen Nazemi, P.E.

Assistant Deputy Executive Officer
Engineering & Compliance
Jill Whynot

Senior Enforcement Manager
RECLAIM Administration
Danny Luong, P.E.

Authors: Mitch Haimov, M.S., Air Quality Analysis and Compliance Supervisor
Don Nguyen, Senior Air Quality Engineer
Fortune Chen, Air Quality Specialist
Chris Hynes, Air Quality Specialist
Kyu-Kyu Leong Remillard, Air Quality Engineer II
Sandys Thomas, Air Quality Engineer II
Susan Tsai, Air Quality Engineer II
Shannon Lee, Air Quality Engineer II

Contributors: Ian MacMillan, Program Supervisor
Mark Bassett, Air Quality Specialist
Mark Coleman, Air Quality Specialist
Tom Lee, Air Quality Engineer II

Reviewed by: Mohsen Nazemi, P.E., Deputy Executive Officer
Jill Whynot, Assistant Deputy Executive Officer
Danny Luong, P.E., Senior Enforcement Manager
Barbara Baird, Chief Deputy Counsel
William Wong, Principal Deputy District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

GOVERNING BOARD

Chairman: Dr. William A. Burke
Speaker of the Assembly
Appointee

Vice Chairman: Dennis R. Yates
Mayor, Chino
Cities of San Bernardino County

Members:

Michael D. Antonovich
Supervisor, Fifth District
County of Los Angeles

Ben Benoit
Mayor, Wildomar
Cities of Riverside County

John J. Benoit
Supervisor, Fourth District
County of Riverside

Joe Buscaino
Councilmember, Fifteenth District
City of Los Angeles Representative

Michael A. Cacciotti
Councilmember, South Pasadena
Cities of Los Angeles County/Eastern Region

Joseph K. Lyou, Ph.D.
Governor's Appointee

Judith Mitchell
Councilmember, Rolling Hills Estates
Cities of Los Angeles County/Western Region

Shawn Nelson
Supervisor, Fourth District
County of Orange

Dr. Clark E. Parker Sr.
Senate Rules Committee Appointee

Miguel A. Pulido
Mayor, Santa Ana
Cities of Orange County

Janice Rutherford
Supervisor, Second District
County of San Bernardino

EXECUTIVE OFFICER
Barry R. Wallerstein, D.Env.

TABLE OF CONTENTS

Tables

Appendices

LIST OF ABBREVIATIONS

ACEMS	Alternative Continuous Emissions Monitoring System(s)
AER	Annual Emission Report
APEP	Annual Permit Emissions Program
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
BARCT	Best Available Retrofit Control Technology
CAA	Clean Air Act
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEMS	Continuous Emissions Monitoring System(s)
CEQA	California Environmental Quality Act
CGA	Cylinder Gas Audit
CPMS	Continuous Process Monitoring System(s)
EDR	Electronic Data Reporting
ERC	Emission Reduction Credit
IYB RTC	Infinite-Year Block RECLAIM Trading Credit
LAER	Lowest Achievable Emission Rate
LAP	Laboratory Approval Program
MDP	Missing Data Procedures
MRR	Monitoring, Reporting and Recordkeeping
MSERC	Mobile Source Emission Reduction Credit
NAAQS	National Ambient Air Quality Standards
NNI	No Net Increase
NOx	Oxides of Nitrogen
NSR	New Source Review
QCER	Quarterly Certification of Emissions Report
RACT	Reasonably Available Control Technology
RATA	Relative Accuracy Test Audit
RECLAIM	REgional CLean Air Incentives Market
RTC	RECLAIM Trading Credit
RTU	Remote Terminal Unit
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SOx	Oxides of Sulfur
SSC	Stationary Source Committee
STC	Short Term Credit
SWG	Standing Working Group
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
WATERS	Web Access To Electronic Reporting System

EXECUTIVE SUMMARY

Introduction

The South Coast Air Quality Management District (SCAQMD) Governing Board adopted the REgional CLean Air Incentives Market (RECLAIM) program on October 15, 1993. The RECLAIM program represented a significant departure from traditional command-and-control regulations. RECLAIM's objective is to provide facilities with added flexibility in meeting emissions reduction requirements while lowering the cost of compliance. This is accomplished by establishing facility-specific emissions reduction targets without being prescriptive regarding the method of attaining compliance with the targets. Each facility may determine for itself the most cost-effective approach to reducing emissions, including reducing emissions at their facility, and/or purchasing RECLAIM Trading Credits (RTCs) from other RECLAIM facilities, or from other RTC holders.

Rule 2015 - Backstop Provisions includes provisions for annual program audits focusing on specific topics, as well as a one-time comprehensive audit of the program's first three years, to ensure that RECLAIM is meeting all state and federal requirements and other performance criteria. Rule 2015 also provides backstop measures if the specific criteria are not met. This report constitutes the Rule 2015 annual program audit report for Compliance Year 2013 (January 1 through December 31, 2013 for Cycle 1 and July 1, 2013 through June 30, 2014 for Cycle 2 facilities). This annual audit report covers activities for the twentieth year of the program.

Chapter 1: RECLAIM Universe

When RECLAIM was adopted in October 1993, a total of 394 facilities were identified as the initial "universe" of sources subject to the requirements of RECLAIM. From program adoption through June 30, 2013, the overall changes in RECLAIM participants were 123 facilities included into the program, 70 facilities excluded from the program, and 174 facilities ceased operation. Thus, the RECLAIM universe consisted of 273 active facilities at the end of Compliance Year 2012 (December 31, 2012 for Cycle 1 facilities and June 30, 2013 for Cycle 2 facilities). During Compliance Year 2013 (January 1, 2013 through December 31, 2013 for Cycle 1 facilities and July 1, 2013 through June 30, 2014 for Cycle 2 facilities), six facilities were included into the RECLAIM universe, no facility was excluded, and four facilities (all in the NOx universe only) shut down and are no longer in the active RECLAIM universe. These changes resulted in a net increase of two facilities in the universe, bringing the total number of active RECLAIM facilities to 275 as of the end of Compliance Year 2013.

Chapter 2: RTC Allocations and Trading

On November 5, 2010, the Governing Board adopted amendments to SOx RECLAIM to phase in SOx reductions in Compliance Year 2013 and continue through Compliance Year 2019. The amendment will result in an overall reduction of 48.4% (or 5.7 tons/day) in SOx allocations when fully implemented (for Compliance Year 2019 and beyond). For Compliance Year 2013, the first

year of implementation, the SOx allocation supply is reduced by 25% (or 3.0 tons/day) to 3,204 tons. There was no programmatic allocation reduction in NOx RTCs during Compliance Year 2013.

The overall NOx RTC supply increased by 20.7 tons and the SOx RTC supply decreased by 5.75 tons during Compliance Year 2013. The changes were due to allocation adjustments for clean fuel production pursuant to Rule 2002(c)(12), which accounted for an increase of 9.9 tons of NOx RTCs and a decrease of 5.8 tons of SOx RTCs. The remaining 10.8 tons of increased NOx RTCs was the result of allocations issued to two facilities that entered the NOx RECLAIM program. One existing NOx RECLAIM facility entered the SOx RECLAIM program and was issued 0.05 tons of SOx RTCs. As a result, the NOx and SOx RTC supplies for Compliance Year 2013 were 9,699 tons and 3,198 tons, respectively.

During calendar year 2014, there were 362 registered RTC transactions with a total value of over $104 million traded, excluding the values reported for swap transactions. Since the inception of the RECLAIM program in 1994, a total value of over $1.15 billion dollars has been traded in the RTC trading market, excluding swap transactions. RTC trades are reported to SCAQMD as either discrete-year RTC transactions or infinite-year block (IYB) transactions (trades that involve blocks of RTCs with a specified start year and continuing into perpetuity). In terms of volume traded in calendar year 2014, a total of 2,318 tons of discrete NOx RTCs, 493 tons of discrete SOx RTCs, 942 tons of infinite-year block (IYB) NOx RTCs and 22.5 tons of IYB SOx RTCs were traded. The RTC trading market activity during calendar year 2014 compared to calendar year 2013 was about the same in terms of number of trades, significantly lower in total volume (decreased by 48%), but substantially higher in total value (increased by 243%).

The annual average prices of discrete-year NOx RTCs traded during calendar year 2014 were $1,065 per ton for Compliance Year 2013 RTCs, $1,910 per ton for Compliance Year 2014 RTCs, and $3,779 per ton for Compliance Year 2015 RTCs. The annual average prices for discrete-year SOx RTCs traded during the same period were $378 per ton for Compliance Year 2013 RTCs and $400 per ton for Compliance Year 2014 RTCs. Therefore, the annual average prices for discrete NOx and SOx RTCs for all compliance years remained well below the $15,000 per ton threshold to evaluate and review the compliance aspects of the program set forth by SCAQMD Rule 2015, as well as the $40,612 per ton of NOx and $29,241 per ton of SOx discrete RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f).

The annual average price during calendar year 2014 for IYB NOx RTCs was $110,509 per ton, and the annual average price for IYB SOx RTCs was $80,444 per ton. Therefore, annual average IYB RTC prices did not exceed the $609,187 per ton of IYB NOx RTCs or the $438,615 per ton of IYB SOx RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f).

Investors were again active in the RTC market during calendar year 2014. They were involved in 138 of the 219 discrete NOx and SOx trade registrations with price and 44 of 53 IYB NOx and SOx trades with price. Investors were involved in 46% of total value and 47% of total volume for discrete NOx trades, and 55%

of total value and 57% of total volume for discrete SOx trades. In addition, investors were involved in 64% of total value and 59% of total volume for IYB NOx trades with price. Investors were not involved in any IYB SOx trades with price. At the end of calendar year 2014, investors' holdings of IYB NOx RTCs and IYB SOx RTCs were 4.6% and 0.9% of the total RECLAIM RTCs, respectively.

Chapter 3: Emission Reductions Achieved

For Compliance Year 2013, aggregate NOx emissions were below total allocations by 24% and aggregate SOx emissions were below total allocations by 35%. No emissions associated with breakdowns were excluded from reconciliation with facility allocations in Compliance Year 2013. Accordingly, no mitigation is necessary to offset excluded emissions due to approved Breakdown Emission Reports. Therefore, based on audited emissions, it can be concluded that RECLAIM achieved its targeted emission reductions for Compliance Year 2013. With respect to the Rule 2015 backstop provisions, Compliance Year 2013 aggregate NOx and SOx emissions were both well below aggregate allocations and, as such, did not trigger the requirement to review the RECLAIM program.

Chapter 4: New Source Review Activity

The annual program audit assesses New Source Review (NSR) activity from RECLAIM facilities in order to ensure that RECLAIM is complying with federal NSR requirements and state no net increase (NNI) in emissions requirements while providing flexibility to facilities in managing their operations and allowing new sources into the program. In Compliance Year 2013, a total of 70 NOx RECLAIM facilities had NSR NOx emission increases, and 11 SOx RECLAIM facilities had NSR SOx emission increases due to expansion or modification. Consistent with all prior compliance years, there were sufficient NOx and SOx RTCs available to allow for expansion, modification, and modernization by RECLAIM facilities.

RECLAIM is required to comply with federal NSR emissions offset requirements at a 1.2-to-1 offset ratio programmatically for NOx emission increases and a 1-to-1 offset ratio for SOx emission increases on a programmatic basis. In Compliance Year 2013, RECLAIM provided an offset ratio based on the compliance year's total unused allocations and total NSR emission increases of 6-to-1 for NOx, demonstrating federal equivalency. RECLAIM inherently complies with the federally-required 1-to-1 SOx offset ratio for any compliance year, provided aggregate SOx emissions under RECLAIM are lower than or equal to aggregate SOx allocations for that compliance year. As shown in Chapter 3, there was no programmatic SOx exceedance during Compliance Year 2013. In fact, there was a surplus of SOx RTCs. Therefore, RECLAIM more than complied with the federally-required SOx offset ratio and further quantification of the SOx offset ratio is unnecessary. Compliance with the federally-required offset ratio also demonstrates compliance with any applicable state NNI requirements for new or modified sources. In addition, RECLAIM requires application of, at a minimum, California Best Available Control Technology (BACT). The same BACT guidelines are used to determine applicable BACT to RECLAIM and non-RECLAIM facilities.

Chapter 5: Compliance

Of the 279 NOx RECLAIM facilities audited during Compliance Year 2013, a total of 271 facilities (97%) complied with their NOx allocations, and 31 of the 33 SOx facilities (94%) complied with their SOx allocations. The eight facilities that exceeded their NOx allocations had aggregate NOx emissions of 173.2 tons and did not have adequate allocations to offset 18.5 tons (or 10.6%) of their combined emissions. This exceedance amount is small compared to the overall allocations for Compliance Year 2013 (0.19% of total NOx allocations). Two SOx facilities had SOx emissions that exceeded their SOx allocations by two pounds in one case and seven pounds in the other case. The exceedances from these facilities did not impact the overall RECLAIM emission reduction goals. Pursuant to Rule 2010(b)(1)(A), these facilities had their respective exceedances deducted from their annual allocations for the compliance year subsequent to the date of SCAQMD's determination that the facilities exceeded their Compliance Year 2013 allocations. The overall RECLAIM NOx and SOx emission reduction targets and goals were met for Compliance Year 2013 (*i.e.*, aggregate emissions for all RECLAIM facilities were well below aggregate allocations).

Chapter 6: Reported Job Impacts

This chapter compiles data as reported by RECLAIM facilities in their Annual Permit Emissions Program (APEP) reports. The analysis focuses exclusively on job impacts at RECLAIM facilities and determination if those job impacts were directly attributable to RECLAIM as reported by those facilities. Additional benefits to the local economy (*e.g.*, generating jobs for consulting firms, source testing firms and CEMS vendors) attributable to the RECLAIM program, as well as factors outside of RECLAIM (*e.g.*, the prevailing economic climate), impact the job market. However, these factors are not evaluated in this report. Also, job losses and job gains are strictly based on RECLAIM facilities' reported information. SCAQMD staff is not able to independently verify the accuracy of the reported job impact information.

According to the Compliance Year 2013 employment survey data gathered from APEP reports, RECLAIM facilities reported a net gain of 4,180 jobs, representing 4.01% of their total employment. Two facilities reported a gain of one job each due to RECLAIM while one facility reported a loss of four jobs due to RECLAIM. None of the four RECLAIM facilities that shut down during Compliance Year 2013 cited RECLAIM as a factor contributing to the decision to shutdown.

Chapter 7: Air Quality and Public Health Impacts

Audited RECLAIM emissions have been in an overall downward trend since the program's inception. Compliance Year 2013 NOx emissions decreased 4.8% relative to Compliance Year 2012 and Compliance Year 2013 SOx emissions were 19.0% less than the previous year. Quarterly calendar year 2013 NOx emissions fluctuated within 18 percent of the mean NOx emissions for the year. Quarterly calendar year 2013 SOx emissions fluctuated within 16 percent of the year's mean SOx emissions. There was no significant shift in seasonal emissions from the winter season to the summer season for either pollutant.

The California Clean Air Act (CCAA) required a 50% reduction in population exposure to ozone, relative to a baseline averaged over three years (1986

through 1988), by December 31, 2000. The Basin achieved the December 2000 target for ozone well before the deadline. In calendar year 2014, the per capita exposure to ozone (the average length of time each person is exposed) continued to be well below the target set for December 2000.

Air toxic health risk is primarily caused by emissions of certain volatile organic compounds (VOCs) and fine particulates, such as metals. RECLAIM facilities are subject to the same air toxic, VOC, and particulate matter regulations as other sources in the Basin. All sources are subject, where appropriate, to the NSR rule for toxics (Rule 1401 and/or Rule 1401.1). In addition, new or modified sources with NOx or SOx emission increases are required to be equipped with BACT, which minimizes to the extent feasible the increase of NOx and SOx emissions. RECLAIM and non-RECLAIM facilities that emit toxic air contaminants are required to report those emissions to SCAQMD. Those emissions reports are used to identify candidates for the Toxics Hot Spots program (AB2588). This program requires emission inventories and depending on the type and amount of emissions, facilities may be required to do public notice and/or prepare and implement a plan to reduce emissions. There is no evidence that RECLAIM has caused or allowed higher toxic risk in areas adjacent to RECLAIM facilities.

INTRODUCTION

The South Coast Air Quality Management District (SCAQMD) REgional CLean Air Incentives Market (RECLAIM) program was adopted in October 1993 and replaced certain command-and-control rules regarding oxides of nitrogen (NOx) and oxides of sulfur (SOx) with a new market incentives program for facilities that meet the inclusion criteria. The goals of RECLAIM are to provide facilities with added flexibility in meeting emissions reduction requirements while lowering the cost of compliance. The RECLAIM program was designed to meet all state and federal Clean Air Act (CAA) and other air quality regulations and program requirements, as well as various other performance criteria, such as equivalent or better air quality improvement, enforcement, implementation costs, job impacts, and no adverse public health impacts.

Since RECLAIM represents a significant change from traditional command-and-control regulations, RECLAIM rules include provisions for program audits in order to verify that the RECLAIM objectives are being met. The rules provide for a comprehensive audit of the first three years of program implementation and for annual program audits. The audit results are used to help determine whether any program modifications are appropriate. SCAQMD staff has completed the initial tri-annual program audit and each individual annual program audit report through the 2013 Compliance Year Audit.

This report presents the annual program audit and progress report of RECLAIM's twentieth compliance year (January 1 through December 31, 2013 for Cycle 1 and July 1, 2013 through June 30, 2014 for Cycle 2 RECLAIM facilities), also known as Compliance Year 2013. As required by Rule 2015(b)(1) – Annual Audits, this audit assesses:

- Emission reductions;
- Per capita exposure to air pollution;
- Facilities permanently ceasing operation of all sources;
- Job impacts;
- Annual average price of each type of RECLAIM Trading Credit (RTC);
- Availability of RTCs;
- Toxic risk reductions;
- New Source Review permitting activity;
- Compliance issues, including a list of facilities that were unable to reconcile emissions for that compliance year;
- Emission trends/seasonal fluctuations;
- Emission control requirement impacts on stationary sources in the program compared to other stationary sources identified in the Air Quality Management Plan (AQMP); and
- Emissions associated with equipment breakdowns.

The annual program audit report is organized into the following chapters:

1. ***RECLAIM Universe***
   This chapter discusses summarizes changes to the universe of RECLAIM sources that occurred up until July 1, 2013 (covered under the Annual RECLAIM Audit Report for 2012 Compliance Year), then discusses changes to the RECLAIM universe of sources in detail through the end of Compliance Year 2013.
2. ***RTC Allocations and Trading***
   This chapter summarizes changes in emissions allocations in the RECLAIM universe, RTC supply and RTC trading activity, annual average prices, availability of RTCs, and market participants.
3. ***Emission Reductions Achieved***
   This chapter assesses emissions trends and progress towards emission reduction goals for RECLAIM sources, emissions associated with equipment breakdowns, and emissions control requirement impacts on RECLAIM sources compared to other stationary sources. It also discusses the latest amendments to the RECLAIM program.
4. ***New Source Review Activity***
   This chapter summarizes New Source Review (NSR) activities at RECLAIM facilities.
5. ***Compliance***
   This chapter discusses compliance activities and the compliance status of RECLAIM facilities. It also evaluates the effectiveness of SCAQMD's compliance program, as well as the monitoring, reporting, and recordkeeping (MRR) protocols for NOx and SOx.
6. ***Reported Job Impacts***
   This chapter addresses job impacts and facilities permanently ceasing operation of all emission sources.
7. ***Air Quality and Public Health Impacts***
   This chapter discusses air quality trends in the South Coast Air Basin, seasonal emission trends for RECLAIM sources, per capita exposure to air pollution, and the toxic impacts of RECLAIM sources.

CHAPTER 1
RECLAIM UNIVERSE

Summary

When RECLAIM was adopted in October 1993, a total of 394 facilities were identified as the initial "universe" of sources subject to the requirements of RECLAIM. From program adoption through June 30, 2013, the overall changes in RECLAIM participants were 123 facilities included into the program, 70 facilities excluded from the program, and 174 facilities ceased operation. Thus, the RECLAIM universe consisted of 273 active facilities at the end of Compliance Year 2012 (December 31, 2012 for Cycle 1 facilities and June 30, 2013 for Cycle 2 facilities). During Compliance Year 2013 (January 1, 2013 through December 31, 2013 for Cycle 1 facilities and July 1, 2013 through June 30, 2014 for Cycle 2 facilities), six facilities were included into the RECLAIM universe, no facility was excluded, and four facilities (all in the NOx universe only) shut down and are no longer in the active RECLAIM universe. These changes resulted in a net increase of two facilities in the universe, bringing the total number of active RECLAIM facilities to 275 as of the end of Compliance Year 2013.

Background

The RECLAIM program replaced the traditional "command-and-control" rules for a defined list of facilities participating in the program (the RECLAIM "universe"). The criteria for inclusion in the RECLAIM program are specified in Rule 2001 – Applicability. Facilities are generally subject to RECLAIM if they have NOx or SOx emissions greater than or equal to four tons per year in 1990 or any subsequent year. However, certain facilities are categorically excluded from RECLAIM. The categorically excluded facilities include dry cleaners; restaurants; police and fire fighting facilities; construction and operation of landfill gas control, landfill gas processing or landfill gas energy facilities; public transit facilities, potable water delivery operations; facilities that converted all sources to operate on electric power prior to October 1993; and facilities, other than electric generating facilities established on or after January 1, 2001, located in the Riverside County portions of the Mojave Desert Air Basin or the Salton Sea Air Basin.

Other categories of facilities are not automatically included but do have the option to enter the program. These categories include electric utilities (exemption only for the SOx program); equipment rental facilities; facilities possessing solely "various locations" permits; schools or universities; portions of facilities conducting research operations; ski resorts; prisons; hospitals; publicly-owned municipal waste-to-energy facilities; publically-owned sewage treatment facilities operating consistent with an approved regional growth plan; electrical power generating systems owned and operated by the Cities of Burbank, Glendale, or Pasadena or their successors; facilities on San Clemente Island; agricultural facilities; and electric generating facilities that are new on or after January 1, 2001 and located in the Riverside County portions of the Mojave Desert Air Basin or the Salton Sea Air Basin. An initial universe of 394 RECLAIM

facilities was developed using the inclusion criteria initially adopted in the RECLAIM program based on 1990, 1991 and 1992 facility emissions data.

A facility that is not in a category that is specifically excluded from the program may voluntarily join RECLAIM regardless of its emission level. Additionally, a facility may be required to enter the RECLAIM universe if:

- It increases its NOx and/or SOx emissions from permitted sources above the four ton per year threshold; or
- It ceases to be categorically excluded and its reported NOx and/or SOx emissions are greater than or equal to four tons per year; or
- It is determined by SCAQMD staff to meet the applicability requirements of RECLAIM, but was initially misclassified as not subject to RECLAIM.

At the time of joining RECLAIM, each RECLAIM facility is issued an annually declining allocation of emission credits ("RECLAIM Trading Credits" or "RTCs") based on its historic production level (if the facility existed prior to January 1, 1993), external offsets it previously provided, and any Emission Reduction Credits (ERCs) generated at and held by the facility. Each RECLAIM facility's RTC holdings constitute an annual emissions budget. RTCs may be bought or sold as the facility deems appropriate (see Chapter 2 – RTC Allocations and Trading).

RECLAIM facilities that permanently go out of business are removed from the active emitting RECLAIM universe, but may retain their remaining RTCs and participate in the trading market.

Staff has periodically initiated the process of reviewing past Annual Emission Reports (AERs) from non-RECLAIM facilities to determine applicability of RECLAIM pursuant to Rule 2001(b) – Criteria for Inclusion in RECLAIM. Commencing in 2012, an annual review process was implemented. This facility inclusion process begins with SCAQMD staff compiling a list of non-RECLAIM (pollutant-specific) facilities that emitted NOx or SOx emissions greater than or equal to four tons per year, as reported under the AER program, for potential inclusion into RECLAIM. This part of the process involves screening for emissions only from equipment that are subject to RECLAIM (*e.g.*, emissions from on-site, off-road mobile sources are not included). From this initial list, each facility's business activity/operations are evaluated based on SCAQMD's records for possible categorical exemption pursuant to Rule 2001(i). Facilities that qualify under these categorical exemptions are removed from the list. The remaining facilities are informed of their potential inclusion into RECLAIM and are given the opportunity to provide records to demonstrate why the facility should not be included under RECLAIM. This may include additional information about the facility's operations that would qualify it for categorical exemption from RECLAIM pursuant to Rule 2001(i), or correcting their AER-reported emissions with supporting documentation. Once a facility has qualified for inclusion, a draft facility permit is prepared, sent to the facility for comments, finalized and issued.

Universe Changes

In the early years of the RECLAIM program, facilities initially identified for inclusion were excluded upon determination that they did not meet the criteria for inclusion (*e.g.*, some facilities that had reported emissions from permitted

sources above four tons in a year were determined to have over-reported their emissions and subsequently submitted corrected emissions reports reflecting emissions from permitted sources below four tons per year). Additionally, facilities that were not part of the original universe were subsequently added to the program based on the inclusion criteria mentioned above. The overall changes to the RECLAIM universe from the date of adoption (October 15, 1993) through June 30, 2013 (the last day of Compliance Year 2012 for Cycle 2 facilities) were: the inclusion of 123 facilities (including 34 facilities created by partial change of operator of existing RECLAIM facilities), the exclusion of 70 facilities, and the shutdown of 174 facilities. Thus, the net change in the RECLAIM universe from January 1, 1994 through June 30, 2013 was a decrease of 121 facilities from 394 to 273 facilities. In Compliance Year 2013 (January 1, 2013 through December 31, 2013 for Cycle 1 facilities and July 1, 2013 through June 30, 2014 for Cycle 2 facilities), six facilities were included, no facility was excluded, and four facilities shut down. These changes brought the total number of facilities in the RECLAIM universe to 275 facilities. The Compliance Year 2013 RECLAIM universe includes 242 NOx-only, no SOx-only, and 33 both NOx and SOx RECLAIM facilities. The list of active facilities in the RECLAIM universe as of the end of Compliance Year 2013 is provided in Appendix A.

Facility Inclusions and Exclusions

Six facilities were included in the RECLAIM universe in Compliance Year 2013. One of these facilities elected to enter the RECLAIM program, whereas another facility, a former RECLAIM facility that ceased operation in 2005, reactivated its operation. The third facility relocated part of its operation to a new location. The remaining three facilities were included in NOx RECLAIM pursuant to Rule 2001(b) – Criteria for Inclusion in RECLAIM because they reported NOx emissions from permitted sources in excess of four tons a year. Additionally, an existing NOx RECLAIM facility amended its AERs to report SOx emissions exceeding four tons and was added into SOx RECLAIM. However, the inclusion of this existing NOx facility into SOx RECLAIM did not result in a change to the overall number of facilities. Appendix B lists these seven facilities and the reasons for their inclusion. No facility was excluded from the RECLAIM universe during Compliance Year 2013.

Since the implementation of the above-described annual review process, a total of 69 facilities were identified based on their AERs as potential candidates for inclusion (two of the 69 facilities were already NOx RECLAIM facilities; they were identified for inclusion into SOx RECLAIM based on their SOx emissions). As stated above, three NOx facilities were included as a result of this process. Twenty-six other facilities are still in various stages of the review process. The remaining 40 facilities have been eliminated from the process because they either have corrected their AERs to be less than 4 tons per year or have been identified to be in one of the exempted facility categories. Additional inclusions will be addressed in future RECLAIM annual program audits as facility eligibility is confirmed. Per Rule 2001(c)(2), a facility is subject to RECLAIM provisions on the date a facility permit containing RECLAIM requirements is issued.

Facilities Permanently Ceasing Operations

Four RECLAIM facilities permanently ceased operations in Compliance Year 2013. One facility shut down and filed for bankruptcy. A second facility had all equipment removed from the site and the property was sold for development as a warehouse-distribution center. Of the remaining two facilities, one attributed a declining demand for products and the other cited the high cost of manufacturing as reasons for shutdown. None of these facilities cited RECLAIM as a cause for their shutting down. All four facilities permanently ceasing operations were in NOx RECLAIM. Appendix C lists these facilities and provides brief descriptions of the reported reasons for their closures.

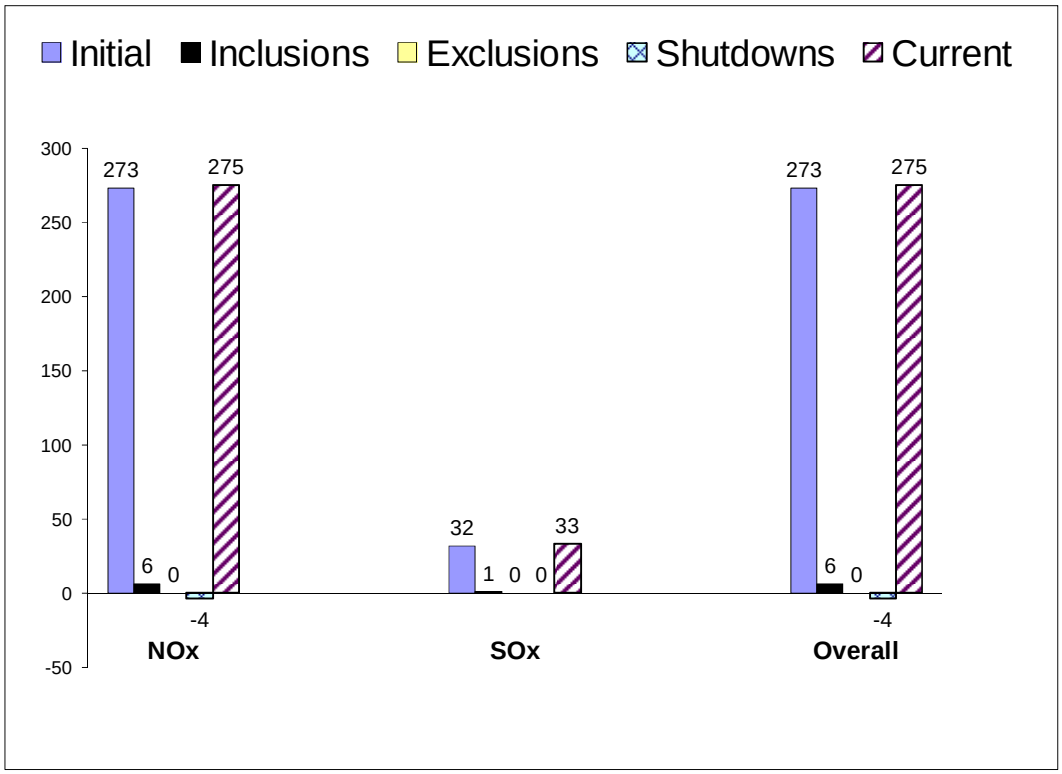
The above mentioned changes to the RECLAIM Universe resulted in a net increase of two facilities in the RECLAIM universe during Compliance Year 2013. Table 1-1 summarizes overall changes in the RECLAIM universe between the start of the program and end of Compliance Year 2013 (December 31, 2013 for Cycle 1 facilities and June 30, 2014 for Cycle 2 facilities). Changes to the RECLAIM universe that occurred in Compliance Year 2013 are illustrated in Figure 1-1.

Table 1-1
RECLAIM Universe Changes

	NOx Facilities	SOx Facilities	Total* Facilities
Universe – October 15, 1993 (Start of Program)	392	41	394
Inclusions – October 15, 1993 through Compliance Year 2012	123	12	123
Exclusions – October 15, 1993 through Compliance Year 2012	-69	-4	-70
Shutdowns – October 15, 1993 through Compliance Year 2012	-173	-17	-174
Universe – June 30, 2013	273	32	273
Inclusions –Compliance Year 2013	6	1	6
Exclusions –Compliance Year 2013	0	0	0
Shutdowns –Compliance Year 2013	-4	0	-4
Universe – End of Compliance Year 2013	275	33	275

* "Total Facilities" is not the sum of NOx and SOx facilities due to the overlap of some facilities being in both the NOx and SOx universes.

Figure 1-1
Universe Changes in Compliance Year 2013



CHAPTER 2
RTC ALLOCATIONS AND TRADING

Summary

On November 5, 2010, the Governing Board adopted amendments to SOx RECLAIM to phase in SOx reductions in Compliance Year 2013 and continue through Compliance Year 2019. The amendment will result in an overall reduction of 48.4% (or 5.7 tons/day) in SOx allocations when fully implemented (for Compliance Year 2019 and beyond). For Compliance Year 2013, the first year of implementation, the SOx allocation supply is reduced by 25% (or 3.0 tons/day) to 3,204 tons. There was no programmatic allocation reduction in NOx RTCs during Compliance Year 2013.

The overall NOx RTC supply increased by 20.7 tons and the SOx RTC supply decreased by 5.75 tons during Compliance Year 2013. The changes were due to allocation adjustments for clean fuel production pursuant to Rule 2002(c)(12), which accounted for an increase of 9.9 tons of NOx RTCs and a decrease of 5.8 tons of SOx RTCs. The remaining 10.8 tons of increased NOx RTCs was the result of allocations issued to two facilities that entered the NOx RECLAIM program. One existing NOx RECLAIM facility entered the SOx RECLAIM program and was issued 0.05 tons of SOx RTCs. As a result, the NOx and SOx RTC supplies for Compliance Year 2013 were 9,699 tons and 3,198 tons, respectively.

During calendar year 2014, there were 362 registered RTC transactions with a total value of over $104 million traded, excluding the values reported for swap transactions. Since the inception of the RECLAIM program in 1994, a total value of over $1.15 billion dollars has been traded in the RTC trading market, excluding swap transactions. RTC trades are reported to SCAQMD as either discrete-year RTC transactions or infinite-year block (IYB) transactions (trades that involve blocks of RTCs with a specified start year and continuing into perpetuity). In terms of volume traded in calendar year 2014, a total of 2,318 tons of discrete NOx RTCs, 493 tons of discrete SOx RTCs, 942 tons of infinite-year block (IYB) NOx RTCs and 22.5 tons of IYB SOx RTCs were traded. The RTC trading market activity during calendar year 2014 compared to calendar year 2013 was about the same in terms of number of trades, significantly lower in total volume (decreased by 48%), but substantially higher in total value (increased by 243%).

The annual average prices of discrete-year NOx RTCs traded during calendar year 2014 were $1,065 per ton for Compliance Year 2013 RTCs, $1,910 per ton for Compliance Year 2014 RTCs, and $3,779 per ton for Compliance Year 2015 RTCs. The annual average prices for discrete-year SOx RTCs traded during the same period were $378 per ton for Compliance Year 2013 RTCs and $400 per ton for Compliance Year 2014 RTCs. Therefore, the annual average prices for discrete NOx and SOx RTCs for all compliance years remained well below the $15,000 per ton threshold to evaluate and review the compliance aspects of the program set forth by SCAQMD Rule 2015, as well as the $40,612 per ton of NOx and $29,241 per ton of SOx discrete RTCs pre-determined overall program

review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f).

The annual average price during calendar year 2014 for IYB NOx RTCs was $110,509 per ton, and the annual average price for IYB SOx RTCs was $80,444 per ton. Therefore, annual average IYB RTC prices did not exceed the $609,187 per ton of IYB NOx RTCs or the $438,615 per ton of IYB SOx RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f).

Investors were again active in the RTC market during calendar year 2014. They were involved in 138 of the 219 discrete NOx and SOx trade registrations with price and 44 of 53 IYB NOx and SOx trades with price. Investors were involved in 46% of total value and 47% of total volume for discrete NOx trades, and 55% of total value and 57% of total volume for discrete SOx trades. In addition, investors were involved in 64% of total value and 59% of total volume for IYB NOx trades with price. Investors were not involved in any IYB SOx trades with price. At the end of calendar year 2014, investors' holdings of IYB NOx RTCs and IYB SOx RTCs were 4.6% and 0.9% of the total RECLAIM RTCs, respectively.

Background

SCAQMD issues each RECLAIM facility emissions allocations for each compliance year, according to the methodology specified in Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx), based on its historic production levels as reported to SCAQMD in its annual emission reports (if the facility existed prior to January 1, 1993), the listed starting emission factor in Tables 1 or 2 according to the equipment category, any qualified[1] external offsets it previously provided, any unused Emission Reduction Credits (ERCs) generated at and held by the facility and the methodology prescribed in the rule for each Compliance Year subsequent to 1994, including reductions due to implementation of Best Available Retrofit Control Technology (BARCT). These allocations are issued as RTCs, denominated in pounds of NOx or SOx with a specified 12-month term. Each RTC may only be used for emissions occurring within the term of that RTC. The RECLAIM program has two staggered compliance cycles—Cycle 1 with a compliance period of January 1 through December 31 of each year, and Cycle 2 with a compliance period of July 1 of each year through June 30 of the following year. Each RECLAIM facility is assigned to either Cycle 1 or Cycle 2 and the RTCs it is issued (if any) have corresponding periods of validity.

The issuance of allocations for future years provides RECLAIM facilities guidance regarding their future emission reduction requirements. Facilities can plan their compliance strategies by reducing actual emissions or securing needed RTCs through trade registrations (or a combination of the two), based on their operational needs.

RECLAIM facilities may acquire RTCs issued for either cycle through trading and apply them to emissions, provided that the RTCs are used for emissions

[1] Only external offsets provided at a one-to-one offset ratio after the base year used for allocation quantification purposes.

occurring within the RTCs' period of validity and the trades are made during the appropriate time period. RECLAIM facilities have until 30 days after the end of each of the first three quarters of each compliance year to reconcile their quarterly and year-to-date emissions, and until 60 days after the end of each compliance year to reconcile their last quarter and total annual emissions by securing adequate RTCs. Please note that, although other chapters in this report present and discuss Compliance Year 2013 data, RTC trading and price data discussed in this chapter are for calendar year 2014.

RTC Allocations and Supply

The methodology for determining RTC allocations is established by Rule 2002. According to this rule, allocations may change when the universe of RECLAIM facilities changes, emissions associated with the production of re-formulated gasoline increase or decrease, reported historical activity levels are updated, or emission factors used to determine allocations are changed. In addition to these SCAQMD-allocated RTCs, RTCs may be generated by conversion of emissions reduction credits from mobile and area sources pursuant to approved protocols. The total RTC supply in RECLAIM is made up of all RECLAIM facilities' allocations, conversions of ERCs owned by RECLAIM and non-RECLAIM facilities (the window of opportunity to convert ERCs to RTCs other than during the process of a non-RECLAIM facility entering the program closed June 30, 1994), emissions associated with the production of re-formulated gasoline, and conversion of emission reduction credits from mobile sources and area sources pursuant to approved protocols. Changes in the RTC supply during Compliance Year 2013 are discussed below.

Allocations Adjustments Due to Inclusion and Exclusion of Facilities

Facilities existing prior to October 1993 and entering RECLAIM after 1994 may receive allocations just like facilities that were included at the beginning of the program. However, allocations issued for these facilities are only applicable for the compliance year upon entry and forward. In addition, these facilities are issued allocations and Non-tradable/Non-usable Credits for Compliance Year 1994 for the sole purpose of establishing their starting allocation to ensure compliance with offset requirements under Rule 2005 - New Source Review for RECLAIM and the trading zone restriction to ensure net ambient air quality improvement within the sensitive zone established by Health and Safety Code §40410.5. These Compliance Year 1994 credits are not allowed to be used to offset current emissions because they have expired.

Of the six NOx facilities and one SOx facility that were included in Compliance Year 2013, two NOx facilities and the SOx facility were issued allocations. A total of 10.8 tons per year of NOx allocations and 0.05 tons per year of SOx allocations were issued to these facilities entering RECLAIM in Compliance Year 2013.

Allocations Adjustments Due to Clean Fuel Production

Rule 2002(c)(12) – Clean Fuel Adjustment to Starting Allocation, provides refineries with RTCs to compensate for their actual emissions increases caused by the production of California Air Resources Board (CARB) Phase II reformulated gasoline. The amount of these RTCs is based on actual emissions

for the subject compliance year and historical production data. The quantities of such clean fuels RTCs needed were projected based on the historical production data submitted, and qualifying refineries were issued in 2000 an aggregate baseline of 86.5 tons of NOx and 42.3 tons of SOx for Compliance Year 1999, 101.8 tons of NOx and 41.4 tons of SOx for Compliance Year 2000, and 98.4 tons of NOx and 40.2 tons of SOx for each subsequent Compliance Year on the basis of those projections. These refineries are required to submit, at the end of each compliance year in their Annual Permit Emissions Program (APEP) report, records to substantiate actual emission increases due solely to the production of reformulated gasoline. If actual emission increases for a subject year are different than the projected amount, the RTCs issued are adjusted accordingly (*i.e.*, excess RTCs issued are deducted if emissions were less than projected; conversely, additional RTCs are issued if emissions were higher than projected).

As a result of the amendment to Rule 2002 in January 2005 to further reduce RECLAIM NOx allocations, the NOx historical baseline Clean Fuel Adjustments for Compliance Year 2007 and subsequent years held by the facility were also reduced by the appropriate factors as stated in Rule 2002(f)(1)(A). On the other hand, Rule 2002(c)(12) provides refineries a Clean Fuels adjustment based on actual emissions. Therefore, each refinery is subject to an adjustment at the end of each compliance year equal to the difference between the amount of actual emission increases due solely to production of reformulated gasoline at each refinery and the amount of credits it was issued in 2000 after discounting by the factors for the corresponding compliance year. For Compliance Year 2013, the overall effect of adjusting NOx allocations to account for these differences was a total of 9.9 tons of NOx RTCs (0.1% of total NOx allocation for Compliance Year 2013) added to, and 5.8 tons of SOx RTCs (0.2% of total SOx allocation for Compliance Year 2013) deducted from, refineries' Compliance Year 2013 holdings.

Changes in RTC Allocations Due to Activity Corrections

RECLAIM facilities' allocations are determined by their reported historical activity levels (*e.g.*, fuel usage, material usage, or production). If a facility makes corrections to its reported activity levels, the allocation is adjusted accordingly. There were no changes in RTC allocations due to activity corrections in Compliance Year 2013.

Conversions of Other Types of Emission Reduction Credits

Conversions of Mobile Source Emission Reduction Credits (MSERCs) and other types of emission reduction credits, other than regular stationary source ERCs issued under Regulation XIII – New Source Review, to RTCs are allowed under Rule 2008 – Mobile Source Credits, and several programs under Regulation XVI – Mobile Source Offset Programs and Regulation XXV – Intercredit Trading. Conversion of these credits to RTCs is allowed based on the respective approved protocol specified in each rule. Currently, Rules 1610 – Old-Vehicle Scrapping and 1612 – Credits for Clean On-Road Vehicles allow the creation of MSERCs. However, there are no State Implementation Plan (SIP) approved protocols for conversion of MSERCs to RTCs. No new RTCs were issued by conversion of other types of emission reduction credits in Compliance Year 2013.

Net Changes in RTC Allocations

The changes to RTC supplies described in the above sections resulted in a net increase of 20.7 tons of NOx RTCs (0.2% of the total) and a decrease of 5.8 tons of SOx RTCs (0.2% of total) for Compliance Year 2013. Table 2-1 summarizes the changes in NOx and SOx RTC supplies that occurred in Compliance Year 2013 pursuant to Rule 2002.

Table 2-1
Changes in NOx and SOx RTC Supplies during Compliance Year 2013 (tons/year)

Source	NOx	SOx
Universe changes	10.8	0.05
Clean Fuel/Reformulated Gasoline	9.9	-5.8
Activity corrections	0	0
MSERCs	0	0
Net change	**20.7**	**-5.75**

Note: The data in this table represents the changes that occurred over the course of Compliance Year 2013 to the Compliance Year 2013 aggregate NOx and SOx RTC supplies originally issued pursuant to Rule 2002, not the difference between 2013 aggregate RTC supply and that for any other compliance year.

Allocation Reduction Resulting from BARCT Review

Pursuant to California Health and Safety Code §40440, SCAQMD is required to monitor the advancement in BARCT and periodically re-assess the RECLAIM program to ensure that RECLAIM achieves equivalent emission reductions to the command-and-control BARCT rules it subsumes. This assessment is done periodically as part of AQMP development. This process resulted in 2003 AQMP Control Measure #2003 CMB-10 – Additional NOx Reductions for RECLAIM (NOx) calling for additional NOx reductions from RECLAIM sources. SCAQMD staff then started the rule amendment process, including a detailed analysis of control technologies that qualified as BARCT for NOx, and held lengthy discussions with stakeholders—including regulated industry, environmental groups, the California Air Resources Board (CARB), and the United States Environmental Protection Agency (USEPA). On January 7, 2005, the Governing Board implemented CMB-10 by adopting changes to the RECLAIM program that resulted in a 22.5% reduction of NOx allocations from all RECLAIM facilities. The reductions were phased in commencing in Compliance Year 2007 and have been fully implemented since Compliance Year 2011.

Similarly, on November 5, 2010, the Governing Board adopted changes to the RECLAIM program implementing the 2007 AQMP Control Measure CMB-02 – Further SOx Reductions for RECLAIM (SOx). Specifically, these amendments will result in an overall reduction of 5.7 tons SOx per day when fully implemented in Compliance Year 2019 (the reductions are being phased in from Compliance Year 2013 through Compliance Year 2019: 3.0 tons per day in 2013, 4.0 tons per day in years 2014 through 2016, 5.0 tons per day in 2017 and 2018, and a cumulative 5.7 tons per day starting in 2019 and continuing thereafter). This reduction in SOx is an essential part of the South Coast Air Basin's effort in attaining the federal 24-hour average PM2.5 standard by the year 2020.

Figures 2-1 and 2-2 illustrate the total NOx and SOx RTC supplies through the end of Compliance Year 2020 incorporating all the changes discussed above.

Figure 2-1
NOx RTC Supply

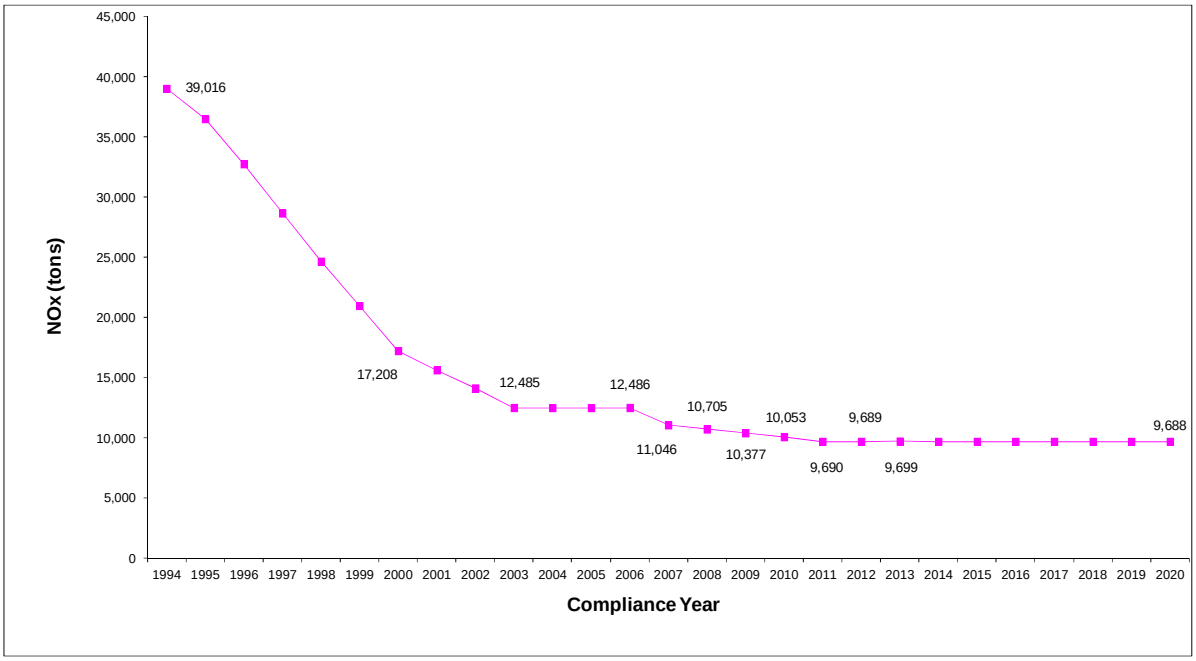
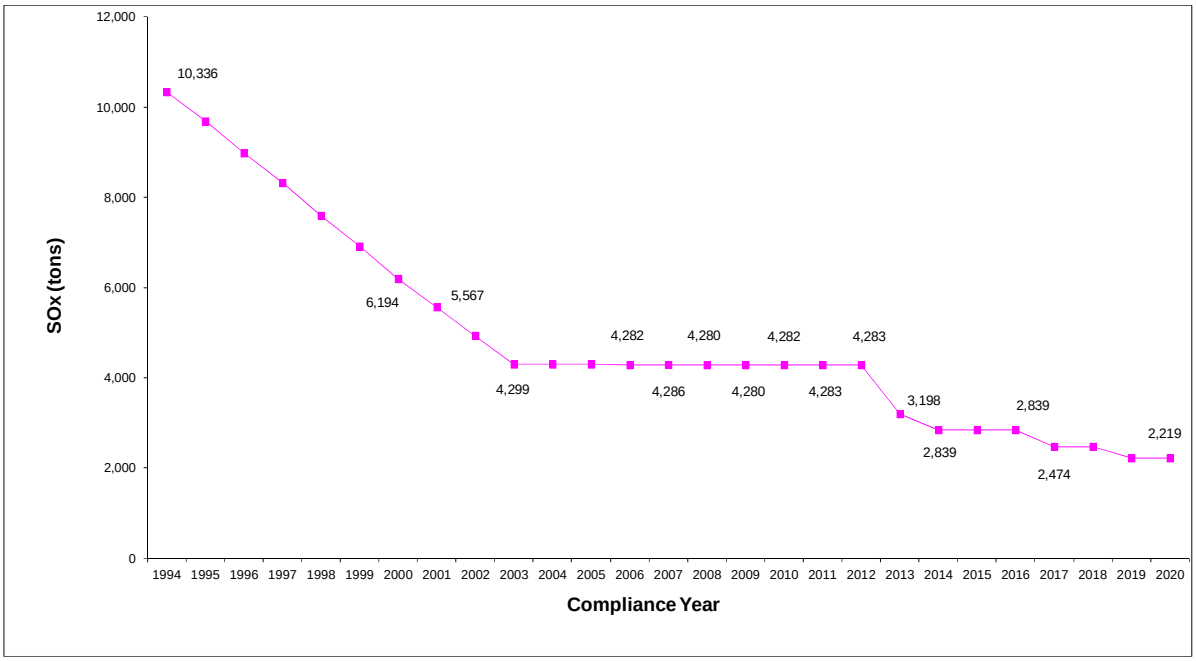


Figure 2-2
SOx RTC Supply



On December 7, 2012 the SCAQMD Governing Board adopted the 2012 AQMP, which includes Control Measure CMB-01 – Further NOx Reductions for RECLAIM, calling for reductions of NOx emissions within the RECLAIM program of 3 to 5 tons per day. The rule development and adoption process for this latest NOx reduction is currently ongoing. The actual amount of NOx reduction will be determined at the completion of the public process and will be submitted to the Governing Board for its consideration. The public hearing is currently scheduled for the second quarter of calendar year 2015.

Upcoming Proposals for Credit Generation

Proposed Rule 2511 – Credit Generation Program for Locomotive Head End Power Unit Engines and Proposed Rule 2512 – Credit Generation Program for Ocean-Going Vessels at Berth are two potential rules that could generate credits for the RECLAIM program. Proposed Rule 2511 would allow generation of emission reduction credits through the voluntary repowering of diesel–fueled auxiliary head end power generating units on passenger locomotives with cleaner engines. Proposed Rule 2512 would allow generation of credits for emission through the control of exhaust emissions from auxiliary engines and/or boilers used on Ocean-Going Vessels while at berth in a commercial marine port. Both of these proposed rules are listed on the Rule and Control Measure Forecast as rule activities to be determined for calendar year 2015.

RTC Price Reporting Methodology

RTC trades are reported to SCAQMD as one of two types: discrete-year RTC transactions or infinite-year block (IYB) transactions (trades that involve blocks of RTCs with a specified start year and continuing into perpetuity). Prices for discrete-year trades are reported in terms of dollars per pound and prices for IYB trades are reported as total dollar value for total amount of IYB RTCs traded. In addition, the trading partners are required to identify any swap trades. Swap trades occur when trading partners exchange different types of RTCs. These trades maybe of equal value or different values, in which case some amount of money or credits are also included in swap trades (additional details on swap trades are discussed later in this chapter). Prices reported for swap trades are based on the agreed upon value of the trade by the participants, and do not involve exchange of funds for the total value agreed upon. As such, the reported prices for swap trades may be somewhat arbitrary and are, therefore, excluded from the calculation of annual average prices. In this report, the annual average prices for discrete-year RTCs are averaged in dollars per ton of RTCs for each compliance year, while the average price for IYB RTCs are averaged as a total dollar value per ton of IYB RTCs.

RTC Price Thresholds for Program Review

Rule 2015(b)(6) specifies that, if the annual average price of discrete NOx or SOx RTCs exceeds $15,000 per ton, the Executive Officer will conduct an evaluation and review of the compliance and enforcement aspects of RECLAIM. The Governing Board has also established average RTC price overall program review thresholds pursuant to Health and Safety Code §39616(f). Unlike the $15,000 per ton threshold for review of the compliance and enforcement aspects of RECLAIM, these overall program review thresholds are adjusted by CPI each

year. In addition, according to Rule 2002(f)(1)(O), if the annual average price of discrete SOx RTCs for any compliance year from 2017 through 2019 exceeds $50,000 per ton, the Governing Board has the discretion to convert facilities' Nontradable/Nonusable RTCs to Tradable/Usable RTCs. For RTC transactions occurring in calendar year 2014, the overall program review thresholds in 2014 dollars are $40,612 per ton of discrete-year NOx RTCs, $29,241 per ton of discrete-year SOx RTCs, $609,187 per ton of IYB NOx RTCs, and $438,615 per ton of IYB SOx RTCs.

RTC Trading Activity Excluding Swaps

Overall Trading Activity

RTC trades include discrete and IYB RTCs traded with prices, discrete and IYB RTC transfers with zero price, and discrete and IYB RTC swap trades. The RTC market activity in calendar year 2014 was comparable to the market activity in calendar year 2013 in terms of the number of transactions. The calendar year 2014 trading activity—362 total registered trade transactions (344 NOx trades and 18 SOx trades)—was slightly lower than the number of trade transactions in calendar year 2013 (367 total registered trade transactions).

In comparison to calendar year 2013, the value traded in calendar year 2014 was substantially higher (increased by 243%). Excluding swap trades, a total value of almost $104.2 million was traded in calendar year 2014 ($102.4 million for NOx and $1.8 million for SOx)—substantially higher than the total value of $30.4 million traded in calendar year 2013 ($15.9 million for NOx and $14.5 million for SOx). As illustrated in Figure 2-3, 2014 experienced the highest annual value of RTCs traded in RECLAIM to date other than 2000 and 2001, both of which had exceptionally high prices due to the California energy crisis that happened at that time. The increase in the total value traded was due to the much higher price for the IYB NOx RTCs traded in 2014. Figure 2-4 summarizes overall trading activity (excluding swaps) in calendar year 2014 by pollutant.

With respect to volume traded (also excluding swap trades), the 2,811 tons of discrete RTCs traded in calendar year 2014 were substantially lower than the 5,000 tons of discrete RTCs traded in calendar year 2013 (decreased by 48%). In calendar year 2014, there were 1,808 tons of discrete NOx RTCs and 51 tons of discrete SOx traded with price and 510 tons of discrete NOx and 442 tons of discrete SOx traded without price. In addition, the 965 tons of IYB RTCs traded in calendar year 2014 were also much lower than the 2,216 tons of IYB RTCs traded in 2013 (decreased by 56%). There were 902 tons of IYB NOx and 23 tons of IYB SOx traded with price and 40 tons of IYB NOx traded with zero price. There were no IYB SOx traded with zero price. Additional information on the discrete and IYB trading activities, value, and volume are discussed later in this chapter.

There were 64 trades with zero price in calendar year 2014. RTC transfers with zero price generally occur when a seller transfers or escrows RTCs to a broker pending transfer to the purchaser with price, when there is a transfer between facilities under common operator, when a facility is retiring RTCs for a settlement agreement or pursuant to variance conditions, or when there is a transfer between facilities that have gone through a change of operator. Trades with zero price also occur when the trading parties have mutual agreements where one

party provides a specific service (*e.g.,* providing steam or other process components) for the second party. In return, the second party will transfer the RTCs necessary to offset emissions generated from the service. In calendar year 2014, the majority of trades with zero price were transfers between facilities under common ownership and facilities that had a change of operator.

Figure 2-3
Annual Trading Values for NOx and SOx (Excluding Swaps)

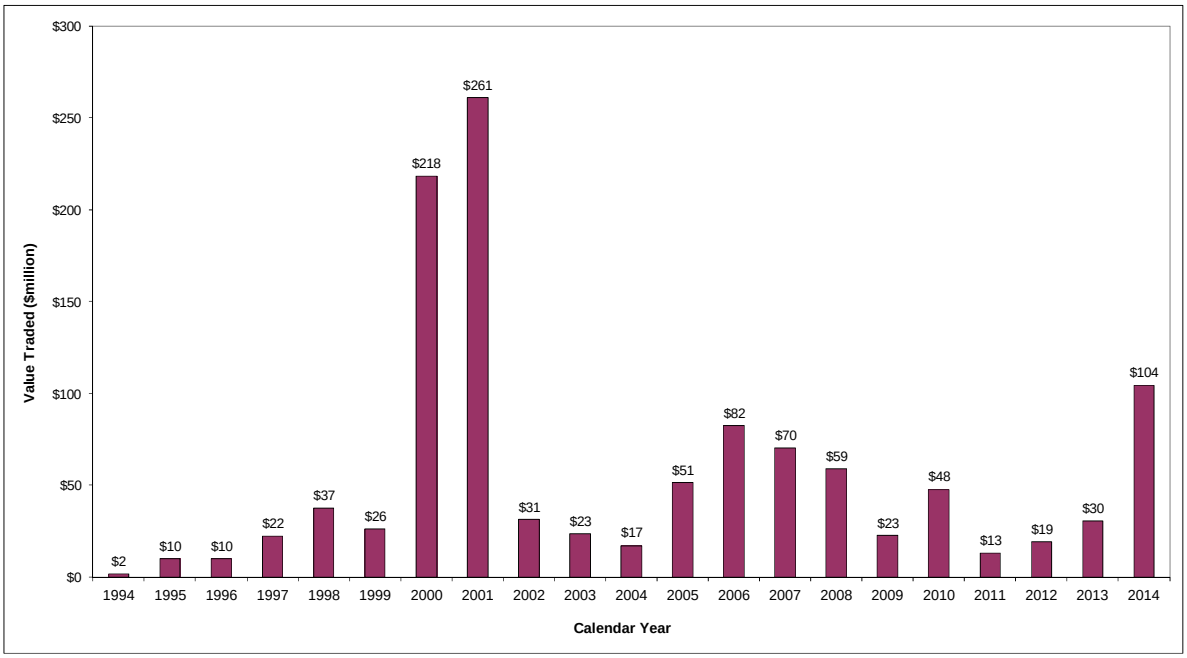
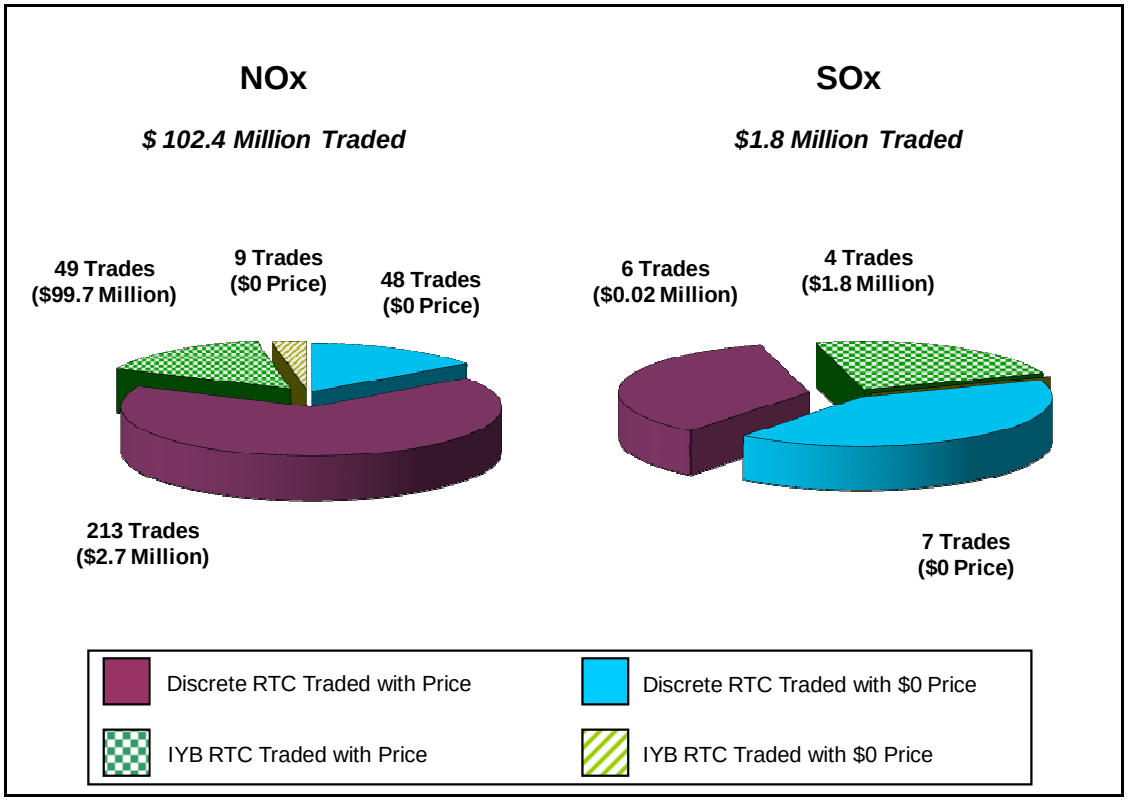


Figure 2-4
Calendar Year 2014 Overall Trading Activity (Excluding Swaps)



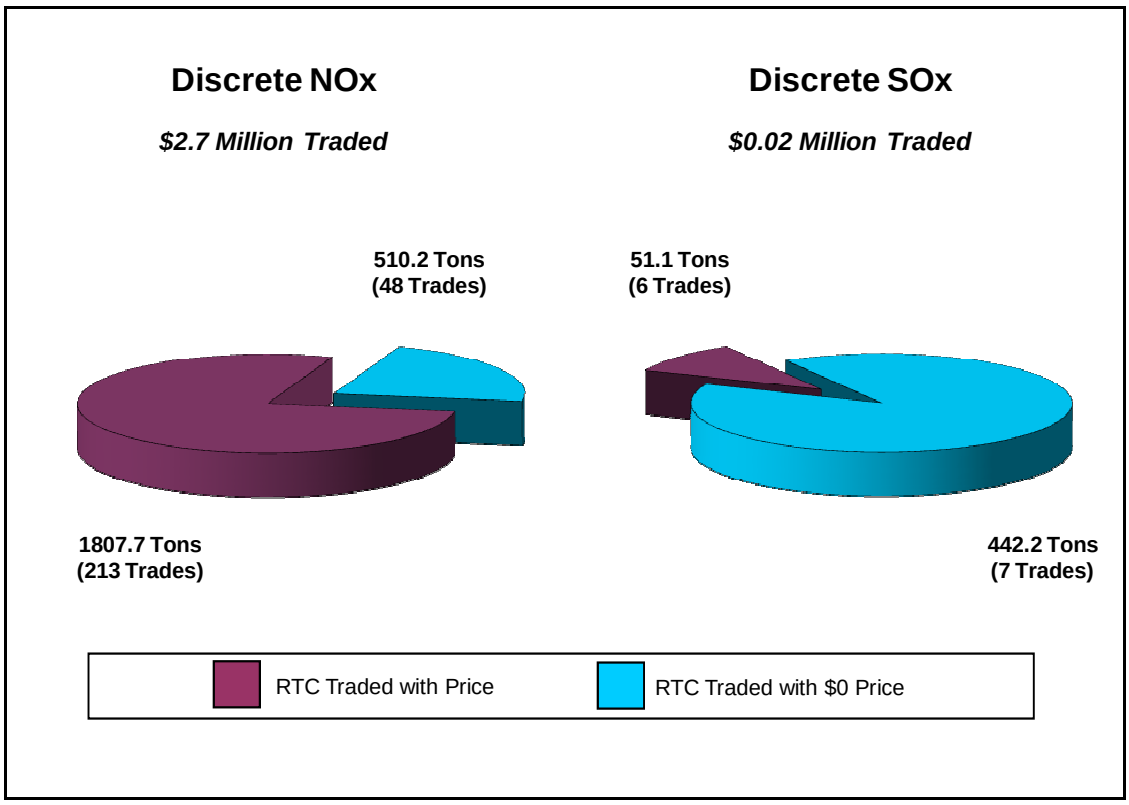
Discrete RTC Trading Activity

In calendar year 2014, there were a total of 261 discrete NOx RTC trades (213 trades with price and 48 trades with zero price) and 13 discrete SOx RTC trades (six trades with price and seven trades with zero price), excluding swap trades. The trading of discrete NOx RTCs included RTCs for Compliance Years 2013 through 2015. The trading of discrete SOx RTCs included RTCs for Compliance Years 2013 and 2014.

Discrete RTC trading values decreased in calendar year 2014. The 213 NOx trades with price totaled $2.7 million in value, down from $3.9 million in calendar year 2013. The six discrete SOx trades with price totaled $0.02 million in value, which also is lower than the $0.06 million traded in calendar year 2013.

In calendar year 2014, the overall quantities of discrete NOx and SOx RTCs traded were 2,318 tons and 493 tons, respectively. These quantities were all lower than those traded in calendar year 2013 (4,443 tons of NOx RTCs and 557 tons of SOx RTCs). There were 1,808 tons of discrete NOx and 51 tons of discrete SOx RTCs traded with price in calendar year 2014, decreased from 3,370 tons of NOx and 83 tons of SOx RTCs in 2013. In addition, there were 510 tons of discrete NOx RTCs and 442 tons of discrete SOx traded with zero price, decreased from 1,073 tons of NOx and 474 tons of SOx in 2013. Figure 2-5 illustrates the trading activity of discrete RTCs (excluding swaps) for calendar year 2014.

Figure 2-5
Calendar Year 2014 Trading Activity for Discrete RTCs (Excluding Swaps)



IYB RTC Trading Activity

In calendar year 2014, there were 58 IYB NOx trades and four IYB SOx trades. The IYB NOx trades included Compliance Years 2013, 2014, 2015, 2018, and 2019 as the start year, while the IYB SOx trades all had Compliance Year 2014 as the start year. Of the 58 IYB NOx trades, 49 trades were with price and nine trades were with zero price. All of the four IYB SOx trades were with price.

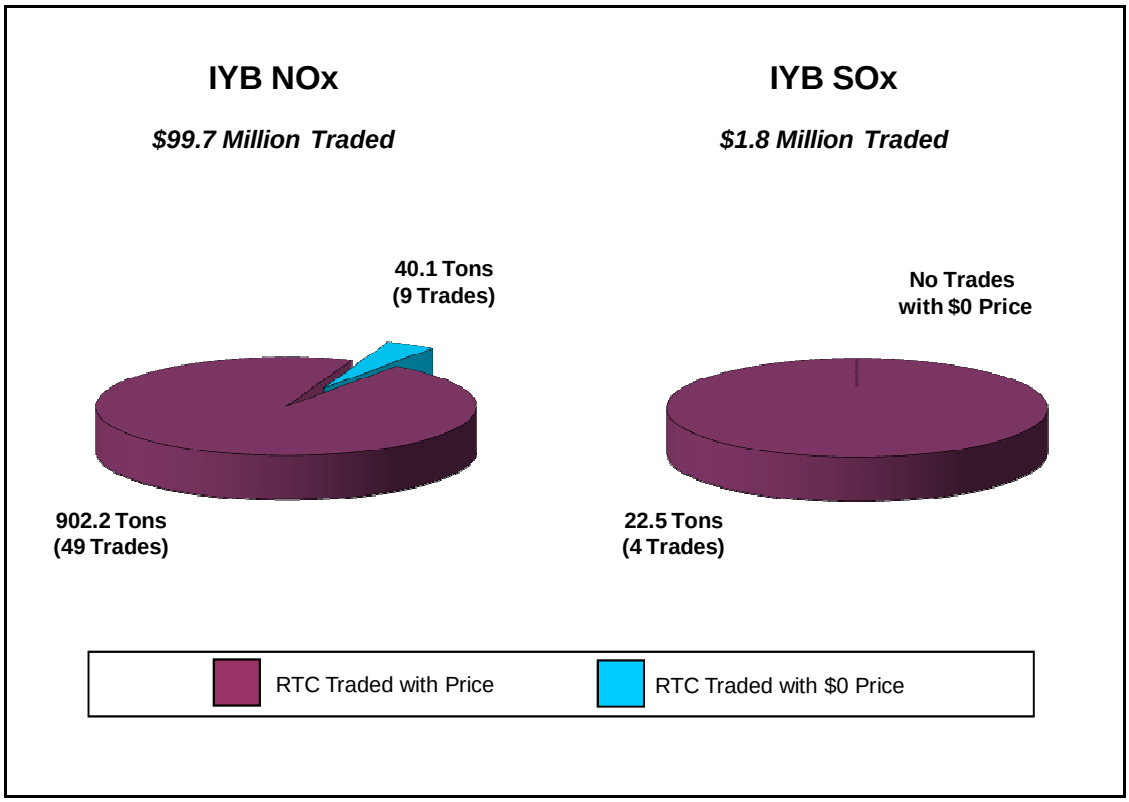
The 49 IYB NOx trades with price totaling almost $100 million in calendar year 2014 were much higher than the 17 trades with price for $12 million in 2013. The four IYB SOx RTC trades with price totaling $1.8 million in calendar year 2014 were much lower in value than the four trades and $14.4 million traded in 2013.

The total quantity of 942 tons of IYB NOx traded in calendar year 2014 was much lower than the 1,779 tons traded in calendar year 2013, however 902 of those tons were traded with price in calendar year 2014 compared to only 261 tons traded with price in calendar year 2013. The total quantity of IYB SOx traded in calendar year 2014 was 23 tons, which is considerably less than the 438 tons traded in calendar year 2013. All 23 tons of IYB SOx traded in 2014 were with price, lower than the 79 tons traded with price in calendar year 2013.

In addition to trades with price, there were also nine IYB NOx trades with zero price totaling 40 tons (there were no IYB SOx trades with zero price in calendar

year 2014). Figure 2-6 illustrates the calendar year 2014 IYB RTC trading activity excluding swap trades.

Figure 2-6
Calendar Year 2014 Trading Activity for IYB RTCs (Excluding Swaps)



Prior to the amendment of Rule 2007 – Trading Requirements in May 2001, swap information and details of discrete and IYB trades were not required to be provided by trade participants. In compiling data for calendar years 1994 through part of 2001, any trade registration involving IYB RTCs was considered as a single IYB trade and swap trades were assumed to be nonexistent. Trading activity since inception of the RECLAIM program is illustrated in Figures 2-7 through 2-10 (discrete NOx trades, discrete SOx trades, IYB NOx trades, and IYB SOx trades, respectively) based on the trade reporting methodology described earlier in this report.

Figure 2-7
Discrete NOx RTC Trades (Excluding Swaps)

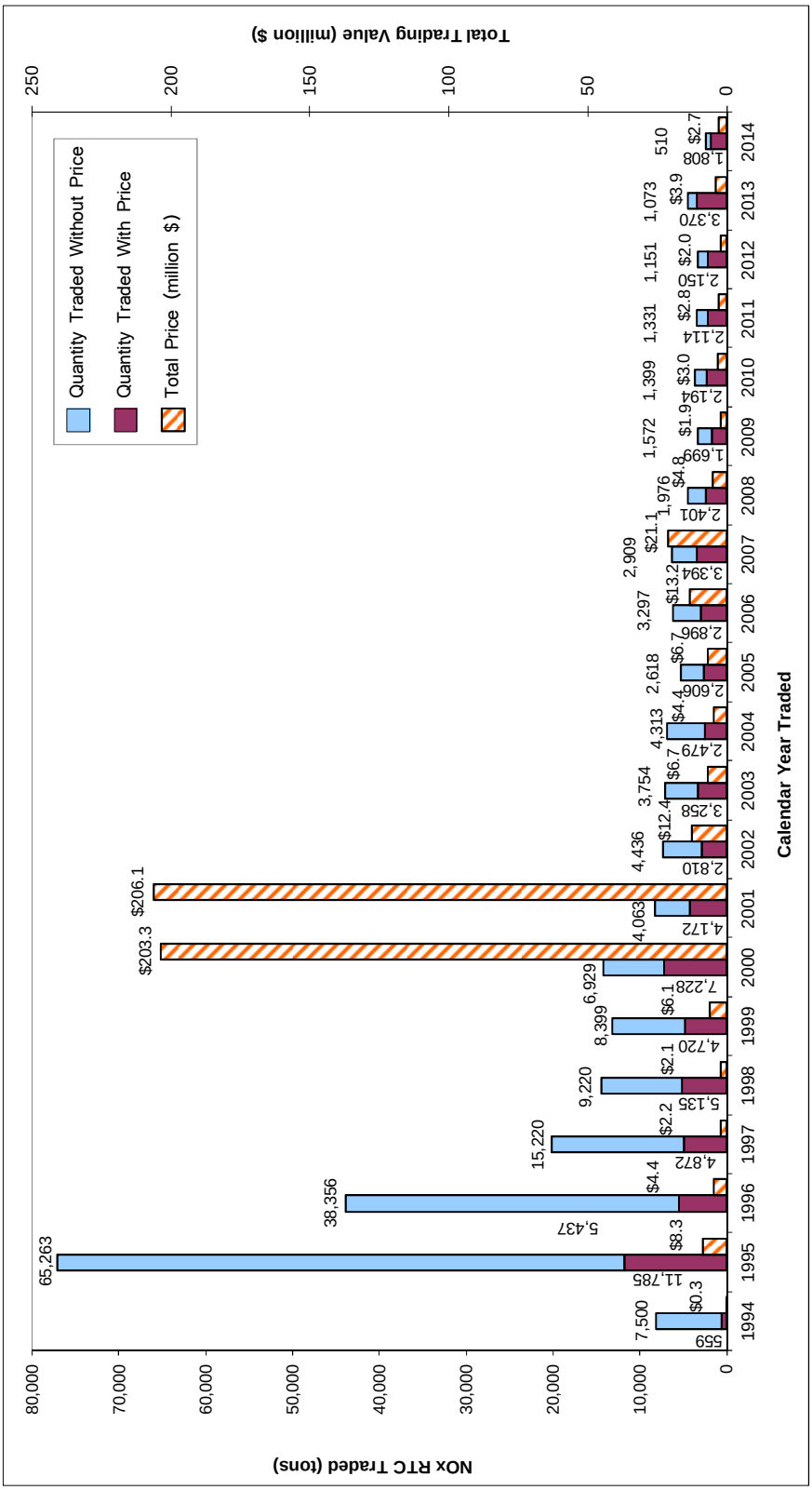


Figure 2-8
Discrete SOx RTC Trades (Excluding Swaps)

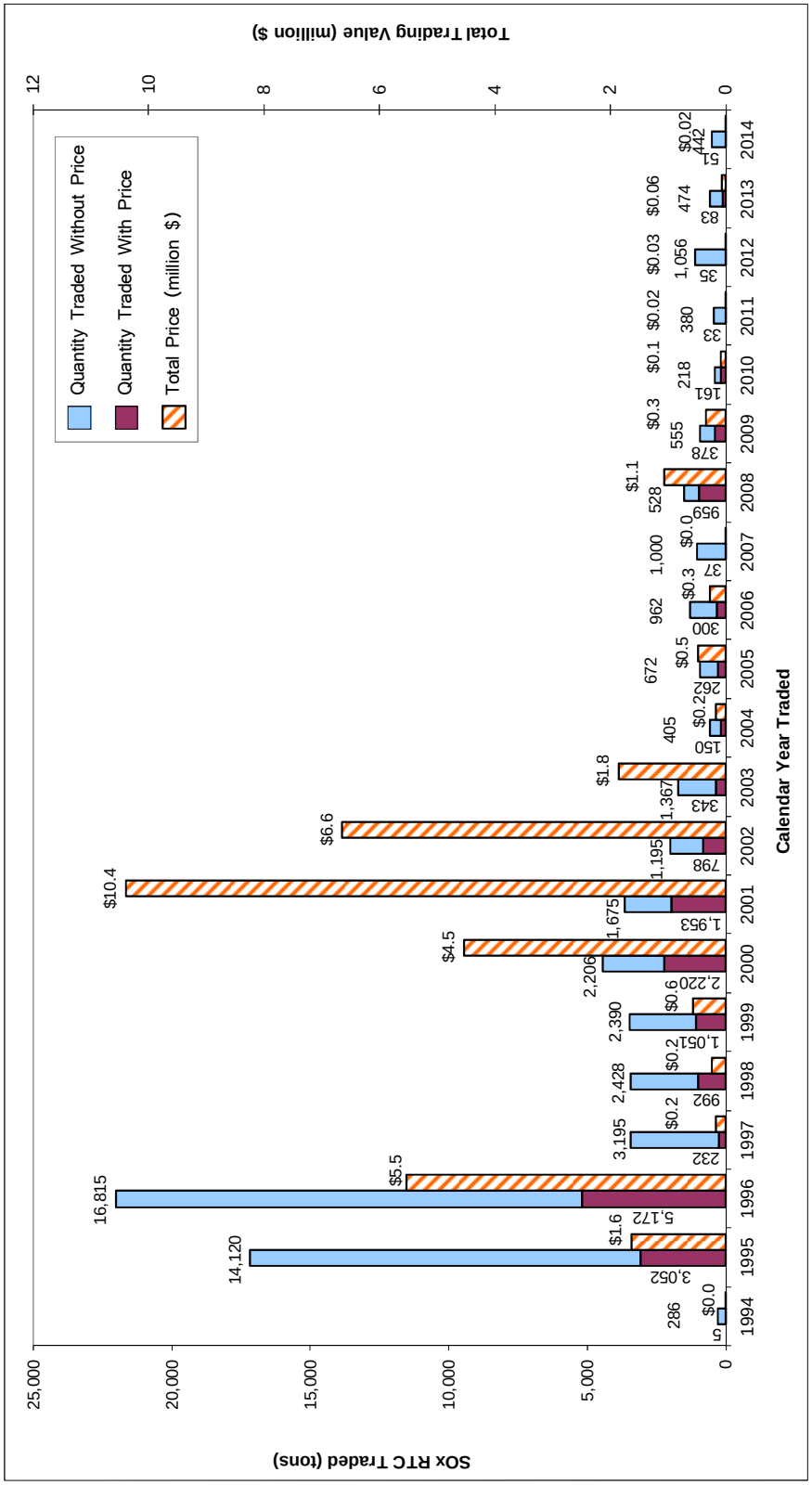


Figure 2-9
IYB NOx RTC Trades (Excluding Swaps)

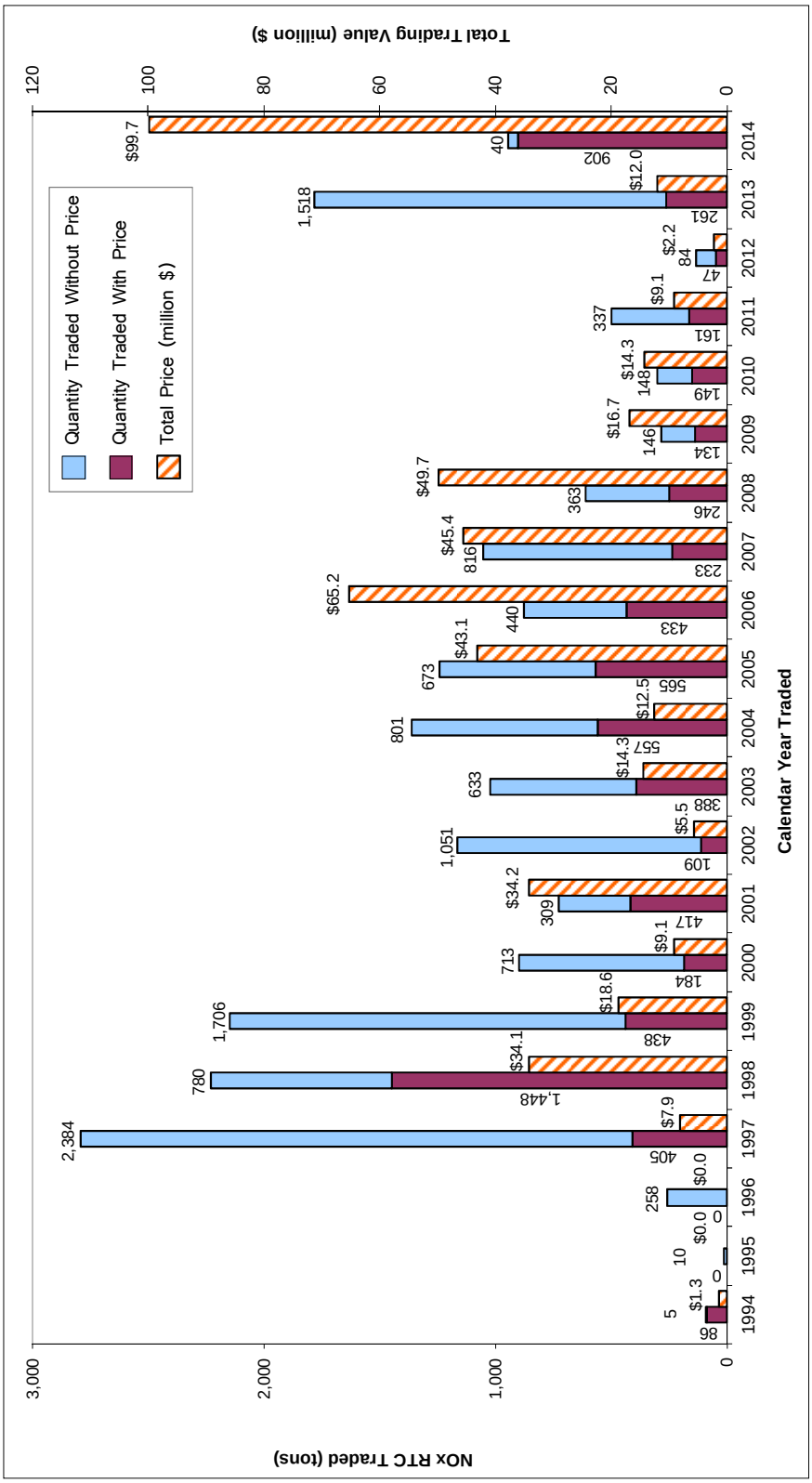
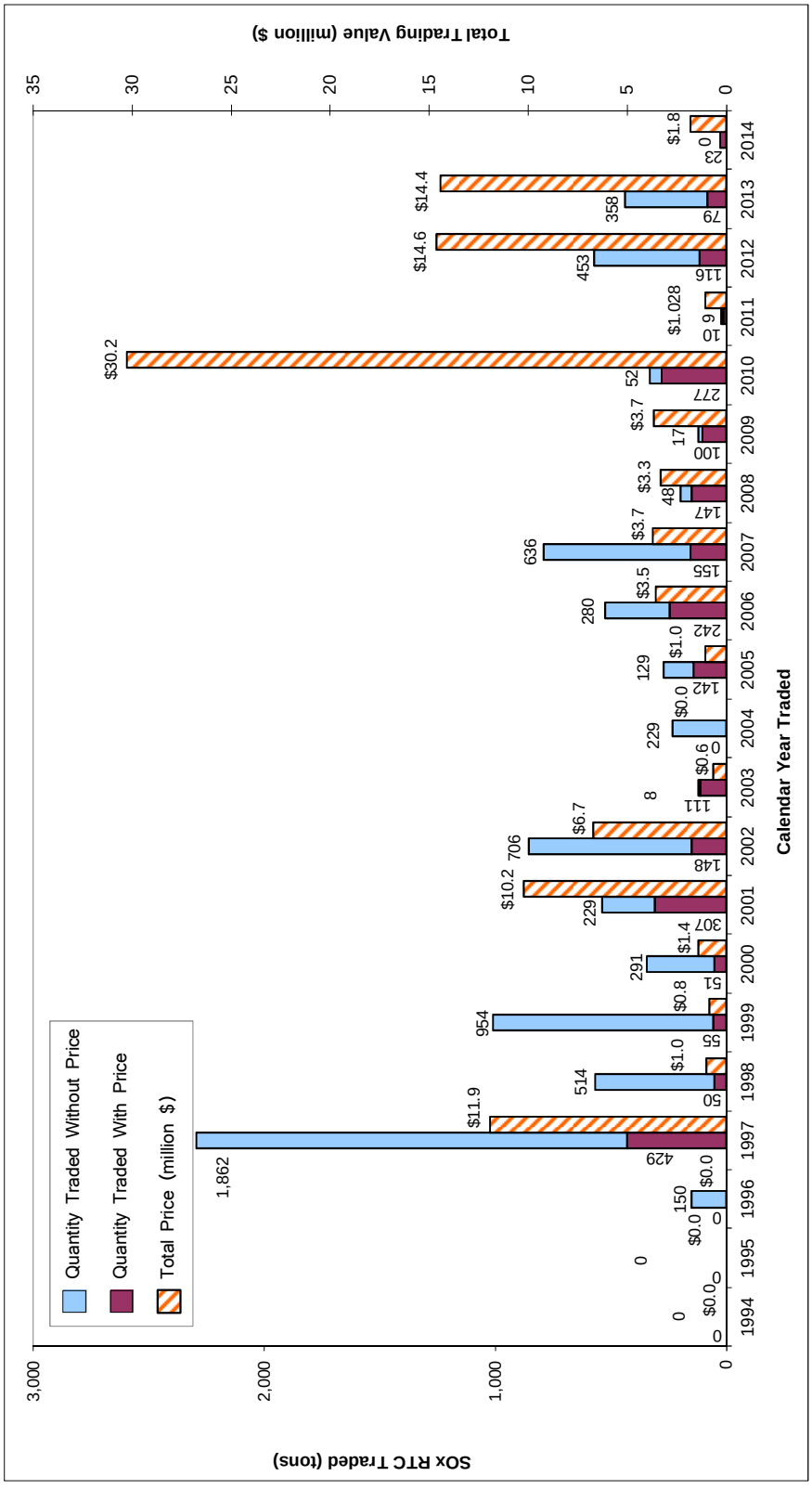


Figure 2-10
IYB SOx RTC Trades (Excluding Swaps)



Swap Trades

In addition to traditional trades of RTCs for a price, RTC swaps also occurred between trading partners. Most of the swap trades were exchanges of RTCs with different zones, cycles, expiration years, and/or pollutants. Some swaps involved a combination of RTCs and cash payment as a premium. There were also swaps of RTCs for ERCs. Trading parties swapping RTCs were required to report the agreed upon price of RTCs for each trade even though, with the exception of the above-described premiums, no money was actually exchanged. Over $3.25 million in total value was reported from RTCs that were swapped in calendar year 2014, of which one swap trade involved trading NOx IYB for PM10 ERCs and was valued at over $2.42 million. The swap values are based on the prices reported on the RTC trade registrations. Since RTC swap trades occur when two trading partners exchange RTCs, values reported on both trades involved in the exchange are included in the calculation of the total value reported. However, in cases where commodities other than RTCs are involved in the swap, these commodity values are not included in the above reported total value (*e.g.,* in the case of a swap of NOx RTCs valued at $10,000 for another set of RTCs valued at $8,000 together with a premium of $2,000, the value of such a swap would have been reported at $18,000 in Table 2-2).

For calendar years that have swap transactions with large values (*e.g.,* 2009) the inclusion of swap transactions in the average trade price calculations would have resulted in calculated annual average prices dominated by swap transactions, and therefore, potentially not representative of market prices actually paid for RTCs. Prices of swap trades are excluded from analysis of average trade prices because the values of the swap trades are solely based upon prices agreed upon between trading partners and do not reflect actual funds transferred. Tables 2-2 and 2-3 present the calendar years 2001 through 2014 RTC swaps for NOx and SOx, respectively.

Table 2-2
NOx Registrations Involving Swaps*

Year	Total Value ($ millions)	IYB RTC Swapped with Price (tons)	Discrete RTC Swapped with Price (tons)	Number of Swap Registrations with Price	Total Number of Swap Registrations
2001	$24.29	6.0	612.2	71	78
2002	$14.31	64.3	1,701.7	94	94
2003	$7.70	69.9	1,198.1	64	64
2004	$3.74	0	1,730.5	90	90
2005	$3.89	18.7	885.3	53	53
2006	$7.29	14.8	1,105.9	49	49
2007	$4.14	0	820.0	43	49
2008	$8.41	4.5	1,945.8	48	50
2009	$55.76	394.2	1,188.4	37	42
2010	$3.73	18.2	928.5	25	31
2011	$2.00	0	775.5	25	32
2012	$1.29	0	928.1	36	36
2013	$2.41	11.6	1,273.5	44	44
2014	$3.24	28.5	489.6	25	25

* Swaps without price are strictly transfers of RTCs between trading partners and their respective brokers. Information regarding swap trades was not required prior to May 9, 2001.

Table 2-3
SOx Registrations Involving Swaps*

Year	Total Value ($ millions)	IYB RTC Swapped with Price (tons)	Discrete RTC Swapped with Price (tons)	Number of Swap Registrations with Price	Total Number of Swap Registrations
2001	$1.53	18.0	240.0	3	4
2002	$6.11	26.6	408.4	30	30
2003	$5.88	20.9	656.0	32	32
2004	$0.39	0	161.8	13	13
2005	$2.16	43.5	227.8	13	14
2006	$0.02	0	24.4	2	2
2007	$0.00	0	0	0	0
2008	$0.40	0	197.0	5	8
2009	$3.63	55.3	401.3	9	10
2010	$6.89	79.4	417.0	16	18
2011	$0.25	0	228.5	3	4
2012	$27.01	100.0	7.5	4	4
2013	$0.33	3.1	5.5	2	2
2014	$0.01	0.0	14.8	1	1

* Swaps without price are strictly transfers of RTCs between trading partners and their respective brokers. Information regarding swap trades was not required prior to May 9, 2001.

RTC Trade Prices

Discrete-Year RTC Prices

In calendar year 2014, the annual average prices for discrete-year NOx RTCs were $1,065 per ton for Compliance Year 2013, $1,910 per ton for Compliance Year 2014, and $3,779 per ton for Compliance Year 2015. The calendar year 2014 annual average prices for discrete-year SOx RTCs were $378 per ton for Compliance Year 2013, and $400 per ton for Compliance Year 2014[2].

Figures 2-11 and 2-12 present the annual average prices for discrete-year NOx and SOx RTCs during calendar years 2006 through 2014, respectively. Note that prices for a Compliance Year's RTCs may also be shown for the calendar year after those RTCs expired, since the average price for each compliance year is based on sales of both Cycle 1 RTCs expiring in December of that year, as well as Cycle 2 RTCs expiring in June of the following year. Furthermore, Cycle 1 RTCs expiring in December may be traded during the 60-day reconciliation period following the expiration date, which extends into the next calendar year.

Annual average prices in calendar year 2014 for discrete NOx and SOx RTCs for all compliance years remained well below the $15,000 per ton threshold to evaluate and review the compliance aspects of the program set forth by SCAQMD Rule 2015, as well as the $40,612 per ton of NOx and $29,241 per ton of SOx discrete RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f).

[2] There were no discrete-year SOx RTCs for Compliance Year 2015 traded in calendar year 2014.

Figure 2-11
Annual Average Prices for Discrete-Year NOx RTCs during Calendar Years 2006 through 2014

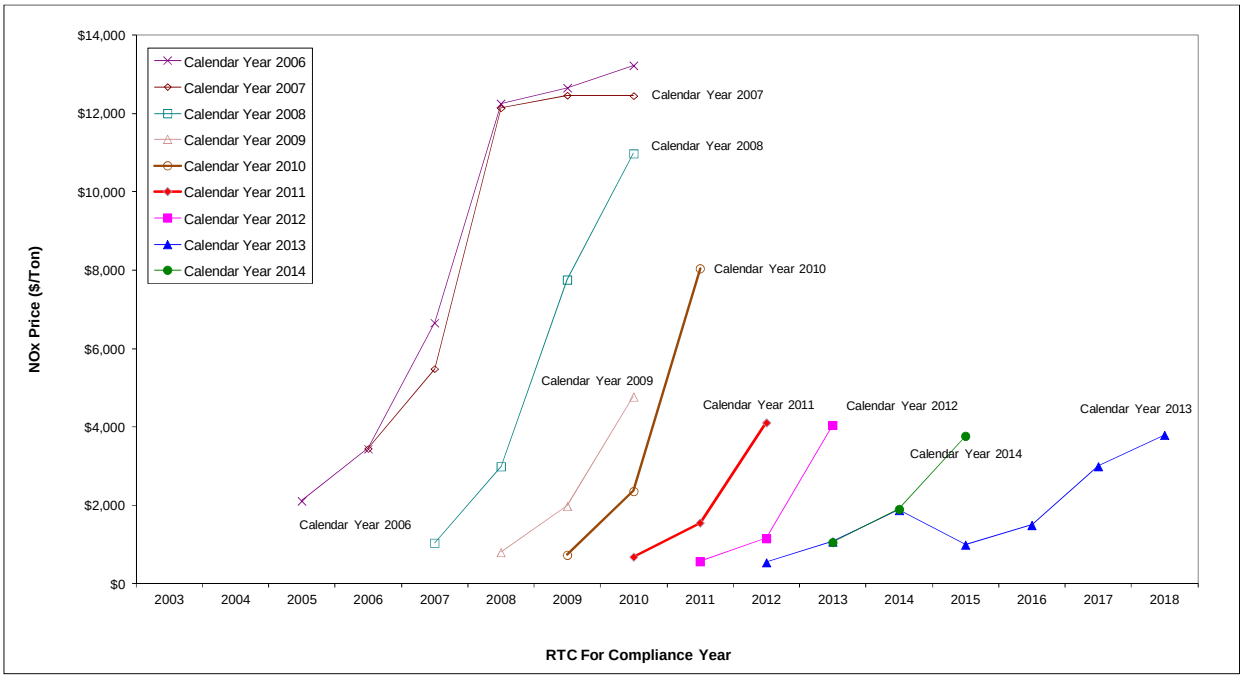
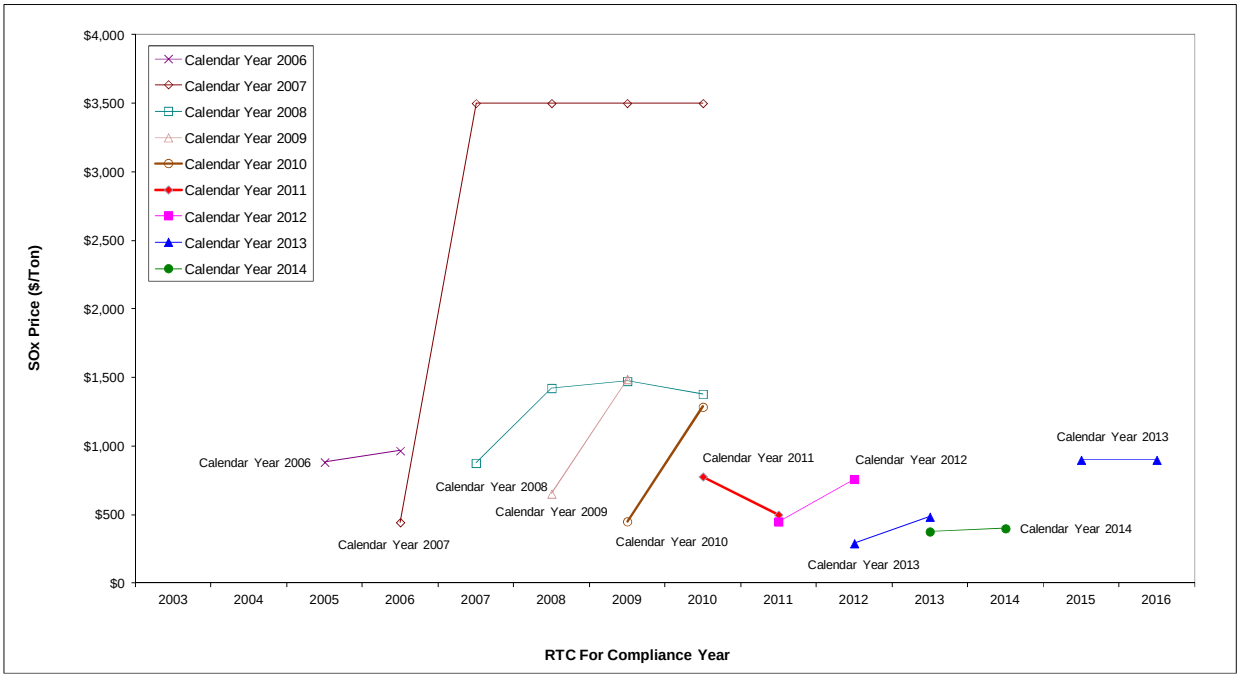


Figure 2-12
Annual Average Prices for Discrete-Year SOx RTCs during Calendar Years 2006 through 2014



Twelve-Month Rolling Average Prices of Compliance Year 2014 NOx RTCs

The January 2005 RECLAIM amendments directed the Executive Officer to calculate the 12-month rolling average price of NOx RTCs ("rolling average price") "for all trades for the current compliance year" excluding "RTC transactions reported at no price." Swap transactions are also excluded from the calculation of rolling average prices.

In the event that the rolling average price exceeds $15,000 per ton, the Executive Officer is required to report the rolling average price to the Governing Board. If the Governing Board determines that the rolling average price exceeds $15,000 per ton, SCAQMD is required to review the compliance aspects of the RECLAIM program. In its resolution amending Rule 2002(f) on January 7, 2005, the Governing Board directed the Executive Officer to report the NOx RTC 12-month rolling average price data to the Stationary Source Committee (SSC) at least quarterly. Accordingly, such reports have been prepared by SCAQMD staff and submitted to the SSC on a quarterly basis. To date, the twelve-month rolling average prices have been far below and have not exceeded the $15,000 per ton threshold. Staff continues to monitor the twelve-month rolling average price of current-year NOx RTCs on a monthly basis and report the rolling average prices to the Stationary Source Committee on a quarterly basis.

As shown in Table 2-4, the twelve-month rolling average prices of Compliance Year 2014 NOx RTCs increased gradually from January 2014 through October and then decreased through the end of the year. However, from January through August 2014, the rolling average price for NOx RTCs was dominated by a single trade at a lower than market price (300,000 pounds at $0.50 per pound) that occurred in September 2013. Throughout 2014, the twelve-month rolling average prices did not exceed the $15,000 per ton threshold specified in Rule 2002(f). Therefore, it was not necessary for the Executive Officer to report the rolling average price to the Governing Board or for the Governing Board to require a compliance audit.

Table 2-4
Twelve-Month Rolling Average Prices of Compliance Year 2014 NOx RTCs

Reporting Month	12-Month Period	Average Price* ($/ton)
January 2014	January 2013 through December 2013	$1,788
February 2014	February 2013 through January 2014	$1,790
March 2014	March 2013 through February 2014	$1,899
April 2014	April 2013 through March 2014	$2,009
May 2014	May 2013 through April 2014	$2,032
June 2014	June 2013 through May 2014	$2,033
July 2014	July 2013 through June 2014	$2,128
August 2014	August 2013 through July 2014	$2,132
September 2014	September 2013 through August 2014	$2,120
October 2014	October 2013 through September 2014	$2,459
November 2014	November 2013 through October 2014	$2,362
December 2014	December 2013 through November 2014	$2,188
January 2015	January 2014 through December 2014	$1,910

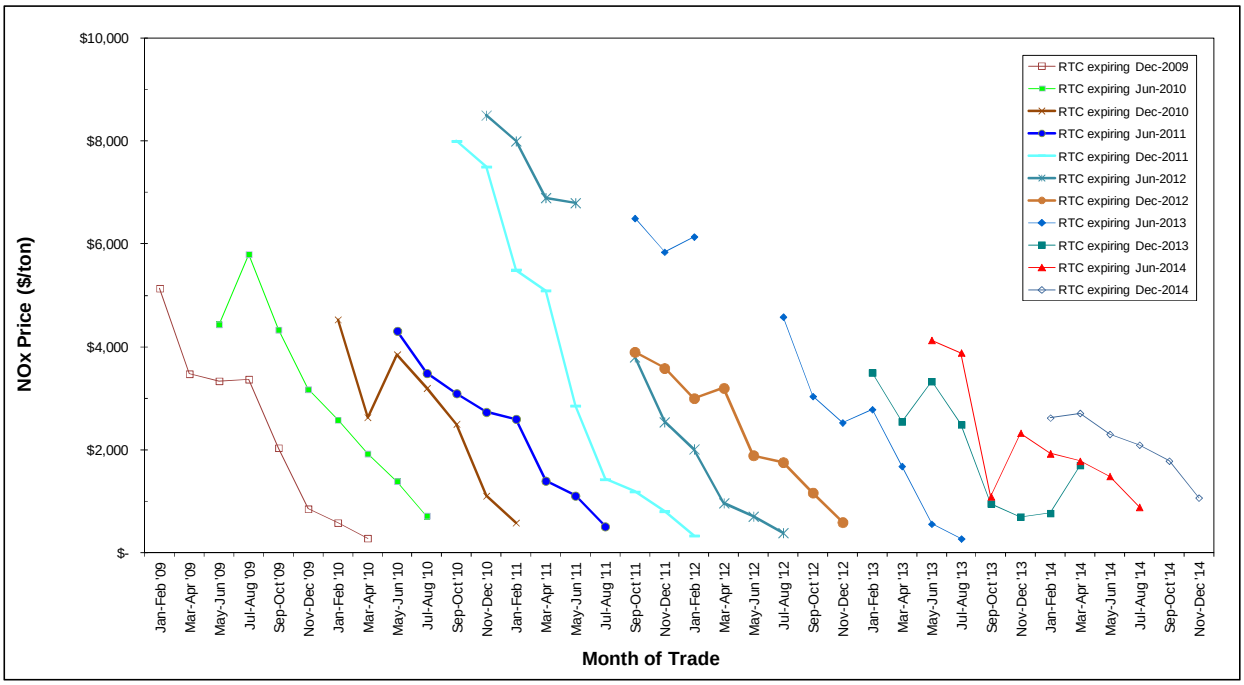
* Through August 2014, the Rolling Average Price for 2014 NOx RTCs was dominated by a single trade in September 2013 of 300,000 pounds at a cost of $0.50 per pound. Without this trade, the rolling average price for these periods would range from $2,465 to $3,197 per ton, instead of $1,788 to $2,120 per ton.

Average Price for NOx RTCs Nearing Expiration

Generally, RTC prices decrease as their expiration dates approach and during the sixty days after their expiration dates during which they can be traded. RTC prices are usually lowest during the 60 day-period following their expiration date during which facilities are allowed to trade and obtain RTCs to cover their emissions. This general trend has been repeated every year since 1994 except for Compliance Years 2000 and 2001 (during the California energy crisis), when NOx RTC prices increased as the expiration dates approached because the power plants' NOx emissions increased significantly and there was a shortage of NOx RTCs. Prices for NOx RTCs that expired in calendar year 2014 followed the general trend of RTC prices declining over the course of the Compliance Year and the sixty-day trading period thereafter.

The bi-monthly average price for these near-expiration NOx RTCs is shown in Figure 2-13 to illustrate the general price trend for these RTCs. The general declining trend of RTC prices nearing and just past expiration indicates that there was an adequate supply to meet RTC demand during the final reconciliation period following the end of the compliance years. A similar analysis is not performed for the price of SOx RTCs nearing expiration because there are not enough SOx trades over the course of the year to yield meaningful data. For calendar year 2014, there were only six discrete SOx trades with price and these prices were flat throughout the year.

Figure 2-13
Bi-Monthly Average Price for NOx RTCs near Expiration



Note: Data is presented for a limited number of RTC expiration dates for graphical clarity.

IYB RTC Prices

The annual average price for IYB NOx RTCs traded in calendar year 2014 was $110,509 per ton, which is much higher than the annual average price of $45,914 per ton traded in calendar year 2013. The annual average price for IYB SOx RTCs traded in calendar year 2014 was $80,444 per ton, which is much lower than the $181,653 per ton traded in calendar year 2013. However, there were only four IYB SOx trades with price totaling 22.5 tons in 2014, which is lower than the 79 tons traded in 2013. A single facility was the buyer for all the IYB SOx traded. Data regarding IYB RTCs traded with price (excluding swap trades) for NOx and SOx RTCs and their annual average prices since 1994 are summarized in Tables 2-5 and 2-6, respectively. In calendar year 2014, the annual average IYB RTC prices did not exceed the $609,187 per ton of NOx RTCs or the $438,615 per ton of SOx RTCs program review thresholds established by the Governing Board for IYB RTCs pursuant to California Health and Safety Code §39616(f).

Table 2-5
IYB NOx Pricing (Excluding Swaps)

Calendar Year	Total Reported Value ($ millions)	IYB RTC Traded with Price (tons)	Number of IYB Registrations With Price	Average Price ($/ton)
1994*	$1.3	85.7	1	$15,623
1995*	$0.0	0	0	N/A
1996*	$0.0	0	0	N/A
1997*	$7.9	404.6	9	$19,602
1998*	$34.1	1,447.6	23	$23,534
1999*	$18.6	438.3	19	$42,437
2000*	$9.1	184.2	15	$49,340
2001*	$34.2	416.9	25	$82,013
2002	$5.5	109.5	31	$50,686
2003	$14.3	388.3	28	$36,797
2004	$12.5	557.0	52	$22,481
2005	$43.1	565.3	71	$76,197
2006	$65.2	432.9	50	$150,665
2007	$45.4	233.5	25	$194,369
2008	$49.7	245.6	27	$202,402
2009	$16.7	134.2	14	$124,576
2010	$14.3	149.0	13	$95,761
2011	$9.1	160.7	29	$56,708
2012	$2.2	46.6	13	$48,146
2013	$12.0	260.9	17	$45,914
2014	$99.7	902.2	49	$110,509

* No information regarding swap trades was reported until May 9, 2001.

Table 2-6
IYB SOx Pricing (Excluding Swaps)

Calendar Year	Total Reported Value ($ millions)	IYB RTC Traded with Price (tons)	Number of IYB Registrations With Price	Average Price ($/ton)
1994*	$0.0	0	0	N/A
1995*	$0.0	0	0	N/A
1996*	$0.0	0	0	N/A
1997*	$11.9	429.2	7	$27,738
1998*	$1.0	50.0	1	$19,360
1999*	$0.8	55.0	3	$14,946
2000*	$1.4	50.6	5	$27,028
2001*	$10.2	306.8	8	$33,288
2002	$6.7	147.5	5	$45,343
2003	$0.6	110.9	1	$5,680
2004	$0.0	0.0	0	N/A
2005	$1.0	141.5	3	$7,409
2006	$3.5	241.7	12	$14,585
2007	$3.7	155.2	5	$23,848
2008	$3.3	146.8	5	$22,479
2009	$3.7	100.0	4	$36,550
2010	$30.2	277.0	10	$109,219
2011	$1.03	10.0	2	$102,366
2012	$14.6	116.2	4	$125,860
2013	$14.4	79.2	4	$181,653
2014	$1.8	22.5	4	$80,444

* No information regarding swap trades was reported until May 9, 2001.

Other Types of RTC Transactions and Uses

Another type of RTC trade, besides traditional trading and swapping activities, is a trade involving the contingent right (option) to purchase RTCs. In those transactions, one party pays a premium for the contingent right (option) to purchase RTCs owned by the other party at a pre-determined price within a certain time period. Until RTCs are transferred from seller to buyer, prices for options are not reported, because the seller is not paid for the actual RTCs, but only for the right to purchase the RTCs at a future date. These rights may or may not be actually exercised. RTC traders are obligated to report options to SCAQMD within five business days of reaching an agreement. These reports are posted on SCAQMD's website. There was no reported trade involving the contingent right to buy or sell RTCs in calendar year 2014.

As in prior years, RTCs were used in other programs during calendar year 2014. Five facilities surrendered a total of 5.2 tons of NOx RTCs and 0.2 tons of SOx RTCs to satisfy variance conditions. One facility surrendered 29.2 tons of NOx RTCs as part of the California Environmental Quality Act (CEQA) requirement to mitigate the emissions impact from a construction project. These consisted of discrete year RTCs only.

Market Participants

RECLAIM market participants have traditionally included RECLAIM facilities, brokers, commodity traders, and private investors. Starting in calendar year 2004, mutual funds joined the traditional participants in RTC trades. Market participation expanded further in 2006, when foreign investors started participating in RTC trades. However, foreign investors have not participated in any RTC trades since calendar year 2008 and foreign investors do not hold any current or future RTCs at this time.

RECLAIM facilities are the original sources and users of RTCs. They usually sell their surplus RTCs by the end of the compliance year or when they have a long-term decrease in emissions. Brokers match buyers and sellers, and usually do not purchase or own RTCs. Commodity traders and private investors actually invest in and own RTCs in order to seek profits by trading them. They do not need RTCs to offset or reconcile any emissions. For purposes of discussion in this report, "investors" include all parties who hold RTCs other than RECLAIM facility permit holders and brokers.

Investor Participation

In 2014 investors were actively involved in 134 of the 213 discrete NOx RTC trades with price, four of the six discrete SOx RTC trades with price, and 44 of the 49 IYB NOx trades with price. Investors were not involved in any of the four IYB SOx trades with price.

Investors' involvement in discrete NOx and SOx trades registered with price in calendar year 2014 is illustrated in Figures 2-14 and 2-15. Figure 2-14 is based on total value of discrete NOx and SOx RTCs traded, and shows that investors were involved in 46% and 55%, respectively, of the discrete NOx and SOx trades reported by value. Figure 2-15 is based on volume of discrete RTCs traded with price and shows that investors were involved in 47% and 57% of the discrete NOx and SOx trades by volume, respectively. Figures 2-16 and 2-17 provide similar data for IYB NOx and SOx trades, and show that investors were involved in 64% of IYB NOx trades on a reported value basis, and 59% of IYB NOx trades on the basis of the volume traded with price.

Figure 2-14
Calendar Year 2014 Investor-Involved Discrete NOx and SOx Trades Based on Value Traded

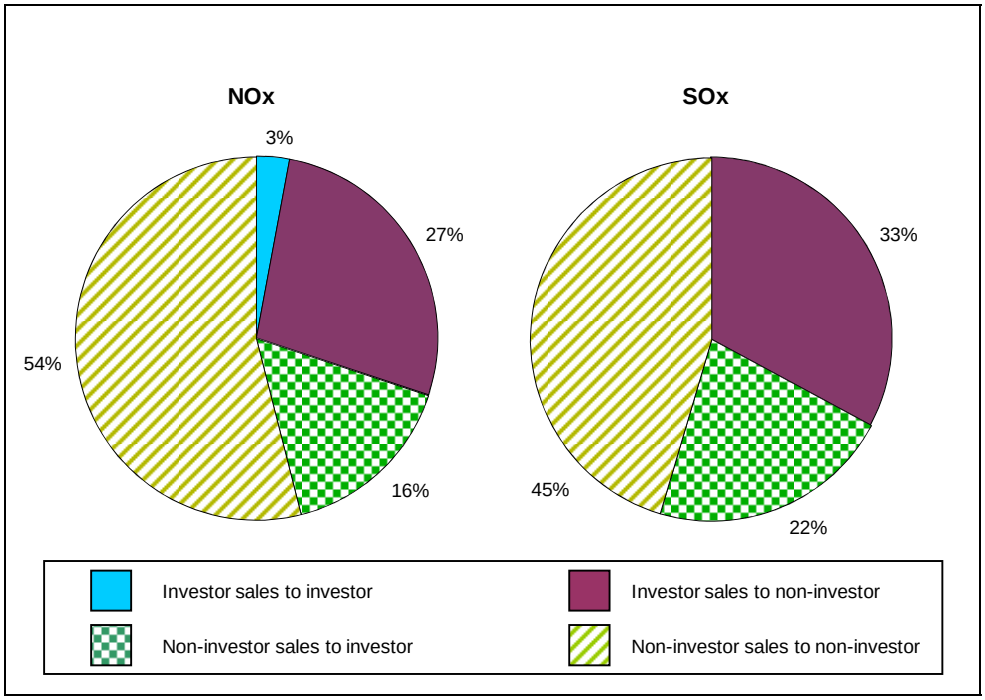


Figure 2-15
Calendar Year 2014 Investor-Involved Discrete NOx and SOx Trades Based on Volume Traded with Price

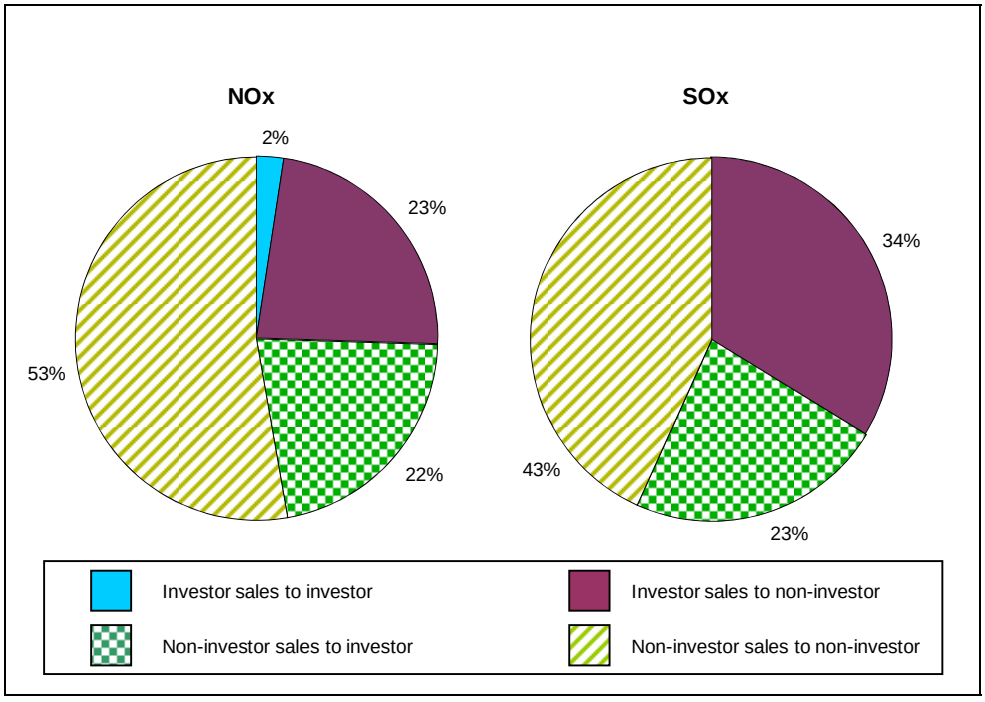


Figure 2-16
Calendar Year 2014 Investor-Involved IYB NOx and SOx Trades Based on Value Traded

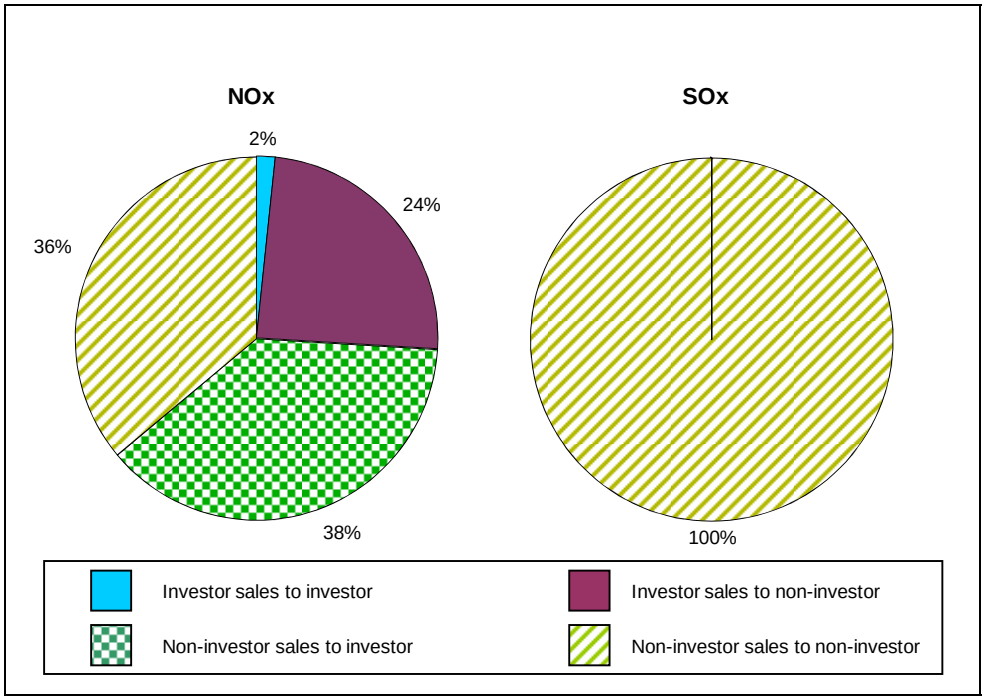
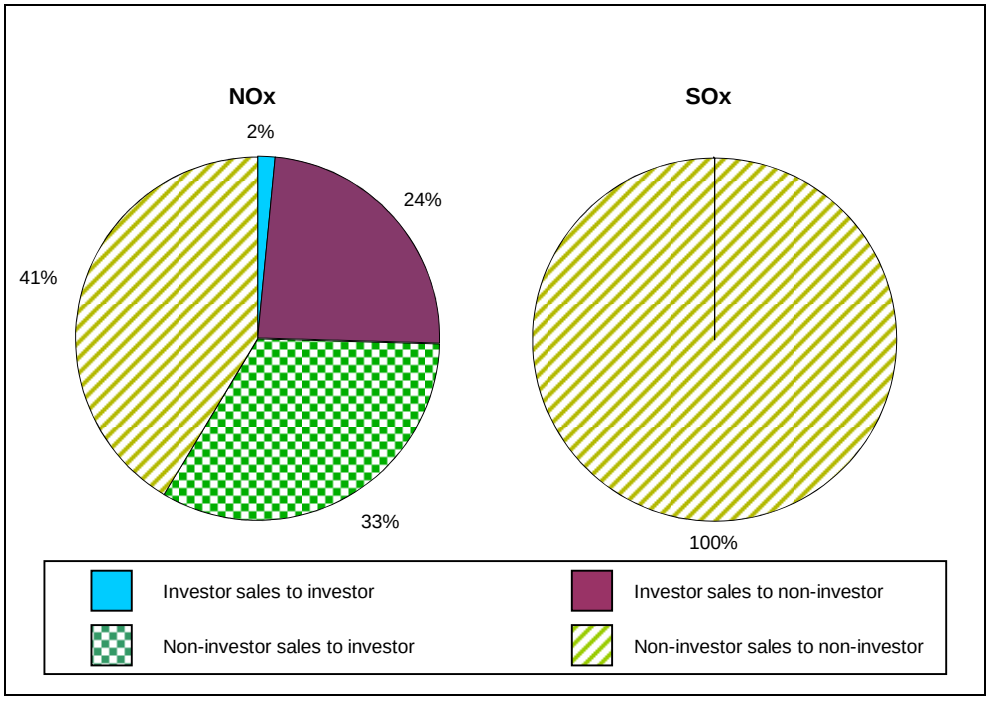


Figure 2-17
Calendar Year 2014 Investor-Involved IYB NOx and SOx Trades Based on Volume Traded with Price



As of the end of calendar year 2014, investors' holding of IYB NOx RTCs had decreased slightly to 4.6% compared to 4.9% at the end of calendar year 2013. Out of the 4.6% held, mutual fund investors held 1.4% of IYB NOx RTCs, down from 2.7% at the end of calendar year 2013. Investors' holding of IYB SOx RTCs was unchanged at 0.9% at the end of calendar year 2014. No IYB SOx RTCs are currently held by mutual fund investors.

The available supply of IYB RTCs are generally from facilities that have permanently reduced emissions through the installation of control equipment, the modification or replacement of old equipment, or equipment and/or facility shutdowns. There were four RECLAIM facilities that shut down during Compliance Year 2013. These four facilities participated in the NOx RECLAIM program only and held a total of 15.6 tons of IYB NOx RTCs prior to shutdown. With the exception of 1.6 tons of IYB NOx RTCs still held by one facility, the balance was sold to investors.

Investor Impacts on RTC Market

Theoretically, the role of investors in this market is to provide capital for installing air pollution control equipment that costs less than the market value of credits. In addition, investors can also improve price competitiveness. This market theory may not fully apply to RECLAIM due to the uniqueness of the program because RECLAIM facility operators have no substitute for RTCs, and short of curtailing operations, pollution controls cannot be implemented within a short time period. That is, there is no alternative source of credits available to RECLAIM facilities when RTC prices increase (they do not have the option to switch to another source of credits when RTCs become expensive). Therefore, RECLAIM facility operators may be at the mercy of owners of surplus or investor-owned RTCs in the short term, particularly during times of rapid price increases, as evidenced in 2000 and 2001 during the California energy crisis.

To put investors' holdings in context, RECLAIM facilities have generally held back approximately 10% of their allocations each compliance year as a margin to ensure that they did not inadvertently find themselves exceeding their allocations (failing to reconcile by securing sufficient RTCs to cover their emissions) if their reported emissions were increased as the result of any problems or errors discovered by SCAQMD staff during annual facility audits. For Compliance Year 2013, the total RECLAIM NOx emissions were 7,326 tons. If the future total NOx emissions increased to the Compliance Year 2007 level of 8,796 tons (as illustrated in Figure 7-1), the NOx RTC surplus would be only 903 tons (9% of allocation), which is almost in line with the 10% compliance margin traditionally held by RECLAIM facilities. Therefore, the current aggregate investors' holdings of 4.6% of IYB NOx RTCs (more than half the total surplus IYB RTCs in this scenario) have the potential to result in a sellers' market. The current rule development effort to further reduce the overall NOx supply to reflect current BARCT (refer to Chapter 3) has the potential to increase the importance of investors' holdings of RTCs.

While it can be argued that the holding of IYB NOx RTCs by investors as a group is still small relative to the total supply of IYB NOx RTCs (4.6% overall), there is no clear basis to estimate the level of IYB RTCs available for sale by non-

investors or the extent of additional emissions reductions that will be achieved in future years. IYB RTCs represent an even more critical aspect of the program because these streams of RTCs are sought after to support growth at new or existing facilities. Active facilities are less likely to sell their future year RTCs as IYB. As a result, new RECLAIM facilities or facilities with modifications resulting in emissions increases are potentially at the mercy of investors holding IYB RTCs. Investors have the ability to purchase RTCs at any time so there is the potential for investors' holdings of IYB NOx RTCs to increase in the future.

On the other hand, overall emissions in RECLAIM will certainly change and can be affected by various factors including installation of more emission control equipment, production changes, inclusion of additional facilities into the RECLAIM universe, and shifts in industry sectors and in the economy, in general. Staff anticipates that there are two primary mechanisms that drive a facility to implement additional control technologies: Implementation of Best Available Control Technology (BACT) when existing sources reach the end of their useful lives and are replaced, and demand for RTCs approaching the supply driving up RTC prices and incentivizing the installation of emission controls. The first of these mechanisms will occur gradually over time and the second is likely to be significant when RECLAIM facilities increase production or the supply of RTCs decreases as a result of amendments to Rule 2002 implementing BARCT as discussed in Chapter 3. The first iteration of amending Rule 2002 to reduce the NOx RTC supply to reflect changes in BARCT was adopted by the Governing Board in January 2005 and phased in from Compliance Year 2007 through Compliance Year 2011. Facilities had ample notice of these reductions to the NOx RTC supply and the market was able to respond as designed—emissions were reduced such that aggregate emissions remained below aggregate allocations each year. The first iteration for SOx (adopted November 2010 with phased implementation commencing in Compliance Year 2013 and full implementation starting with Compliance Year 2018) is currently underway. Again, facilities had ample notice and have been able to keep aggregate SOx emissions below aggregate allocations without significant price increases. A second round of amendments to Rule 2002 to implement BARCT by reducing the NOx RTC supply is currently under development and is discussed in more detail in Chapter 3. Adoption of such amendments will put pressure on RECLAIM facility operators to reduce emissions so as to keep them below their RTC holdings. It is too soon to tell how the market will respond to the enacted SOx reduction and the proposed NOx amendments, but if adequate emissions controls are not implemented in a timely manner there is the potential for a seller's market for NOx RTCs to develop, which would make RTCs held by investors increasingly important to the market, as described above. SCAQMD staff will continue to monitor market activity and prices throughout the implementation and will report back to the Governing Board regularly.

The significance of investors' holdings will certainly depend on the ability of RECLAIM facilities to generate adequate emissions reductions in time to dampen the effect of a sellers' market that may exist if demand surges in a short period of time, as it did during the California energy crisis of 2000-2001. Proposals to generate emission reduction credits from sources outside of RECLAIM (*i.e.*, mobile and area sources) can also dampen sudden price increases. SCAQMD staff continues to monitor investor participation in the market to ensure that such participation does not adversely impact the RECLAIM program.

CHAPTER 3
EMISSION REDUCTIONS ACHIEVED

Summary

For Compliance Year 2013, aggregate NOx emissions were below total allocations by 24% and aggregate SOx emissions were below total allocations by 35%. No emissions associated with breakdowns were excluded from reconciliation with facility allocations in Compliance Year 2013. Accordingly, no mitigation is necessary to offset excluded emissions due to approved Breakdown Emission Reports. Therefore, based on audited emissions, it can be concluded that RECLAIM achieved its targeted emission reductions for Compliance Year 2013. With respect to the Rule 2015 backstop provisions, Compliance Year 2013 aggregate NOx and SOx emissions were both well below aggregate allocations and, as such, did not trigger the requirement to review the RECLAIM program.

Background

One of the primary objectives of the annual RECLAIM program audits is to assess whether RECLAIM is achieving its targeted emission reductions. Those targeted emission reductions are embodied in the annual allocations issued to RECLAIM facilities. In particular, the annual allocations reflect required emission reductions initially from the subsumed command-and-control rules and control measures, as well as from subsequent reductions in allocations as a result of BARCT implementation. In January 2005, the Board adopted an amendment to Rule 2002 to further reduce RECLAIM NOx allocations to implement the latest BARCT. These changes resulted in cumulative NOx allocation reductions of 22.5% (2,811 tons/year) from all RECLAIM facilities by Compliance Year 2011, with the biggest single-year reduction of 11.7% in Compliance Year 2007. The Board also amended Rule 2002 in November 2010 to implement changes in BARCT for SOx. Specifically, the November 2010 amendments call for reducing aggregate RECLAIM SOx emissions by 48% (2,081 tons/year), with the reductions phased-in from Compliance Year 2013 through Compliance Year 2019. A little over half of the SOx reductions occurred in Compliance Year 2013. Finally, there is an ongoing rulemaking effort to achieve additional NOx reductions pursuant to the 2012 AQMP Control Measure CMB-01 and to address requirements for demonstrating Best Available Retrofit Control Technology (BARCT) equivalency in accordance with California Health and Safety Code §40440. The extent of the NOx emission reductions is currently under discussion. This rule is scheduled to be amended in the second quarter 2015.

Emissions Audit Process

Since the inception of the RECLAIM program, SCAQMD staff has conducted annual program audits of the emissions data submitted by RECLAIM facilities to ensure the integrity and reliability of facility reported data. The process includes reviews of APEP reports submitted by RECLAIM facilities and audits of field records and emission calculations. The audit process is described in further detail in Chapter 5 – Compliance.

SCAQMD staff adjusts the APEP-reported emissions based on audit results, as necessary. Whenever SCAQMD staff finds discrepancies, they discuss the findings with the facility operators and provide the operators an opportunity to review changes resulting from facility audits and to present additional data or information in support of the data stated in their APEP reports.

This rigorous audit process, although resource intensive, reinforces RECLAIM's emissions monitoring and reporting requirements and enhances the validity and reliability of the reported emissions data. The audited emissions are used to determine if a facility complied with its allocations. The most recent five compliance years' audited NOx emissions for each facility are posted on SCAQMD's web page after the audits are completed. All emissions data presented in this annual RECLAIM audit report are compiled from audited facility emissions.

Emission Trends and Analysis

RECLAIM achieves its emission reduction goals on an aggregate basis by ensuring that annual emissions are below total RTCs. It is important to understand that the RECLAIM program is successful at achieving these emission reduction goals even when some individual RECLAIM facilities exceed their RTC account balances, provided aggregate RECLAIM emissions do not exceed aggregate RTCs issued. Therefore, aggregate NOx or SOx emissions from all RECLAIM sources are the basis for determining whether the programmatic emission reduction goals for that emittant are met each year. In aggregating emissions from RECLAIM facilities, audited emissions are used in the Annual RECLAIM Report for that Compliance Year.

Since the last annual report, five facilities' previous year audits were re-opened because either the SCAQMD staff discovered additional information while performing current year audits or the facility self-disclosed information that affected emission calculations. The re-opened audits affected NOx emissions reported for Compliance Years 2007 through 2012. For some of the five facilities, multiple years' audits were impacted. Table 3-1 summarizes the changes to the audited emissions for the impacted facilities. The resulting changes to the overall audited RECLAIM NOx emissions for each compliance year were less than 0.1% increases for Compliance Years 2007 through 2011. For Compliance Year 2012, the changes caused a decrease of 1.5% in overall audited NOx emissions. None of these changes resulted in aggregate RECLAIM NOx emissions exceeding RECLAIM aggregate Allocations for the corresponding compliance years.

Table 3-1
Summary of Re-Opened Audits

Compliance Year	Original Audited NOx Emissions (lbs)	Updated Audited NOx Emissions (lbs)	Change in Audited NOx Emissions (lbs)	% Change	Number of Facilities Involved
2007	253,572	256,442	2,870	1.1%	2
2008	239,075	245,117	6,042	2.5%	2
2009	215,166	226,068	10,902	5.1%	2
2010	215,711	226,499	10,788	5.0%	2
2011	138,861	138,850	-11	-0.01%	2
2012	751,134	514,107	-237,027	-31.6%	1

Table 3-2 and Figure 3-1 show aggregate audited NOx emissions for Compliance Years 1994 through 2013. Programmatically, there were excess NOx RTCs remaining after accounting for audited NOx emissions for every compliance year since 1994, except for Compliance Year 2000 when NOx emissions exceeded the total allocations due to the California energy crisis. Since Compliance Year 2007, the first year of the programmatic reduction in RECLAIM NOx allocations that was adopted by the Governing Board as part of the January 2005 rule amendments, the unused NOx RTCs have been at least 20 percent of the aggregate allocations. Specifically, Compliance Year 2013 NOx emissions were below total allocations by 24%. Even though there was a slight increase in aggregate NOx emissions in Compliance Year 2012 when compared to Compliance Year 2011 emissions, Compliance Year 2013 levels are back down to the emission levels seen in Compliance Years 2009 and 2011.

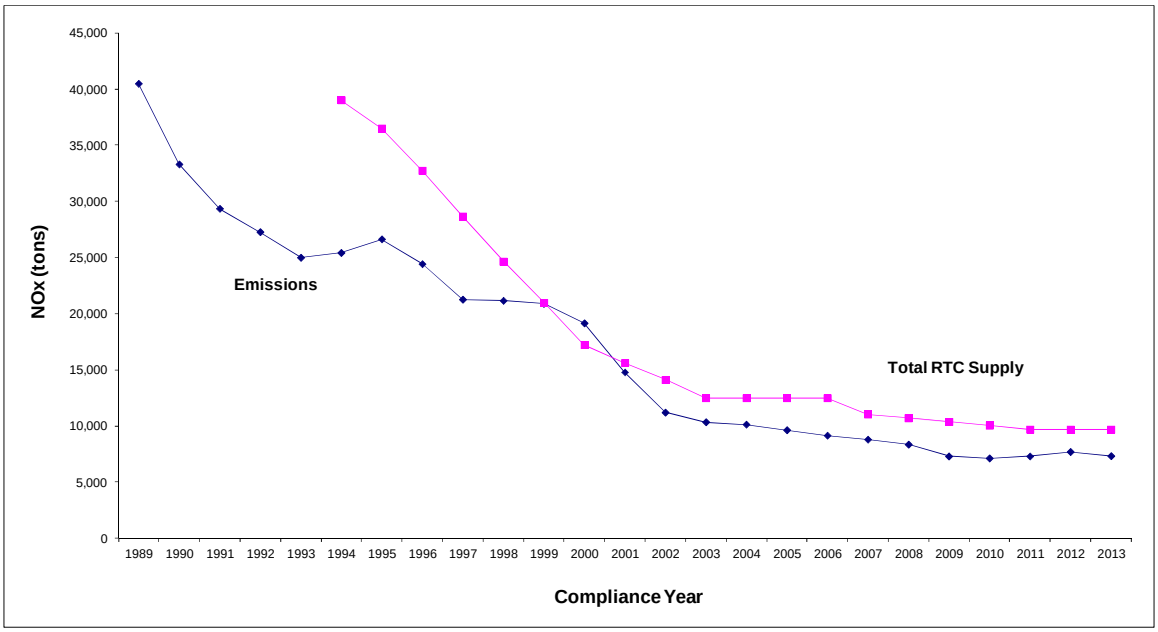
Table 3-2
Annual NOx Emissions for Compliance Years 1994 through 2013

Compliance Year	Audited Annual NOx Emissions[1] (tons)	Audited Annual NOx Emissions Change from 1994 (%)	Total NOx RTCs[2] (tons)	Unused NOx RTCs (tons)	Unused NOx RTCs (%)
1994	25,420	0%	39,016	13,596	35%
1995	26,632	4.8%	36,484	9,852	27%
1996	24,414	-4.0%	32,742	8,328	25%
1997	21,258	-16%	28,657	7,399	26%
1998	21,158	-17%	24,651	3,493	14%
1999	20,889	-18%	20,968	79	0.38%
2000	19,148	-25%	17,208	-1,940	-11%
2001	14,779	-42%	15,617	838	5.4%
2002	11,201	-56%	14,111	2,910	21%
2003	10,342	-59%	12,485	2,143	17%
2004	10,134	-60%	12,477	2,343	19%
2005	9,642	-62%	12,484	2,842	23%
2006	9,152	-64%	12,486	3,334	27%
2007	8,796	-65%	11,046	2,250	20%
2008	8,349	-67%	10,705	2,356	22%
2009	7,306	-71%	10,377	3,071	30%
2010	7,121	-72%	10,053	2,932	29%
2011	7,302	-71%	9,690	2,388	25%
2012	7,691	-70%	9,689	1,998	21%
2013	7,326	-71%	9,699	2,373	24%

[1] The RECLAIM universe is divided into two cycles with compliance schedules staggered by six months. Compliance years for Cycle 1 facilities run from January 1 through December 31 and Cycle 2 compliance years are from July 1 through June 30.

[2] Total RTCs = Allocated RTCs + RTCs from ERC conversion.

Figure 3-1
NOx Emissions and Available RTCs



Similar to Table 3-2 and Figure 3-1 for NOx, Table 3-3 presents aggregate annual SOx emissions data for each compliance year based on audited emissions, and Figure 3-2 compares these audited aggregate annual SOx emissions with the aggregate annual SOx RTC supply. As shown in Table 3-3 and Figure 3-2, RECLAIM facilities have not exceeded their SOx allocations on an aggregate basis in any compliance year since program inception. For Compliance Year 2013, SOx emissions were below total allocations by 35%. The unused SOx RTCs from Compliance Year 2009 and on has remained in excess of 30%. The data indicates that RECLAIM met its programmatic SOx emission reduction goals and demonstrated equivalency in SOx emission reductions compared to the subsumed command-and-control rules and control measures. Based on audited emission data, annual SOx emissions have followed a general downward trend, except for increases in Compliance Years 1995, 1997, 2005, and 2007 compared to their respective previous year.

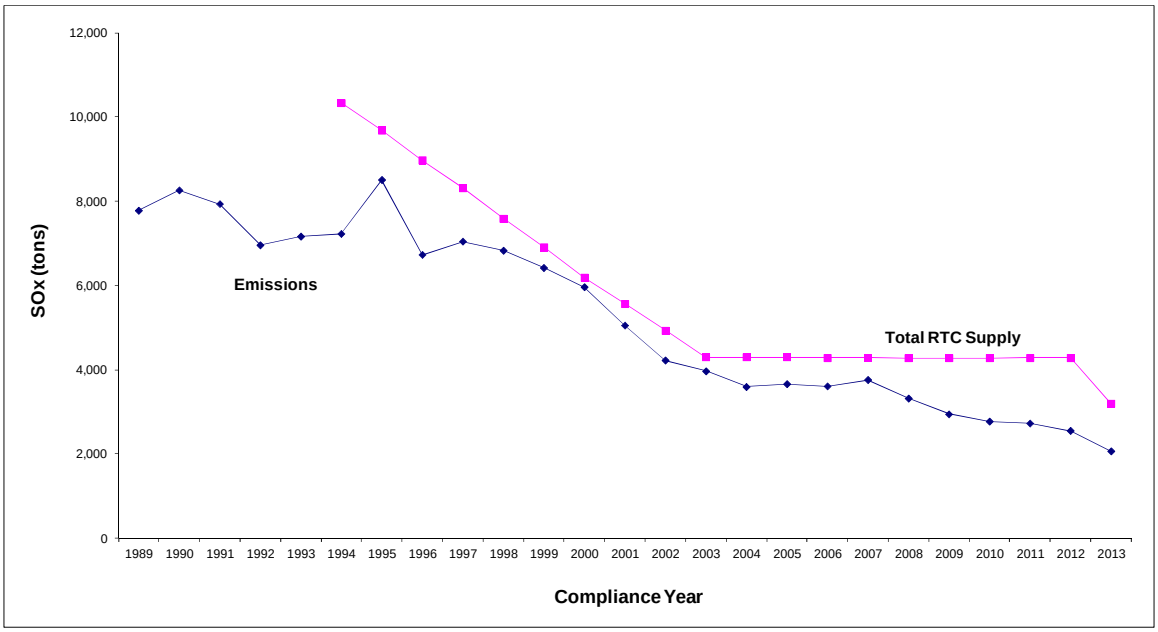
Table 3-3
Annual SOx Emissions for Compliance Years 1994 through 2013

Compliance Year	Audited Annual SOx Emissions[1] (tons)	Audited Annual SOx Emissions Change from 1994 (%)	Total SOx RTCs[2] (tons)	Unused SOx RTCs (tons)	Unused SOx RTCs (%)
1994	7,230	0%	10,336	3,106	30%
1995	8,508	18%	9,685	1,177	12%
1996	6,731	-6.9%	8,976	2,245	25%
1997	7,048	-2.5%	8,317	1,269	15%
1998	6,829	-5.5%	7,592	763	10%
1999	6,420	-11%	6,911	491	7.1%
2000	5,966	-17%	6,194	228	3.7%
2001	5,056	-30%	5,567	511	9.2%
2002	4,223	-42%	4,932	709	14%
2003	3,968	-45%	4,299	331	7.7%
2004	3,597	-50%	4,299	702	16%
2005	3,663	-49%	4,300	637	15%
2006	3,610	-50%	4,282	672	16%
2007	3,759	-48%	4,286	527	12%
2008	3,319	-54%	4,280	961	22%
2009	2,946	-59%	4,280	1,334	31%
2010	2,775	-62%	4,282	1,507	35%
2011	2,727	-62%	4,283	1,556	36%
2012	2,552	-65%	4,283	1,731	40%
2013	2,066	-71%	3,198	1,132	35%

[1] The RECLAIM universe is divided into two cycles with compliance schedules staggered by six months. Compliance years for Cycle 1 facilities run from January 1 through December 31 and Cycle 2 compliance years are from July 1 through June 30.

[2] Total RTCs = Allocated RTCs + RTCs from ERC conversion.

Figure 3-2
SOx Emissions and Available RTCs



Comparison to Command-and-Control Rules

RECLAIM subsumed a number of command-and-control rules[1] and sought to achieve reductions equivalent to these subsumed rules. RECLAIM facilities are exempt from the subsumed rules' requirements that apply to SOx or NOx emissions once the facilities comply with the applicable monitoring requirements of Rules 2011 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (SOx) Emissions or 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions, respectively.

None of the new or amended rules approved during the time period of this annual audit would result in different impacts to RECLAIM or non-RECLAIM facilities.

During Compliance Year 2013, one of the subsumed Regulation XIII rules, 1309 – Emission Reduction Credits and Short Term Credits, was amended on July 5, 2013. This rule amendment allowed the reissuance of unused ERCs, provided the request is made within two years of issuance of the Permit to Construct and construction had not commenced. Another Regulation XIII subsumed rule, Rule 1304.1 – Electrical Generating Facility Fee For Use Of Offset Exemptions, adopted September 6, 2013, set a fee for Electric Generating Facilities electing to meet their emissions offset obligations for boiler replacement projects by using offsets provided by the SCAQMD. These fee proceeds are invested in air pollution improvement strategies consistent with the AQMP goals. Although the provisions of Regulation XIII apply to all facilities, Rule 2001 identifies Regulation XIII as subsumed by RECLAIM, and thereby the requirements of amended Rule 1309 and adopted Rule 1304.1 do not apply to NOx at NOx RECLAIM facilities or

[1] See Tables 1 and 2 of Rule 2001.

to SOx at SOx RECLAIM facilities. The other requirements of both rules apply equally to both RECLAIM and non-RECLAIM facilities.

Two other subsumed rules, Rules 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters, and 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters, were amended on November 1, 2013. The amendments to both Rules 1146 and 1146.1 addressed a SIP approvability issue relating to rule enforceability raised by U.S. EPA. The amendment to each rule clarified that source test results indicating a unit's exceedance of the rule limits constitute a rule violation. However, both amended rules still allow diagnostic emission checks for boiler maintenance purposes. None of the changes affected rule emission limits. Since the November 2013 amendments to Rules 1146 and 1146.1 do not affect NOx or SOx, they apply equally to both RECLAIM and non-RECLAIM facilities.

Other rules amended or adopted during Compliance Year 2013 but not subsumed by RECLAIM include Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities, Rule 1130 – Graphic Arts, Rule 1155 – Particulate Matter (PM) Control Devices, Rule 2202 – On-Road Motor Vehicle Mitigation Options, Rule 301 – Permitting and Associated Fees, and Rule 311 – Air Quality Investment Program (AQIP) Fees.

On January 10, 2014, Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities was amended to establish requirements for owners or operators of large lead-acid battery recycling facilities to reduce emissions of arsenic and other key toxic air contaminants. The purpose of the amendment was to continue to ensure attainment of the National Ambient Air Quality Standards (NAAQS) for Lead as well as reduce emissions of arsenic, benzene, and 1,3-butadiene and other toxic air contaminant emissions contributing to health risks from large lead-acid battery recycling facilities. The amendment also included requirements for ambient air concentration limits for arsenic, as well as hourly emission limits of arsenic, benzene, and 1,3-butadiene. Additionally, the amendment contained administrative, monitoring and source testing requirements for stack emissions.

During the public hearing for this amendment, the Governing Board removed the requirement that affected facilities conduct a multi-metals demonstration program to continuously monitor lead, arsenic, and other metals. The Governing Board directed staff to work with stakeholders and return to the March 7, 2014 Public Hearing for Board action on the multi-metal CEMS demonstration program. As a result, on March 7, 2014, Rule 1420.1 was amended requiring affected facilities to provide funding and participate in a multi-metals CEMS demonstration program. Clarifying language was also added to require affected facilities to reimburse SCAQMD for funds spent to deploy independent third party contractors who conducted investigations of unplanned shutdowns.

The May 2, 2014 amendment to Rule 1130 – Graphic Arts incorporated certain U.S. EPA Control Techniques Guidelines (recommendations applicable to printing operations that were not included in prior amendments) that pertain to the overall add-on control device efficiency and VOC content requirements for fountain solutions. Amended Rule 1130 further added prohibition of storage of

non-compliant VOC-containing materials at a worksite, removed obsolete rule language, updated definitions for consistency with other SCAQMD rules, added a rule exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied, and made minor corrections and clarifications.

Rule 1155 – Particulate Matter (PM) Control Devices was amended on May 2, 2014 to address concerns raised by U.S. EPA in July of 2010. The amendment to Rule 1155 in May 2014 clarified that certain provisions of Rule 401 – Visible Emissions and the provisions of Rule 404 – Particulate Matter - Concentration are applicable to equipment subject to Rule 1155.

Finally, Rule 2202 – On-Road Motor Vehicle Mitigation Options, along with the accompanying rule Implementation Guidelines, Rule 311 – Air Quality Investment Program (AQIP) Fees, and Rule 301 – Permitting and Associated Fees were amended on June 6, 2014. Sections of Rule 2202 and the Implementation Guidelines were amended to address the use of ERCs and clarify the use of other existing emission credits. Rule 311, which is a program option for applicable worksites within Rule 2202, was amended to reduce the AQIP per employee fee, to more accurately reflect the costs to obtain the required emission reductions. The purpose of these amendments was to address the future availability of ERCs for use by stationary sources by no longer allowing ERCs to be transferred into the Rule 2202 program and subjecting those ERCs that currently reside in the program to an annual discount to establish a more level playing field for the various compliance options. The amendments to Rule 301 add a transfer fee for the administration and tracking of Short Term Emission Reduction Credits,

Since Rules 1420.1, 1130, 1155, 2202, 301 and 311 are not subsumed under RECLAIM, the requirements of these rules apply equally to RECLAIM and non-RECLAIM facilities. The amendments to Rules 1309, 1304.1, 1146 and 1146.1 did not impose new emission limits. Therefore, there are no differential impacts between RECLAIM and non-RECLAIM facilities as a result of these rule amendments/adoptions.

Program Amendments

The Governing Board amended Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) in November 2010. These amendments call for SOx RTCs to be adjusted to achieve a 48.4% (2080.5 tons/yr) overall reduction, phased in from Compliance Year 2013 through Compliance Year 2019. If overall SOx emissions had remained unchanged at the Compliance Year 2012 level, then emissions would exceed allocations in Compliance Year 2017. On the other hand, aggregate Compliance Year 2013 emissions were below aggregate allocations for 2019 and all subsequent years, so if overall SOx emissions remain constant at the Compliance Year 2013 level they would remain below allocations. Similarly, aggregate NOx emissions in Compliance Year 2005 and all subsequent compliance years were below aggregate allocations for Compliance Year 2013 and all subsequent years. It is anticipated that the on-going effort (described below) to reduce NOx allocations pursuant to Control Measure CMB-01 is likely to require further NOx emission reductions from RECLAIM facilities.

During Compliance Year 2013, there were no new amendments to Regulation XX adopted by SCAQMD's Governing Board. However, on December 7, 2012 the SCAQMD Governing Board adopted the 2012 AQMP, including Control Measure CMB-01 – Further NOx Reductions from RECLAIM, that proposes to reduce NOx emissions from RECLAIM sources by three to five tons per day by 2020. The extent of the NOx emission reductions is currently under discussion. The proposed amendment is expected to implement Control Measure CMB-01, and also address Best Available Retrofit Control Technology (BARCT) equivalency in accordance with California Health and Safety Code §40440. Changes to some RECLAIM monitoring and reporting requirements are also proposed. Rule development is currently underway to implement this control measure with an anticipated public hearing in the second quarter of 2015.

Breakdowns

Pursuant to Rule 2004(i) – Breakdown Provisions, a facility may request that emission increases due to a breakdown not be counted towards the facility's allocations. In order to qualify for such exclusion, the facility must demonstrate that the excess emissions were the result of a fire or a mechanical or electrical failure caused by circumstances beyond the facility's reasonable control. The facility must also take steps to minimize emissions resulting from the breakdown, and mitigate the excess emissions to the maximum extent feasible. Applications for exclusion of unmitigated breakdown emissions from a facility's total reported annual RECLAIM emissions must be approved by SCAQMD in writing. In addition, facilities are required to quantify unmitigated breakdown emissions for which an exclusion request has been approved in their APEP report.

As part of the annual program audit report, Rule 2015(d)(3) requires SCAQMD staff to determine whether excess emissions approved to be excluded from RTC reconciliation have been programmatically offset by unused RTCs within the RECLAIM program. If the breakdown emissions exceed the total unused RTCs within the program, any excess breakdown emissions must be offset by either: (1) deducting the amount of emissions not programmatically offset from the RTC holdings for the subsequent compliance year from facilities that had unmitigated breakdown emissions, proportional to each facility's contribution to the total amount of unmitigated breakdown emissions; and/or (2) RTCs obtained by the Executive Officer for the compliance year following the completion of the annual program audit report in an amount sufficient to offset the unmitigated breakdown emissions.

As shown in Table 3-4, a review of APEP reports for Compliance Year 2013 found that no facilities requested to exclude breakdown emissions from being counted against their allocations. Thus, for Compliance Year 2013, no additional RTCs are required to offset breakdown emissions pursuant to Rule 2015(d)(3).

Table 3-4
Breakdown Emission Comparison for Compliance Year 2013

Emittant	Compliance Year 2013 Unused RTCs (tons)	Unmitigated Breakdown Emissions[1] (tons)	Remaining Compliance Year 2013 RTCs (tons)
NOx	2,373	0	2,373
SOx	1,132	0	1,132

[1] Data for unmitigated breakdown emissions (not counted against Allocation) as reported under APEP reports.

Impact of Changing Universe

As discussed in Chapter 1, six NOx facilities were included, one existing NOx facility was included into the SOx market, no facility was excluded and four facilities shut down in Compliance Year 2013. Changes to the universe of RECLAIM facilities have the potential to impact emissions and the supply and demand of RTCs, and therefore, may impact RECLAIM emission reduction goals.

Existing facilities (defined by Rule 2000 as those with valid SCAQMD Permits to Operate issued prior to October 15, 1993 and that continued to be in operation or possess valid SCAQMD permits on October 15, 1993) that are not categorically excluded may choose to enter the program even though they do not meet the inclusion criteria. Existing facilities may also be included by SCAQMD if their facility-wide emissions increase to four tons or more per year of NOx or SOx or both. When one of these existing facilities enters the program, they are issued RTC allocations based on their operational history pursuant to the methodology prescribed under Rule 2002. Inclusions of existing facilities may affect demand more than supply because even though these facilities are issued RTCs based on their operational history, the amount may not be sufficient to offset their current or future operations. Overall, inclusions shift the accounting of emissions from the universe of non-RECLAIM sources to the universe of RECLAIM sources without actually changing the overall emissions inventory. Finally, inclusions change the rules and requirements that apply to the affected facilities. In Compliance Year 2013, one existing facility chose to opt into the RECLAIM program and three existing facilities were included into the RECLAIM program based on the Rule 2001 threshold of actual NOx and/or SOx emissions greater than or equal to four tons per year. One of these three existing facilities included based on meeting or exceeding the Rule 2001 threshold, was already a NOx RECLAIM facility that amended its reported SOx emissions for past years and, as such, was included in SOx RECLAIM. An additional RECLAIM facility that was previously shut down re-started its operation and was included back into the universe of active RECLAIM facilities in Compliance Year 2013.

Facilities that received all SCAQMD Permits to Operate on or after October 15, 1993 are defined by Rule 2000 as new facilities. New facilities can choose to enter RECLAIM or can be included due to actual NOx or SOx emissions in excess of four tons or more per year. New facilities are not issued RTCs based

on operational history, but any external offsets provided by the facility are converted to RTCs. There were no new facilities that elected to opt-in during Compliance Year 2013. However, one facility that was included pursuant to the Rule 2001 threshold is considered a new facility, as defined by Rule 2000. When a new facility joins the RECLAIM universe, it is required to obtain sufficient RTCs to offset its NOx or SOx emissions. These RTCs must be obtained through the trading market and are not issued by SCAQMD to the facility. Such facilities increase the overall demand for the fixed supply of RTCs because they increase total RECLAIM emissions without increasing the total supply of RTCs.

Additionally, facilities that undergo a partial change of operator may have an impact on emissions, depending on the operating conditions of the facility under the new operator. No additional allocations are issued as a consequence of a facility splitting into two and undergoing a partial change of operator. Therefore, the supplies of NOx and SOx RTCs are not impacted. In Compliance Year 2013, there were no facilities included into the RECLAIM universe as a result of the partial change of operator of a facility already in RECLAIM. Although there were no partial changes of operator in Compliance Year 2013, there was a partial relocation of a RECLAIM facility to a new location. Similar to a partial change of operator, no additional allocations were issued as a consequence of the partial relocation. As such, the supply of RTCs was not impacted by this partial relocation.

The shutdown of a RECLAIM facility results in a reduction in actual emissions. The shut down facility retains its RTC holdings, which it may continue to hold as an investment, transfer to another facility under common ownership, or trade on the market. Therefore, although the facility is no longer emitting, its RTCs may be used at another facility. Shut down facilities have the opposite effect on the RTC market as do new facilities: the overall demand for RTCs is reduced while the supply remains constant. As reported in Chapter 1, four RECLAIM facilities (all NOx-only facilities) shut down permanently in Compliance Year 2013.

A facility is excluded from the RECLAIM universe if SCAQMD staff determines that the facility was included in the program in error. In such cases, both the emissions and the RTCs that were issued to the facility for future years are withdrawn, thereby having a neutral impact on the RTC supply. Exclusions have the reverse affect as inclusions, in that the accounting of emissions is shifted from the RECLAIM universe of sources to the non-RECLAIM universe of sources. No facilities were excluded in Compliance Year 2013.

In summary, inclusion of new facilities and facilities that result from a partial change of operator, as well as the shutdown of RECLAIM facilities, change the demand for RTCs without changing the supply[2], while exclusions of existing facilities make corresponding changes to both the demand and the supply, thereby mitigating their own impact on the markets and shifting emissions between the RECLAIM and non-RECLAIM universes.

Compliance Year 2013 NOx and SOx audited emissions and initial allocations for facilities that were shut down, excluded, or included into the program during Compliance Year 2013 are summarized in Tables 3-5 and 3-6.

[2] Facilities that were initially permitted after the October 1993 adoption of RECLAIM and that provided NOx or SOx ERCs to offset their emissions are issued RTCs corresponding to the ERCs provided.

Table 3-5
NOx Emissions Impact from the Changes in Universe (Tons)

Category	Compliance Year 2013 NOx Emissions (tons)	Allocations Issued for Compliance Year 2013 NOx RTCs (tons)
Shutdown Facilities	2.1	29.8
Excluded Facilities	Not applicable	Not applicable
Included Facilities	22.1	10.8
RECLAIM Universe	7,326	9,699

Table 3-6
SOx Emissions Impact from the Changes in Universe (Tons)

Category	Compliance Year 2013 SOx Emissions (tons)	Allocated Compliance Year 2013 SOx RTCs (tons)
Shutdown Facilities	Not applicable	Not applicable
Excluded Facilities	Not applicable	Not applicable
Included Facilities	20.8	0.05
RECLAIM Universe	2,066	3,198

Backstop Provisions

Rule 2015 requires that SCAQMD review the RECLAIM program and implement necessary measures to amend it whenever aggregate emissions exceed the aggregate allocations by five percent or more, or whenever the annual average price of RTCs exceeds $15,000 per ton. Compliance Year 2013 aggregate NOx and SOx emissions were both below aggregate allocations as shown in Figures 3-1 and 3-2. At the same time, annual average prices for NOx and SOx RTCs in calendar year 2013 were below $15,000 per ton, as shown in Chapter 2. Therefore, there is no need to initiate a program review.

CHAPTER 4
NEW SOURCE REVIEW ACTIVITY

Summary

The annual program audit assesses New Source Review (NSR) activity from RECLAIM facilities in order to ensure that RECLAIM is complying with federal NSR requirements and state no net increase (NNI) in emissions requirements while providing flexibility to facilities in managing their operations and allowing new sources into the program. In Compliance Year 2013, a total of 70 NOx RECLAIM facilities had NSR NOx emission increases, and 11 SOx RECLAIM facilities had NSR SOx emission increases due to expansion or modification. Consistent with all prior compliance years, there were sufficient NOx and SOx RTCs available to allow for expansion, modification, and modernization by RECLAIM facilities.

RECLAIM is required to comply with federal NSR emissions offset requirements at a 1.2-to-1 offset ratio programmatically for NOx emission increases and a 1-to-1 offset ratio for SOx emission increases on a programmatic basis. In Compliance Year 2013, RECLAIM provided an offset ratio based on the compliance year's total unused allocations and total NSR emission increases of 6-to-1 for NOx, demonstrating federal equivalency. RECLAIM inherently complies with the federally-required 1-to-1 SOx offset ratio for any compliance year, provided aggregate SOx emissions under RECLAIM are lower than or equal to aggregate SOx allocations for that compliance year. As shown in Chapter 3, there was no programmatic SOx exceedance during Compliance Year 2013. In fact, there was a surplus of SOx RTCs. Therefore, RECLAIM more than complied with the federally-required SOx offset ratio and further quantification of the SOx offset ratio is unnecessary. Compliance with the federally-required offset ratio also demonstrates compliance with any applicable state NNI requirements for new or modified sources. In addition, RECLAIM requires application of, at a minimum, California Best Available Control Technology (BACT). The same BACT guidelines are used to determine applicable BACT to RECLAIM and non-RECLAIM facilities.

Background

Emissions increases from the construction of new or modified stationary sources in non-attainment areas are regulated by both federal NSR and state NNI requirements to ensure that progress toward attainment of ambient air quality standards is not hampered. RECLAIM is designed to comply with federal NSR and state NNI requirements without hindering facilities' ability to expand or modify their operations[1].

[1] Federal NSR applies to federal major sources (sources with the potential to emit at least 10 tons of NOx or 100 tons of SOx per year for the South Coast Air Basin) and state NNI requirements apply to all NOx sources and to SOx sources with the potential to emit at least 15 tons per year in the South Coast Air Basin. RECLAIM's NSR provisions apply to all facilities in the program, including those not subject to federal NSR or state NNI. (Although the threshold for RECLAIM inclusions is four tons per year of NOx or SOx emissions, some RECLAIM facilities have actual emissions much less than 4 tons per year).

Title 42, United States Code §7511a, paragraph (e), requires major sources in extreme non-attainment areas to offset emission increases of extreme non-attainment pollutants and their precursors at a 1.5-to-1 ratio based on potential to emit. However, if all major sources in the extreme non-attainment area are required to implement federal BACT, a 1.2-to-1 offset ratio may be used. Federal BACT is comparable to California's BARCT. SCAQMD requires all major sources to employ federal BACT/California BARCT at a minimum and, therefore, is eligible for a 1.2-to-1 offset ratio for ozone precursors (*i.e.*, NOx and VOC). The federal offset requirement for major SO_2 sources is at least a 1-to-1 ratio, which is lower than the aforementioned 1.2-to-1 ratio. Even though the Basin is in attainment with SOx standards, SOx is a precursor to PM10 which is a non-attainment air pollutant in the Basin. The applicable offset ratio for PM10 is at least 1-to-1, thus, the applicable offset ratio for SOx is 1-to-1. Health and Safety Code §40920.5 requires "no net increase in emissions from new or modified stationary sources of non-attainment pollutants or their precursors" (*i.e.*, a 1-to-1 offset ratio on an actual emissions basis). All actual RECLAIM emissions are offset at a 1-to-1 ratio provided there is not a programmatic exceedance of aggregate allocations, thus satisfying the federal offset ratio for SOx and state NNI requirements for both SOx and NOx. Annual RTC allocations follow a programmatic reduction to reflect changes in federal BACT/California BARCT and thereby comply with federal and state offset requirements.

RECLAIM requires, at a minimum, California BACT for all new or modified sources with increases in hourly potential to emit of RECLAIM pollutants. SCAQMD uses the same BACT guidelines in applying BACT to RECLAIM and non-RECLAIM facilities. Furthermore, BACT for major sources is at least as stringent as LAER (LAER is not applicable to minor facilities as defined in Rule 1302(t)). Thus, RECLAIM complies with both state and federal requirements regarding control technologies for new or modified sources. In addition to offset and BACT requirements, RECLAIM subjects RTC trades that are conducted to mitigate emissions increases over the sum of the facility's starting allocation and non-tradable/non-usable credits to trading zone restrictions to ensure net ambient air quality improvement within the sensitive zone established by Health and Safety Code §40410.5. Furthermore, facilities with actual RECLAIM emissions that exceed their initial allocation by 40 tons per year or more are required to analyze the potential impact of their emissions increases through air quality modeling.

Rule 2005 – New Source Review for RECLAIM requires RECLAIM facilities to provide (hold), prior to the start of operation, sufficient RTCs to offset the annual increase in potential emissions for the first year of operation at a 1-to-1 ratio. The same rule also requires all new RECLAIM facilities[2] and all other RECLAIM facilities that increase their annual allocations above the level of their starting allocations plus non-tradable/non-usable credits to provide sufficient RTCs to offset the annual potential emissions increase from new or modified source(s) at a 1-to-1 ratio at the commencement of each compliance year after the start of operation of the new or modified source(s). Although RECLAIM allows a 1-to-1 offset ratio for emissions increases, RECLAIM complies with the federal 1.2-to-1 offset requirement for NOx on an aggregate basis. This annual program audit report assesses NSR permitting activities for Compliance Year 2013 to verify that

[2] New facilities are facilities that received all District Permits to Construct on or after October 15, 1993.

programmatic compliance of RECLAIM with federal and state NSR requirements has been maintained.

NSR Activity

Evaluation of NSR data for Compliance Year 2013 shows that RECLAIM facilities were able to expand and modify their operations while complying with NSR requirements. During Compliance Year 2013, a total of 70 NOx RECLAIM facilities (39 in Cycle 1 and 31 in Cycle 2) were issued permits to operate, which resulted in a total of 439.7 tons per year of NOx emission increases from starting operations of new or modified sources, and 11 SOx RECLAIM facilities (six facilities in Cycle 1 and five facilities in Cycle 2) experienced a total of 693.1 tons per year of SOx NSR emission increases that resulted from starting operations of new or modified permitted sources. These emission increases were calculated pursuant to Rule 2005(d) – Emission Increase. As in previous years, there were adequate unused RTCs (NOx: 2,373 tons, SOx: 1,132 tons; see Chapter 3) in the RECLAIM universe for use to offset these emission increases at the appropriate offset ratios.

NSR Compliance Demonstration

RECLAIM is designed to programmatically comply with the federal NSR offset requirements. Meeting the NSR requirement (offset ratio of 1.2-to-1 for NOx and at least 1-to-1 for SOx) also demonstrates compliance with the state NNI requirements. Section 173 (c) of the federal Clean Air Act (CAA) states that only emissions reductions beyond the requirements of the CAA, such as federal Reasonably Available Control Technology (RACT), shall be considered creditable as emissions reductions for offset purposes. Since the initial allocations (total RTC supply in Compliance Year 1994) already met federal RACT requirements when the program was initially implemented, any emissions reductions beyond the initial allocations are available for NSR offset purposes until RACT becomes more stringent. The programmatic offset ratio calculations presented in the Annual RECLAIM Audit Reports for Compliance Years 1994 through 2004 relied upon aggregate Compliance Year 1994 allocations as representing RACT. However, staff recognizes that RACT may have become more stringent in the intervening years, so it may no longer be appropriate to calculate the programmatic offset ratio based upon aggregate 1994 allocations.

Aggregate allocations for each compliance year represent federal BACT, which is equivalent to local BARCT. Federal BACT is more stringent than federal RACT (*i.e.*, the best available control technology is more stringent than what is reasonably available), so staff started using current allocations (federal BACT) as a surrogate for RACT as the basis for calculating programmatic NOx and SOx offset ratios in the annual program audit report for Compliance Year 2005 and is continuing to do so for NOx in this report. This is a more conservative (*i.e.*, more stringent) approach than using actual RACT and is much more conservative than using aggregate Compliance Year 1994 allocations. The advantage of this approach is that, as long as the calculated NOx offset ratio is at least 1.2-to-1, it provides certainty that RECLAIM has complied with federal and state offset requirements without the need to know exactly what RACT is for RECLAIM facilities. However, if this very conservative approach should ever fail to demonstrate that the aggregate NOx offset ratio for any year is at least 1.2-to-1,

that will not necessarily mean RECLAIM has not actually complied with the federally required 1.2-to-1 NOx offset ratio. Rather it will indicate that further analysis is required to accurately identify RACT so that the actual offset ratio can be calculated and a compliance determination made.

Provided aggregate RECLAIM emissions do not exceed aggregate allocations, all RECLAIM emissions are offset at a ratio of 1-to-1. This leaves all unused allocations available to provide offsets beyond the 1-to-1 ratio for NSR emission increases. Unused allocations are based on all Cycle 1 and Cycle 2 RTCs of a given compliance year and the aggregate RECLAIM emissions for the selected time period. The NSR emission increase is the sum of emission increases due to permit activities at all RECLAIM facilities during the same compliance year. The aggregate RECLAIM offset ratios are expressed by the following formula:

$$\text{Offset Ratio} = \left(1 + \frac{\text{compliance year's total unused allocations}}{\text{total NSR emission increases}}\right)\text{-to-1}$$

As stated in the previous section under the title of "NSR Activity", permits to operate issued to 70 RECLAIM facilities resulted in 439.72 tons of NOx emission increase pursuant to Rule 2005(d). Additionally, as identified in Table 3-1 (Annual NOx Emissions for Compliance Years 1994 through 2013), 2,373 tons of Compliance Year 2013 NOx RTCs remained unused. Therefore, the Compliance Year 2013 NOx programmatic offset ratio calculated from this methodology is 6-to-1 as shown below:

$$\text{Offset Ratio} = \left(1 + \frac{2{,}373 \text{ tons}}{439.72 \text{ tons}}\right)\text{-to-1}$$

$$= 6\text{-to-1}$$

RECLAIM continues to generate sufficient excess emission reductions to provide a NOx offset ratio greater than the 1.2-to-1 required by federal law. This compliance with the federal offset requirements is built into the RECLAIM program through annual reductions of the allocations assigned to RECLAIM facilities and the subsequent allocation adjustments adopted by the Governing Board to implement BARCT. The required offset ratio for SOx is 1-to-1. Since RECLAIM facilities are required to secure, at a minimum, adequate RTCs to cover their actual emissions, the SOx offset ratio is met automatically provided there is no programmatic exceedance of aggregate SOx allocations for that compliance year. As stated earlier in Chapter 3, there were 1,132 tons of excess (unused) SOx RTCs for Compliance Year 2013. Therefore, there is certainty that both the federally required SOx offset ratio and the California NNI requirement for SOx were satisfied and a separate calculation of the SOx offset ratio is not necessary.

BACT and modeling are also required for any RECLAIM facility that installs new equipment or modifies sources if the installation or modification results in an increase in emissions of RECLAIM pollutants. Furthermore, the RTC trading zone restrictions in Rule 2005 – New Source Review for RECLAIM, limit trades conducted to offset emission increases over the sum of the facility's starting

allocation and non-tradable/non-usable credits to ensure net ambient air quality improvement within the sensitive zone, as required by state law.

The result of the review of NSR activity in Compliance Year 2013 shows that RECLAIM is in compliance with both state NNI and federal NSR requirements. SCAQMD staff will continue to monitor NSR activity under RECLAIM in order to assure continued progress toward attainment of ambient air quality standards without hampering economic growth in the Basin.

Modeling Requirements

Rule 2004, as amended in May 2001, requires RECLAIM facilities with actual NOx or SOx emissions exceeding their initial allocation in Compliance Year 1994 by 40 tons per year or more to conduct modeling to analyze the potential impact of the increased emissions. The modeling analysis is required to be submitted within 90 days of the end of the compliance year. For Compliance Year 2013, one RECLAIM facility[3] was subject to this requirement. The facility submitted modeling analysis that showed that its NOx emissions complied with the most stringent ambient air quality standards set forth in Rule 2005, Appendix A.

[3] Under the requirements of Rule 2004(q), Southern California Edison (Facility ID 160437) was required to submit modeling analysis for its NOx emissions in Compliance Year 2013.

CHAPTER 5
COMPLIANCE

Summary

*Of the 279 NOx RECLAIM facilities audited during Compliance Year 2013, a total of 271 facilities (97%) complied with their NOx allocations, and 31 of the 33 SOx facilities (94%) complied with their SOx allocations. The eight facilities that exceeded their NOx allocations had aggregate NOx emissions of 173.2 tons and did not have adequate allocations to offset 18.5 tons (or 10.6%) of their combined emissions. This exceedance amount is small compared to the overall allocations for Compliance Year 2013 (0.19% of total NOx allocations). Two SOx facilities had SOx emissions that exceeded their SOx allocations by two pounds in one case and seven pounds in the other case. The exceedances from these facilities did not impact the overall RECLAIM emission reduction goals. Pursuant to Rule 2010(b)(1)(A), these facilities had their respective exceedances deducted from their annual allocations for the compliance year subsequent to the date of SCAQMD's determination that the facilities exceeded their Compliance Year 2013 allocations. The overall RECLAIM NOx and SOx emission reduction targets and goals were met for Compliance Year 2013 (*i.e.*, aggregate emissions for all RECLAIM facilities were well below aggregate allocations).*

Background

RECLAIM facilities have the flexibility to choose among compliance options to meet their annual allocations by reducing emissions, trading RTCs, or a combination of both. However, this flexibility must be supported by standardized emission MRR requirements to ensure the reported emissions are real, quantifiable, and enforceable. As a result, detailed MRR protocols are specified in the RECLAIM regulation to provide accurate and verifiable emission reports.

The MRR requirements were designed to provide accurate and up-to-date emission reports. Once facilities install and complete certification of the required monitoring and reporting equipment, they are relieved from command-and-control rule limits and requirements subsumed under Rule 2001. Mass emissions from RECLAIM facilities are then determined directly by monitoring and reporting equipment for some sources and from data generated by monitoring equipment for others. If monitoring equipment fails to produce quality-assured data or the facility fails to file timely emissions reports, RECLAIM rules require emissions be determined by a rule-prescribed methodology known as Missing Data Procedures or "MDP." Depending on past performance of the monitoring equipment (*i.e.*, availability of quality-assured data) and the duration of the missing data period, MDP use a tiered approach to calculate emissions. As availability of quality-assured data increases, the MDP-calculated emissions become more representative of the actual emissions, but when the availability of quality-assured data is low, MDP calculations become more conservative and approach, to some extent, "worst case" assessments.

Allocation Compliance

Requirements

At the beginning of the RECLAIM program in 1994 or at the time a facility is included in the RECLAIM program, each RECLAIM facility is issued an annual allocation for each compliance year pursuant to methodology prescribed in Rule 2002. For a facility in existence prior to October 1993, it is issued allocations by SCAQMD based on its historical production rate. A facility without an operating history prior to 1994 receives no allocation and must purchase enough RTCs to cover the emissions for their operations, except facilities that have provided ERCs to offset emission increases prior to entering RECLAIM are issued RTCs generated by converting the surrendered ERCs to RTCs. Additionally, all facilities entering RECLAIM holding any ERCs generated at and held by the individual facility itself have those ERCs converted to RTCs and added to their allocated RTCs. Knowing their emission goals, RECLAIM facilities have the flexibility to manage their emissions in order to meet their allocations in the most cost-effective manner. Facilities may employ emission control technology or process changes to reduce emissions, buy RTCs, or sell unneeded RTCs.

Facilities may buy RTCs or sell excess RTCs at any time during the year in order to ensure that their emissions are covered. There is a thirty day reconciliation period commencing at the end of each of the first three quarters of each compliance year. In addition, after the end of each compliance year, there is a 60-day reconciliation period (instead of 30 days as at the end of the first three quarters) during which facilities have a final opportunity to buy or sell RTCs for that compliance year. These reconciliation periods are provided for facilities to review and correct their emission reports as well as securing adequate allocations. Each RECLAIM facility must hold sufficient RTCs in its allocation account to cover (or reconcile with) its quarterly as well as year-to-date emissions for the compliance year at the end of each reconciliation period. By the end of each quarterly and annual reconciliation period, each facility is required to certify the emissions for the preceding quarter and/or compliance year by submitting its Quarterly Certification of Emissions Reports (QCERs) and/or APEP report, respectively.

Compliance Audit

Since the beginning of the program, SCAQMD staff has conducted annual program audits of all emission reports submitted by RECLAIM facilities to ensure their integrity and reliability. The audit process includes conducting field inspections to check process equipment, monitoring devices, and operational records. Additionally, emissions calculations are performed in order to verify emissions reported electronically to SCAQMD or submitted in QCERs and APEP reports. For Compliance Year 2013, these inspections revealed that some facilities did not obtain or record valid monitoring data, were unable to substantiate reported emissions with valid records, failed to submit emission reports when due, made errors in quantifying their emissions (*e.g.*, arithmetic errors), used incorrect adjustment factors (*e.g.*, bias adjustment factors), used emission calculation methodologies not allowed under the rules, or used MDP inappropriately. Other common mistakes included reporting non-RECLAIM

emissions and/or omitting reportable emissions. Appropriate compliance actions are also taken based on audit findings.

Whenever an audit revealed a facility's emissions to be in excess of its annual allocation, the facility was provided an opportunity to review the audit and to present additional data to further refine audit results. This extensive and rigorous audit process ensures valid and reliable emissions data.

Compliance Status

During this compliance year, a total of nine RECLAIM facilities failed to reconcile their emissions (seven NOx-only facilities, one NOx and SOx facility that only exceeded its SOx allocation, and one facility that exceeded both its NOx and SOx allocations). Eight of these nine facilities (seven NOx-only facilities and the NOx and SOx facility that exceeded both) failed to secure sufficient RTCs to cover their reported emissions during either the quarterly or annual reconciliation periods (*i.e.*, they failed to hold sufficient RTCs to cover their reported emissions, as opposed to facilities that have exceedances because they under-reported their emissions and held sufficient RTCs to reconcile their reported emissions but not enough to reconcile their audited emissions). Of these eight facilities, one facility (a NOx-only facility), had an additional reason for NOx exceedance in that they used an incorrect pressure correction factor to correct fuel usage readings to standard conditions. At a different facility, an additional reason for NOx exceedance was that the facility omitted reportable emissions. In the one remaining case, the facility failed to account for SOx emissions from a diesel-fired IC engine. Overall, the Compliance Year 2013 allocation compliance rates for facilities are 97% (271 out of 279 facilities) for NOx RECLAIM and 94% (31 out of 33 facilities) for SOx RECLAIM. For purposes of comparison, the allocation compliance rates for Compliance Year 2012 were 95% and 97% for NOx and SOx RECLAIM facilities, respectively. The eight facilities that had NOx emissions in excess of their individual NOx allocations had 173.2 tons of NOx emissions and did not have adequate RTCs to cover 18.5 of those tons (or 10.6%). This exceedance amount (0.19% of aggregate NOx allocations) is small compared to the overall allocations for Compliance Year 2013. Two facilities had SOx emissions that exceeded its SOx allocations by only two pounds in one case and seven pounds in the other case. Pursuant to Rule 2010(b)(1)(A), all nine facilities had their respective exceedances deducted from their annual emissions allocations for the compliance year subsequent to SCAQMD's determination that the facilities exceeded their Compliance Year 2013 allocations.

Impact of Missing Data Procedures

MDP was designed to provide a method for determining emissions when an emission monitoring system does not yield valid emissions. For major sources, these occurrences may be caused by failure of the monitoring systems, the data acquisition and handling systems, or by lapses in the Continuous Emissions Monitoring System (CEMS) certification period. Major sources are also required to use MDP for determining emissions whenever daily emissions reports are not submitted by the applicable deadline. When comparing actual emissions with a facility's use of substituted MDP emissions, the range of MDP emissions can vary from "more representative" to emissions being overstated to reflect a "worst

case"[1] scenario. For instance, an MDP "worst case" scenario may occur for major sources that fail to have their CEMS certified in a timely manner, and therefore, have no valid CEMS data that can be used for substitution. In other cases, where prior CEMS data is available, MDP is applied in tiers depending on the duration of missing data periods and the historical availability of monitoring systems. As the duration of missing data periods gets shorter and the historical availability of monitoring systems gets higher, the substitute data yielded by MDP becomes more representative of actual emissions[2].

In addition to MDP for major sources, RECLAIM rules also define MDP for large sources and process units. These procedures are applicable when a process monitoring device fails or when a facility operator fails to record fuel usage or other monitored data (*e.g.*, hours of operation). The resulting MDP emissions reports are reasonably representative of the actual emissions because averaged or maximum emissions from previous operating periods may be used. However, for extended missing data periods (more than two months for large sources or four quarters or more for process units) or when emissions data for the preceding year are unavailable, large source and process unit MDP are also based on maximum operation or worst case assumptions.

Based on APEP reports, 107 NOx facilities and 15 SOx facilities used MDP in reporting portions of their annual emissions during Compliance Year 2013. In terms of mass emissions, 3.9% of the total reported NOx emissions and 5.6% of the total reported SOx emissions in the APEP reports were calculated using MDP for Compliance Year 2013. Table 5-1 compares the impact of MDP on reported annual emissions for the last few compliance years to the second compliance year, 1995 (MDP was not fully implemented during Compliance Year 1994).

[1] Based on uncontrolled emission factor at maximum rated capacity of the source and 24 hours per day.

[2] Based on averaged emissions during periods before and after the period for which data is not available.

Table 5-1
MDP Impact on Annual Emissions

Year	Percent of Reported Emissions Using Substitute Data*	
	NOx	SOx
1995	23.0% (65 / 6,070)	40.0% (12 / 3,403)
2007	5.6% (78 / 489)	7.0% (14 / 262)
2008	7.6% (86 / 625)	7.5% (9 / 242)
2009	7.8% (103 / 554)	13.8% (15 / 403)
2010	7.0% (93 / 488)	6.1% (23 / 168)
2011	6.2% (94 / 435)	12.4% (19 / 328)
2012	7.5% (95 / 560)	4.5% (13 / 114)
2013	3.9% (107 / 287)	5.6% (15 / 113)

* Numbers in parenthesis that are separated by a forward slash represent the number of facilities that reported use of MDP in each compliance year and tons of emissions based on MDP.

Most of the issues associated with CEMS certifications were resolved prior to Compliance Year 1999. Since then, very few facilities have had to submit emissions reports based on the worst case scenario under MDP, which may considerably overstate the actual emissions from major sources. As an example, most facilities that reported emissions using MDP in 1995 did so because they did not have their CEMS certified in time to report actual emissions. Since their CEMS had no prior data, MDP called for an application of the most conservative procedure to calculate substitute data by assuming continuous uncontrolled operation at the maximum rated capacity of the facility's equipment, regardless of the actual operational level during the missing data periods. As a result, the calculations yielded substitute data that may have been much higher than the actual emissions. In comparison to the 65 NOx facilities implementing MDP in Compliance Year 1995, 107 facilities reported NOx emissions using MDP in Compliance Year 2013. Even though the number of facilities is higher than in 1995, the percentage of emissions reported using MDP during Compliance Year 2013 is much lower than it was in 1995 (3.9% compared to 23%). Additionally, in terms of quantity, NOx emissions in Compliance Year 2013 were about 5% of those in Compliance Year 1995 (287 tons compared to 6,070 tons). Since most CEMS were certified and had been reporting actual emissions by the beginning of Compliance Year 2000, facilities that had to calculate substitute data were able to apply less conservative methods of calculating MDP for systems with high availability and shorter duration missing data periods. Therefore, the substitute data they calculated for their missing data periods were more likely to be representative of the actual emissions.

It is important to note that portions of annual emissions attributed to MDP include actual emissions from the sources as well as the possibility of overestimated emissions. As shown in Table 5-1, approximately 4% of reported NOx annual emissions were calculated using MDP in Compliance Year 2013. MDP may significantly overestimate emissions from some of the sources that operate intermittently and have low monitoring system availability, and/or lengthy missing data periods. Even though a portion of the 4% may be overestimated emissions due to conservative MDP, a significant portion (or possibly all) of it could have also been actual emissions from the sources. Unfortunately, the portion that represents the actual emissions cannot be readily estimated because the extent of this effect varies widely, depending on source categories and operating parameters, as well as the tier of MDP applied. As an example, refineries tend to operate at near maximum capacity for 24 hours per day and seven days per week, except for scheduled shutdowns for maintenance and barring major breakdowns or other unforeseeable circumstances. For Compliance Year 2013, a majority of NOx MDP emissions data (55%) and SOx MDP emissions data (93%) were reported by refineries. Therefore, missing data emissions calculated for such facilities could be more reflective of the actual emissions than those calculated for facilities that do not operate on a continuous basis but, due to low data availability, are required to calculate MDP based upon continuous operation. On the other hand, as discussed in Chapter 7, a power plant was about two months late in conducting a RATA, resulting in application of MDP for the period from the due date until the date of the RATA. A more conservative tier of MDP was required to be used due to the length of the missing period. As such, this power plant's reported emissions are likely significantly over-estimated emissions.

Emissions Monitoring

Overview

The reproducibility of reported RECLAIM facility emissions (and the underlying calculations)—and thereby the enforceability of the RECLAIM program—is assured through a three-tiered hierarchy of MRR requirements. A facility's equipment falls into an MRR category based on the kind of equipment it is and on the level of emissions produced or potentially produced by the equipment. RECLAIM divides all NOx sources into major sources, large sources, process units, and equipment exempt from obtaining a written permit pursuant to Rule 219. All SOx sources are divided into major sources, process units, and equipment exempt from obtaining a written permit pursuant to Rule 219. Table 5-2 shows the monitoring requirements applicable to each of these categories.

Table 5-2
Monitoring Requirements for RECLAIM Sources

Source Category	Major Sources (NOx and SOx)	Large Sources (NOx only)	Process Units and Rule 219 Equipment (NOx and SOx)
Monitoring Method	Continuous Emissions Monitoring System (CEMS)	Fuel Meter or Continuous Process Monitoring System (CPMS)	Fuel Meter, Timer, or CPMS
Reporting Frequency	Daily	Monthly	Quarterly

Continuous Emissions Monitoring System (CEMS)

Requirements

CEMS represent both the most accurate and the most reliable method of calculating emissions because they continuously monitor all of the parameters necessary to directly determine mass emissions of NOx and SOx. They are also the most costly method. These attributes make CEMS the most appropriate method for the largest emission-potential equipment in the RECLAIM universe, major sources.

ACEMS are alternatives to CEMS that are allowed under the RECLAIM regulation. These are devices that do not directly monitor NOx or SOx mass emissions; instead, they correlate multiple process parameters to arrive at mass emissions. To be approved for RECLAIM MRR purposes, ACEMS must be determined by SCAQMD to be equivalent to CEMS in relative accuracy, reliability, reproducibility, and timeliness

Even though the number of major sources monitored by either CEMS or Alternative Continuous Emissions Monitoring Systems (ACEMS) represent 19% and 60% of all permitted RECLAIM NOx and SOx sources, respectively, reported emissions for Compliance Year 2013 revealed that 79% of all RECLAIM NOx emissions and 97% of all RECLAIM SOx emissions were determined by CEMS or ACEMS.

Compliance Status

By the end of calendar year 1999, almost all facilities that were required to have CEMS had their CEMS certified or provisionally approved. The only remaining uncertified CEMS are for sources that recently became subject to major source reporting requirements and sources that modified their CEMS. Typically, there will be a few new major sources each year. Therefore, there will continue to be a small number of CEMS in the certification process at any time.

Semiannual and Annual Assessments of CEMS

RECLAIM facilities conduct their Relative Accuracy Test Audit (RATA) of certified CEMS using private sector testing laboratories approved under SCAQMD's Laboratory Approval Program (LAP). These tests are conducted either

semiannually or annually, depending on the most recent relative accuracy value (the sum of the average differences and the confidence coefficient) for each source. The interval is annual only when all required relative accuracies obtained during an audit are 7.5% or less (*i.e.*, more accurate).

To verify the quality of CEMS, the RATA report compares the CEMS data to data taken simultaneously, according to approved testing methods (also known as reference methods), by a LAP-approved source testing contractor. In order to have a passing RATA, each of the following relative accuracy performance criteria must be met: The relative accuracy of the CEMS results relative to the reference method results must be within ±20% for pollutant concentration, ±15% for stack flow rate, and ±20% for pollutant mass emission rate. The RATAs also determine whether CEMS data must be adjusted for low readings compared to the reference method (bias adjustment factor), and by how much. The RATA presents two pieces of data, the CEMS bias (how much it differs from the reference method on the average) and the CEMS confidence coefficient (how variable that bias or average difference is).

Tables 5-3 and 5-4, respectively, summarize the 2013 and 2014 calendar years' passing rates for RATAs of certified CEMS for NOx and SOx concentration, total sulfur in fuel gas concentrations, stack flow rate (in-stack monitors and F-factor based calculations), and NOx and SOx mass emissions. However, the tables do not include SOx mass emissions calculated from total sulfur analyzer systems because such systems serve numerous devices, and therefore are not suitable for mass emissions-based RATA testing.

Table 5-3
Passing Rates Based on RATAs of Certified CEMS in 2013

Concentration						Stack Flow Rate				Mass Emissions			
NOx		SO_2		Total[1] Sulfur		In-Stack Monitor		F-Factor Based Calc.		NOx		SOx[2]	
No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass
338	100	89	100	14	100	42	100	348	100	338	100	49	100

[1] Includes Cylinder Gas Audit (CGA) tests.

[2] Does not include SOx emissions calculated from total sulfur analyzers.

Table 5-4
Passing Rates Based on RATAs of Certified CEMS in 2014[1]

Concentration						Stack Flow Rate				Mass Emissions			
NOx		SO_2		Total[2] Sulfur		In-Stack Monitor		F-Factor Based Calc.		NOx		SOx[3]	
No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass
351	100	83	100	13	100	47	100	390	100	351	100	46	100

[1] All passing rates calculated from data submitted before January 16, 2015 and may exclude some data from the fourth quarter of calendar year 2014.

[2] Includes Cylinder Gas Audit (CGA) tests.

[3] Does not include SOx emissions calculated from total sulfur analyzers.

As indicated in Tables 5-3 and 5-4, the passing rates for NOx/SO_2 concentration, stack flow rate, and mass emissions were all 100%. Since the inception of RECLAIM there have been significant improvements with respect to the availability of reliable calibration gas, the reliability of the reference method, and an understanding of the factors that influence valid total sulfur analyzer data. RATA reports for all total sulfur analyzers during calendar years 2013 and 2014 have indicated passing results.

Electronic Data Reporting of RATA Results

Facilities operating CEMS under RECLAIM are required to submit RATA results to SCAQMD. An electronic reporting system, known as Electronic Data Reporting (EDR), was set up to allow RATA results to be submitted electronically using a standardized format in lieu of the traditional formal source test reports in paper form. This system minimizes the amount of material the facility must submit to SCAQMD and also expedites reviews. Currently, most RATA results are submitted via this system (approximately two percent of calendar year 2013 and approximately two percent of calendar year 2014 RATA results were submitted in paper form rather than electronically).

Non-Major Source Monitoring, Reporting, and Recordkeeping

Emissions quantified for large sources are primarily based on concentration limits or emission rates specified in the Facility Permit. Other variables used in the calculation of large source emissions are dependent on the specific process of the equipment, but generally include fuel usage, applicable dry F-factor, and the higher heating value of the fuel used. RECLAIM requires large sources to be source tested within defined three-year windows in order to validate fuel meter accuracy, and the equipment's concentration limit or emission rate. Since emissions quantification is fuel-based, the monitoring equipment required to quantify emissions is a non-resettable fuel meter that must be corrected to standard temperature and pressure. Large source emission data must be submitted electronically on a monthly basis.

Process unit emission calculations are similar to those of large sources in that emissions are quantified using the fuel-based calculations for either a concentration limit or an emission factor specified in the Facility Permit. Similar to large sources, variables used in emission calculations for process units are dependent on the equipment's specific process, but generally include fuel usage, applicable dry F-factor, and the higher heating value of the fuel used. Process units that are permitted with concentration limits are also required to be source-tested, but within specified five-year windows. Emissions for equipment exempt from obtaining a written permit pursuant to Rule 219 are quantified using emission factors and fuel usage. No source testing is required for such exempt equipment. Since emissions are fuel-based for both process units and exempt equipment, the monitoring equipment required to quantify emissions is a non-resettable fuel meter, corrected to standard temperature and pressure. Alternately, a timer may be used to record operational time. In such cases, fuel usage is determined based on maximum rated capacity of the source. Process units and exempt equipment must submit emission reports electronically on a quarterly basis.

Emissions Reporting

Requirements

RECLAIM uses electronic reporting technology to streamline reporting requirements for both facilities and SCAQMD, and to help automate compliance tracking. Under RECLAIM, facilities report their emissions electronically on a per device basis to SCAQMD's Central Station computer as follows:

- Major sources must use a Remote Terminal Unit (RTU) to telecommunicate emission data to SCAQMD's Central Station. The RTU collects data, performs calculations, generates the appropriate data files, and transmits the data to the Central Station. This entire process is required to be performed by the RTU on a daily basis without human intervention.
- Emission data for all equipment other than major sources may be transmitted via RTU or compiled manually and transmitted to the Central Station via modem. Alternatively, emissions from non-major sources may use SCAQMD's internet based application, Web Access To Electronic Reporting System (WATERS) to transmit emission data for non-major sources via internet connection. The data may be transmitted directly by the facility or through a third party.

Compliance Status

The main concern for emission reporting is the timely submittal of accurate daily emissions reports from major sources. If daily reports are not submitted by the specified deadlines, RECLAIM rules may require that emissions from CEMS be ignored and the emissions be calculated using MDP. Daily emission reports are submitted by the RTU of the CEMS to SCAQMD's Central Station via telephone lines. Often communication errors between the two points are not readily detectable by facility operators. Undetected errors can cause facility operators to believe that daily reports were submitted when they were not received by the Central Station. In addition to providing operators a means to confirm the receipt of their reports, the WATERS application can also display electronic reports that were submitted to, and received by, the Central Station. This system helps reduce instances where MDP must be used for late or missing daily reports, because the operators can verify that the Central Station received their daily reports, and can resubmit them if there were communication errors.

Protocol Review

Even though review of MRR protocols was only required by Rule 2015(b)(1) for the first three compliance years of the RECLAIM program, staff continues to review the effectiveness of enforcement and MRR protocols. Based on such review, occasional revisions to the protocols may be needed to achieve improved measurement and enforcement of RECLAIM emission reductions, while minimizing administrative costs to SCAQMD and RECLAIM participants.

Since the RECLAIM program was adopted, staff has produced rule interpretations and implementation guidance documents to clarify and resolve specific concerns about the protocols raised by RECLAIM participants. In

situations where staff could not interpret existing rule requirements to adequately address the issues at hand, the protocols and/or rules have been amended.

When the RECLAIM program first began, the ability to electronically transmit emissions data to SCAQMD's Central Station via modem was considered state-of-the-art technology. However, that technology is now antiquated and finding replacement components (*e.g.,* slower baud-rate modems) is becoming increasingly difficult. As such, SCAQMD is evaluating options to either upgrade or replace the current Central Station. SCAQMD will initiate a Working Group of all interested and pertinent parties in 2015 to start discussions on alternatives to electronic reporting via modem. Key factors that need to be considered include ease of implementation and cost impacts on RECLAIM facilities and SCAQMD. Any proposed alternative must be broadly applicable, be capable to support automatic daily transmission of reports without any human intervention, and allow adequate time for testing and implementation. Progress on this effort will be presented in future annual program audit reports.

CHAPTER 6
REPORTED JOB IMPACTS

Summary

*This chapter compiles data as reported by RECLAIM facilities in their Annual Permit Emissions Program (APEP) reports. The analysis focuses exclusively on job impacts at RECLAIM facilities and determination if those job impacts were directly attributable to RECLAIM as reported by those facilities. Additional benefits to the local economy (*e.g.*, generating jobs for consulting firms, source testing firms and CEMS vendors) attributable to the RECLAIM program, as well as factors outside of RECLAIM (*e.g.*, the prevailing economic climate), impact the job market. However, these factors are not evaluated in this report. Also, job losses and job gains are strictly based on RECLAIM facilities' reported information. SCAQMD staff is not able to independently verify the accuracy of the reported job impact information.*

According to the Compliance Year 2013 employment survey data gathered from APEP reports, RECLAIM facilities reported a net gain of 4,180 jobs, representing 4.01% of their total employment. Two facilities reported a gain of one job each due to RECLAIM while one facility reported a loss of four jobs due to RECLAIM. None of the four RECLAIM facilities that shut down during Compliance Year 2013 cited RECLAIM as a factor contributing to the decision to shutdown.

Background

The APEP reports submitted by RECLAIM facilities include survey forms that are used to evaluate the socioeconomic impacts of the program. Facilities were asked to indicate the number of jobs at the beginning of Compliance Year 2013 and any changes in the number of jobs that took place during the compliance year in each of three categories: manufacturing, sale of products, and non-manufacturing. The numbers of jobs gained and lost reported by facilities in each category during the compliance year were tabulated.

Additionally, APEP reports ask facilities that shut down during Compliance Year 2013 to provide the reasons for their closure. APEP reports also allow facilities to indicate whether the RECLAIM program led to the creation or elimination of jobs during Compliance Year 2013. Those facilities that reported a change in the number of jobs due to RECLAIM were asked to specify the number of jobs lost or gained, and to state why the job loss or creation was attributed to RECLAIM.

Since data regarding job impacts and facility shutdowns are derived from the APEP reports, the submittal of these reports is essential to assessing the influence that the RECLAIM program has on these issues. The following discussion represents data obtained from APEP reports submitted to SCAQMD for Compliance Year 2013 and clarifying information collected by SCAQMD staff. SCAQMD staff is not able to verify the accuracy of the reported job impact information.

Job Impacts

Table 6-1 summarizes job impact data gathered from Compliance Year 2013 APEP reports and follow-up contacts with facilities. A total of 121 facilities reported 12,003 job gains, while 141 facilities reported a total of 7,823 job losses. Net job gains were reported in two of the three categories: sales of products (39), and non-manufacturing (5,509), whereas net job losses were reported in the remaining category: manufacturing (1,368). Table 6-1 shows a total net gain of 4,180 jobs, which represents a net jobs increase of 4.01% at RECLAIM facilities during Compliance Year 2013.

Table 6-1
Job Impacts at RECLAIM Facilities for Compliance Year 2013

Description	Manufacture	Sales of Products	Non-Manufacture	Total[1]
Initial Jobs	37,737	930	65,650	104,317
Overall Job Gain	1,834	185	9,984	12,003
Overall Job Loss	3,202	146	4,475	7,823
Final Jobs	36,369	969	71,159	108,497
Net Job Change	-1,368	39	5,509	4,180
Percent (%) Job Change	-3.63%	4.19%	8.39%	4.01%
Facilities Reporting Job Gains	83	26	69	121
Facilities Reporting Job Losses	102	35	90	141

[1] The total number of facilities reporting job gains or losses does not equal the sum of the number of facilities reporting job changes in each category (*i.e.*, the manufacture, sales of products, and non-manufacture categories) due to the fact that some facilities may report changes under more than one of these categories.

Data in Table 6-1 include four RECLAIM facilities that were reported to be shut down or ceasing operations in Compliance Year 2013 as listed in Appendix C. One of the shut down facilities had all equipment removed from the site and the property was sold for development as a warehouse/distribution center. The second facility shut down because of declining demand for its products, while the third facility was shut down because the cost of manufacturing, production, or raw materials was too high. Lastly, the fourth facility was shut down because it had filed for bankruptcy. These shutdowns led to a loss of 9 manufacturing jobs and 130 non-manufacturing jobs. However, none of these losses was attributed to RECLAIM in Compliance Year 2013 (refer to Appendix E).

Of the RECLAIM facilities in operation, only three attributed job gains or losses to RECLAIM for Compliance Year 2013. One facility reported a loss of four jobs due to increasing costs of RECLAIM. Two facilities reported a gain of one job each: One hired a CEMS technician, while the other hired a person to help with the MRR requirements of the RECLAIM Program.

The analysis in this report only considers job gains and losses at RECLAIM facilities. It should be noted that this analysis of socioeconomic impacts based on APEP reports and follow-up interviews is focused exclusively on changes in employment that occurred at RECLAIM facilities. The effect of the program on the local economy outside of RECLAIM facilities, including consulting and source testing jobs, is not considered.

It is not possible to compare the impact of the RECLAIM program on the job market *vis-à-vis* a scenario without RECLAIM. This is because factors other than RECLAIM (*e.g.*, the prevailing economic climate), also impact the job market. Furthermore, there is no way to compare job impacts attributed to RECLAIM to job impacts attributed to command-and-control rules that would have been adopted in RECLAIM's absence, because these command-and-control rules do not exist for these facilities. As mentioned previously, the effect of the RECLAIM program on the local economy outside of RECLAIM facilities (*e.g.*, generating jobs for consulting firms, source testing firms and CEMS vendors) is also not considered in this report.

CHAPTER 7
AIR QUALITY AND PUBLIC HEALTH IMPACTS

Summary

Audited RECLAIM emissions have been in an overall downward trend since the program's inception. Compliance Year 2013 NOx emissions decreased 4.8% relative to Compliance Year 2012 and Compliance Year 2013 SOx emissions were 19.0% less than the previous year. Quarterly calendar year 2013 NOx emissions fluctuated within 18 percent of the mean NOx emissions for the year. Quarterly calendar year 2013 SOx emissions fluctuated within 16 percent of the year's mean SOx emissions. There was no significant shift in seasonal emissions from the winter season to the summer season for either pollutant.

The California Clean Air Act (CCAA) required a 50% reduction in population exposure to ozone, relative to a baseline averaged over three years (1986 through 1988), by December 31, 2000. The Basin achieved the December 2000 target for ozone well before the deadline. In calendar year 2014, the per capita exposure to ozone (the average length of time each person is exposed) continued to be well below the target set for December 2000.

Air toxic health risk is primarily caused by emissions of certain volatile organic compounds (VOCs) and fine particulates, such as metals. RECLAIM facilities are subject to the same air toxic, VOC, and particulate matter regulations as other sources in the Basin. All sources are subject, where appropriate, to the NSR rule for toxics (Rule 1401 and/or Rule 1401.1). In addition, new or modified sources with NOx or SOx emission increases are required to be equipped with BACT, which minimizes to the extent feasible the increase of NOx and SOx emissions. RECLAIM and non-RECLAIM facilities that emit toxic air contaminants are required to report those emissions to SCAQMD. Those emissions reports are used to identify candidates for the Toxics Hot Spots program (AB2588). This program requires emission inventories and depending on the type and amount of emissions, facilities may be required to do public notice and/or prepare and implement a plan to reduce emissions. There is no evidence that RECLAIM has caused or allowed higher toxic risk in areas adjacent to RECLAIM facilities.

Background

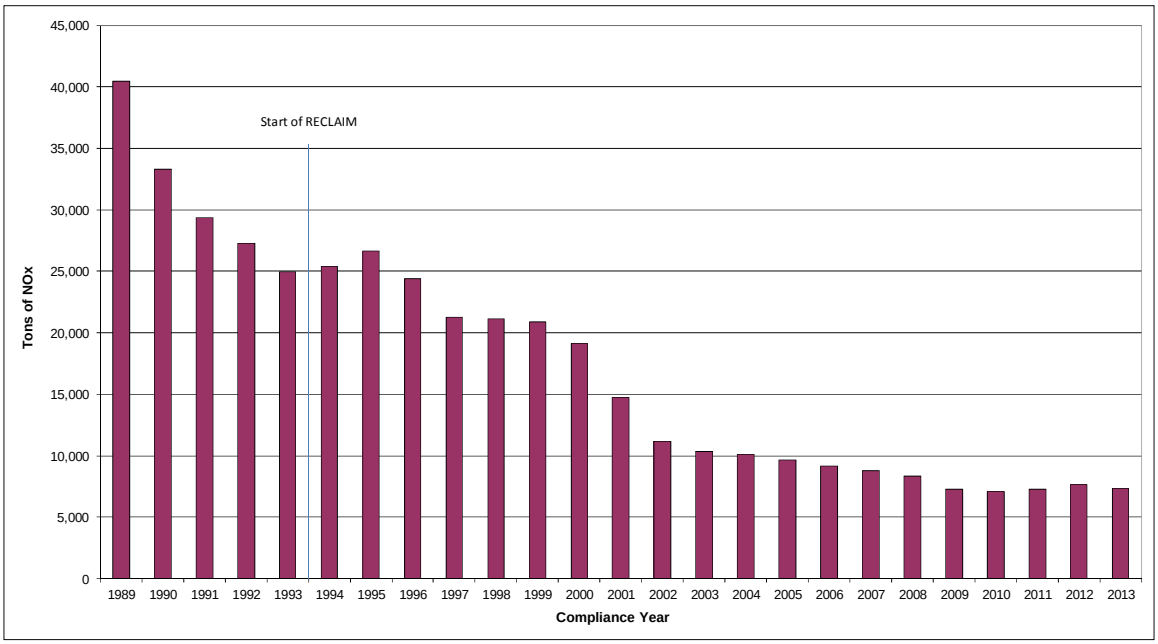
RECLAIM is designed to achieve the same, or higher level of, air quality and public health benefits as would have been achieved from implementation of the control measures and command-and-control rules that RECLAIM subsumed. Therefore, as a part of each annual program audit, SCAQMD staff evaluates per capita exposure to air pollution, toxic risk reductions, emission trends, and seasonal fluctuations in emissions. SCAQMD staff also generates quarterly emissions maps depicting the geographic distribution of RECLAIM emissions. These maps are generated and posted quarterly on SCAQMD's webpage (http://www.aqmd.gov/home/programs/business/about-reclaim/quarterly-emission-maps), including all quarterly emissions maps presented in previous annual program audit reports. This chapter addresses:

- Emission trends for RECLAIM facilities;
- Seasonal fluctuations in emissions;
- Per capita exposure to air pollution; and
- Toxics impacts.

Emission Trends for RECLAIM Sources

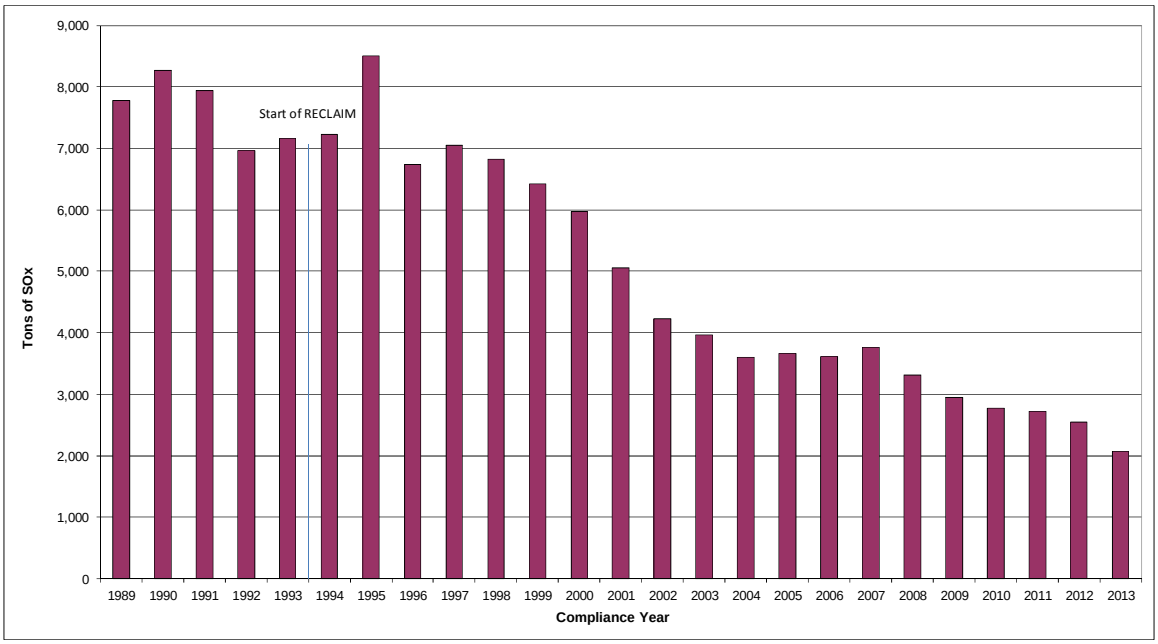
Concerns were expressed during program development that RECLAIM might cause sources to increase their aggregate emissions during the early years of the program due to perceived over-allocation of emissions. As depicted in Figures 7-1 and 7-2, which show NOx and SOx emissions from RECLAIM sources since 1989, the analysis of emissions from RECLAIM sources indicates that overall, RECLAIM emissions have been in a downward trend since program inception and the emission increases during early years of RECLAIM that were anticipated by some did not materialize.

Figure 7-1
NOx Emission Trend for RECLAIM Sources



Note: 1989-1993 emissions presented in this figure are the emissions from the facilities in the 1994 NOx universe.

Figure 7-2
SOx Emission Trend for RECLAIM Sources



Note: 1989-1993 emissions presented in this figure are the emissions from the facilities in the 1994 SOx universe.

NOx emissions decreased every year since Compliance Year 1995 through Compliance Year 2010. Then for Compliance Year 2011 and 2012, NOx emissions increased slightly but were still much lower than the programmatic goal as shown in Table 3-2 and Figure 3-1. NOx emissions in Compliance Year 2013 decreased when compared to Compliance Year 2012 and returned to levels comparable to Compliance Years 2009 and 2011. Since Compliance Year 1995, annual SOx emissions have also followed a general downward trend, except for slight increases in Compliance Years 1997, 2005, and 2007 compared to each respective previous compliance year. SOx emissions continued to decrease in Compliance Year 2013.

The increase in NOx and SOx emissions from Compliance Year 1994 to 1995 can be attributed to the application of MDP at the onset of RECLAIM implementation. RECLAIM provides for emissions from each major source's first year in the program to be quantified using an emission factor and fuel throughput (interim reporting) while they certify their CEMS. However, at the beginning of the program (Compliance Year 1994), many facilities had difficulties certifying their CEMS within this time frame, and consequently reported their Compliance Year 1995 emissions using MDP. As discussed in Chapter 5, since CEMS for these major sources had no prior data, MDP required the application of the most conservative procedure to calculate substitute data. As a result, the application of MDP during this time period yielded substitute data that may have been much higher than the actual emissions. In addition, emissions after Compliance Year 1995 decreased steadily through 2000. Thus, RECLAIM facilities did not increase their aggregate emissions during the early years of the program.

Seasonal Fluctuation in Emissions for RECLAIM Sources

Another concern during program development was that RECLAIM might cause facilities to shift emissions from the winter season into the summer ozone season and exacerbate poor summer air quality since RECLAIM emission goals are structured on an annual basis. To address this concern, "seasonal fluctuations" were added as part of the analysis required by Rule 2015. Accordingly, SCAQMD staff performed a two-part analysis of the quarterly variation in RECLAIM emissions:

1. In the first part, staff qualitatively compared the quarterly variation in Compliance Year 2013 RECLAIM emissions to the quarterly variation in emissions from the same universe of sources prior to the implementation of RECLAIM.

2. In the second part, staff analyzed quarterly audited emissions during calendar year 2013 and compared them with quarterly audited emissions for prior years to assess if there had been such a shift in emissions. This analysis is reflected in Figures 7-3 through 7-6.[1]

Quarterly emissions data from the facilities in RECLAIM before they were in the program is not available. Therefore, a quantitative comparison of the seasonal variation of emissions from these facilities while operating under RECLAIM with their seasonal emissions variation prior to RECLAIM is not feasible. However, a qualitative comparison has been conducted, as follows:

- NOx emissions from RECLAIM facilities are dominated by refineries and power plants.
- SOx emissions from RECLAIM facilities are especially dominated by refineries.
- Prior to RECLAIM, refinery production was generally highest in the summer months because more people travel during summer; thus, increasing demand for gasoline and other transportation fuels.
- Electricity generation prior to RECLAIM was generally highest in the summer months because of increased demand for electricity to drive air conditioning units.

Emissions from refineries (NOx and SOx) and from power plants (NOx) are typically higher in the summer months, which was the trend prior to implementation of RECLAIM for the reasons described above. Therefore, provided a year's summer quarter RECLAIM emissions do not exceed that year's quarterly average emissions by a substantial amount, it can be concluded that, for that year, RECLAIM has not resulted in a shift of emissions to the summer months relative to the pre-RECLAIM emission pattern.

Figure 7-3 shows the 2013 mean quarterly NOx emission level, which is the average of the four quarterly aggregate emissions, and the 2013 audited quarterly emissions. It shows that first quarter NOx emissions were 10 percent below the mean quarterly NOx emission level and second quarter NOx emissions were 18 percent above the mean quarterly NOx emission level. This shows that

[1] Data used to generate these figures were derived from audited data. Similar figures for calendar years 1994 through 2007 in previous annual reports were generated from a combination of audited and reported data available at the time the reports were written.

emissions did not peak in summer quarterly emissions in 2013. However, as shown in Figure 7-4, calendar year quarterly emission profile is not consistent with the corresponding profiles for prior years and, therefore, warrants further analysis.

Figure 7-3
Calendar Year 2013 NOx Quarterly Emissions

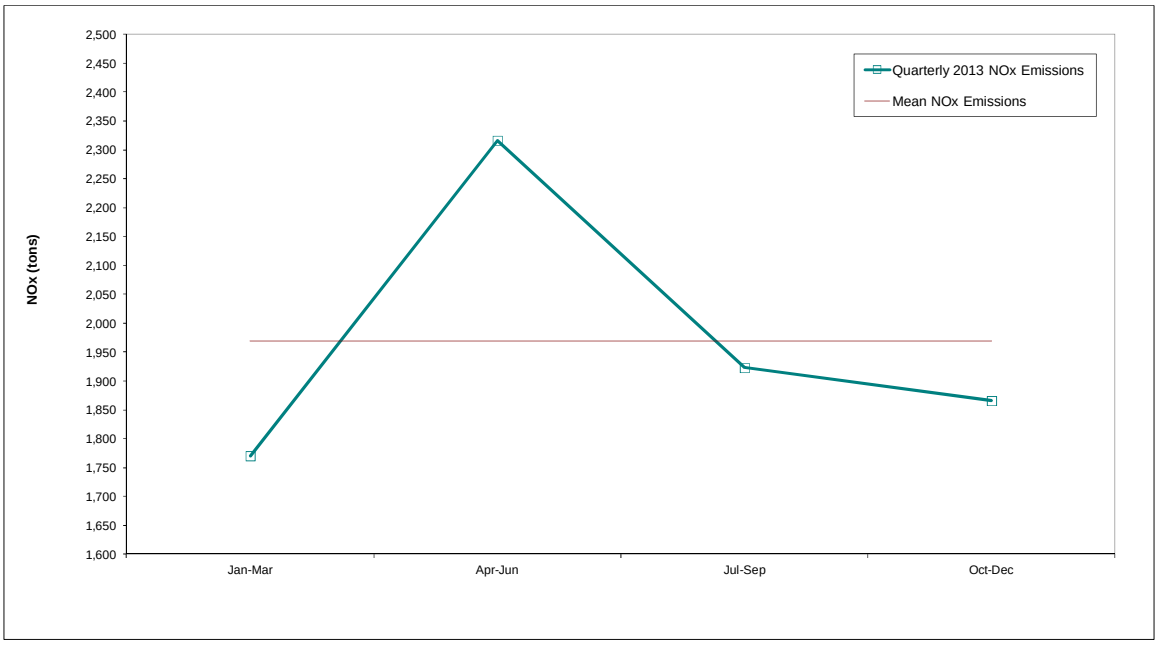
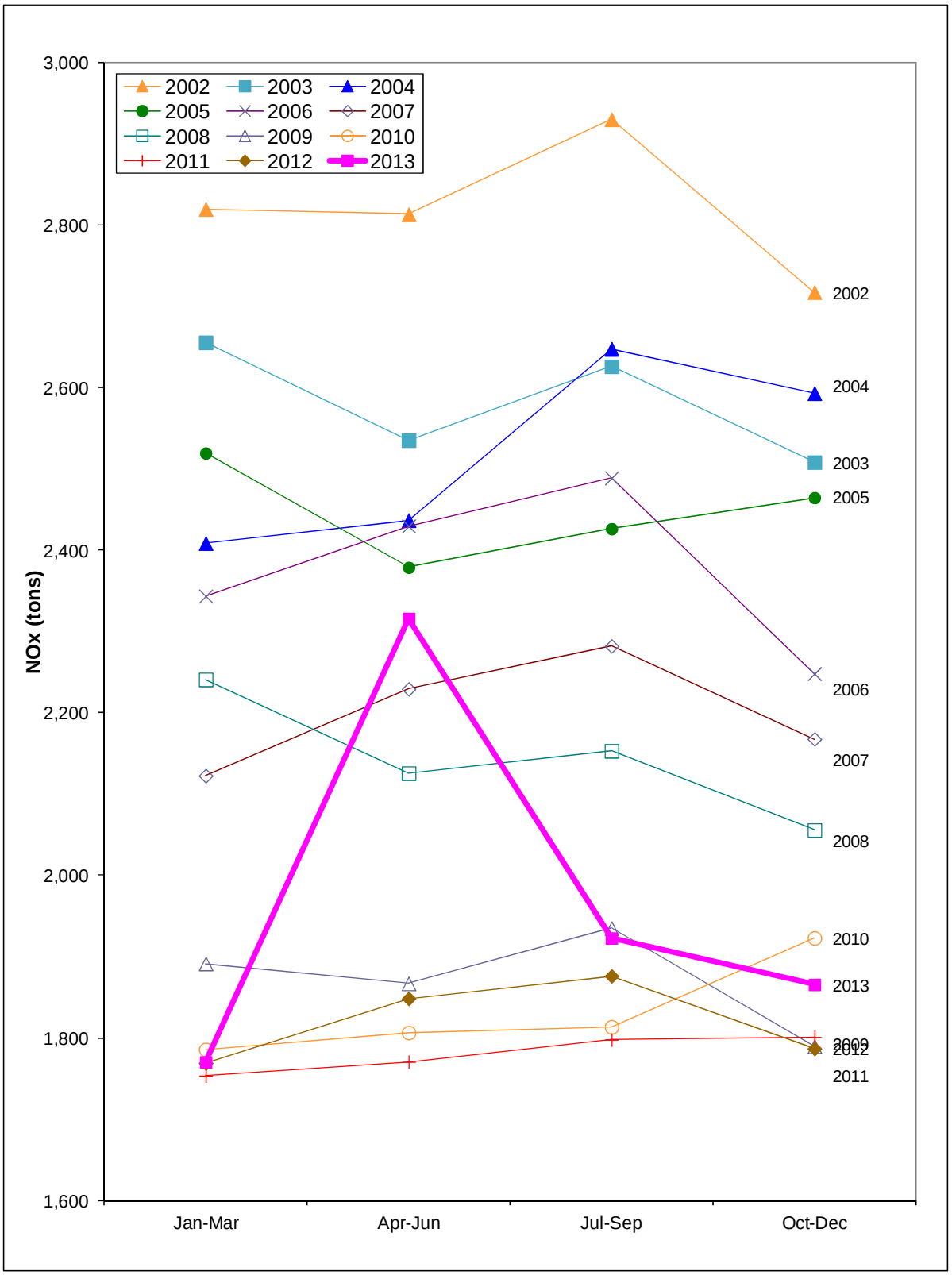


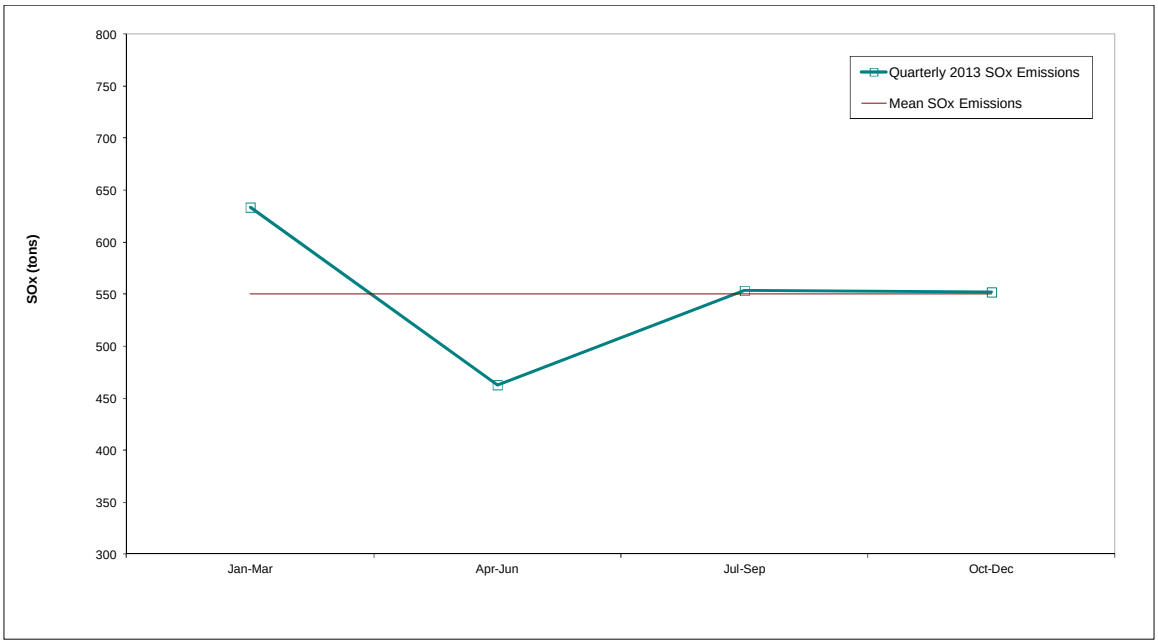
Figure 7-4 compares the 2013 quarterly NOx emissions with the quarterly emissions from 2002 through 2012. Figures 7-3 and 7-4 both point to an relatively high emission level in the second quarter. Further investigation reveals that the increase in NOx emissions in the second quarter can be attributed to two facilities reporting their emissions using MDP. One facility failed to conduct a RATA by the required due date, resulting in the application of MPD for more than two months until the test was conducted and passed. The second facility is a refinery that applied MDP for an extended period because a CEMS component failed and locating a replacement was difficult. In both cases, the durations of the missing data periods required the application of more conservative tiers of MDP. As such, the resulting reported emissions based on MDP were significantly elevated relative to these facilities' typical emissions. Thus, the peak in RECLAIM NOx emissions during the second quarter of calendar year 2013 illustrated in Figures 7-3 and 7-4 is reflective of the application of conservative MDP rather than an actual shift in emissions. Furthermore, this peak is not during summer months. As such, the calendar year 2013 NOx emissions data do not suggest a shift in emissions to the summer ozone season.

Figure 7-4
Quarterly NOx Emissions from Calendar Years 2002 through 2013



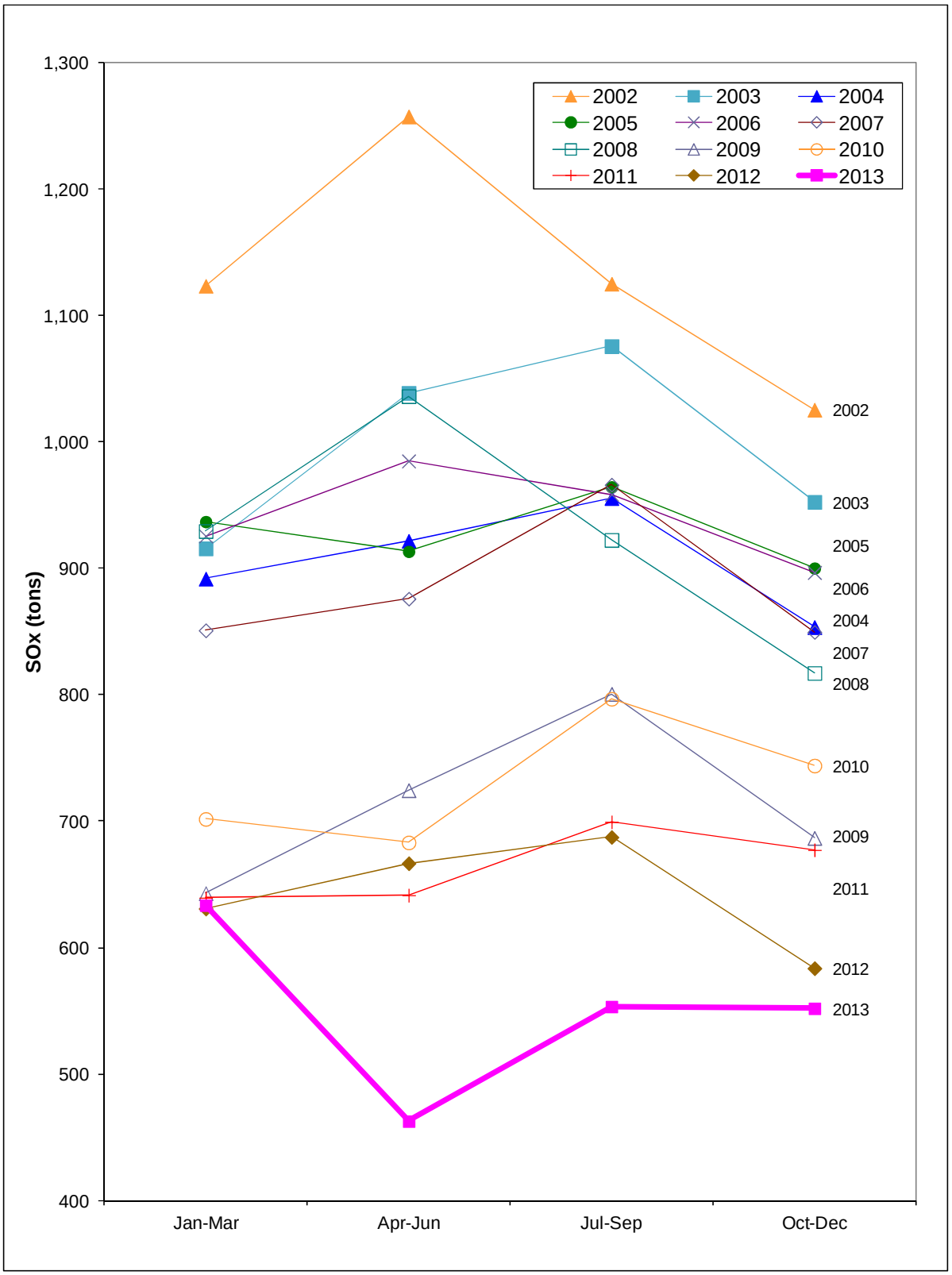
Similar to Figure 7-3 and 7-4 for NOx quarterly emissions, Figure 7-5 presents the 2013 mean quarterly SOx emissions and the 2013 audited quarterly emissions, and Figure 7-6 compares the 2013 quarterly SOx emissions with the quarterly emissions from 2002 through 2012. Figure 7-5 shows that quarterly SOx emissions during calendar year 2013 varied from fifteen percent above the mean in the first quarter (January through March) to sixteen percent below the mean in the second quarter (April through June) while quarterly SOx emissions during the third and fourth quarters (July through December) were both very close to the mean. Again this demonstrates that emissions did not peak in the summer ozone season in 2013. However, as shown in Figure 7-6, the quarterly emission profile is not consistent with prior years and also warrants further analysis.

Figure 7-5
Calendar Year 2013 SOx Quarterly Emissions



Both Figures 7-5 and 7-6 point to an elevated emission level in the first quarter, and Figure 7-5 shows second quarter emissions well below the mean. Further investigation reveals that the increase in SOx emissions in the first quarter is the result of higher than normal SOx emissions at a refinery while it came out of a turnaround during the quarter. As with the second-quarter peak in aggregate NOx emissions, the first quarter SOx peak did not occur during the summer season. Furthermore, it is not the result of a temporal shift in production. The low second quarter aggregate SOx emissions are attributable to a calciner turnaround. Specifically, the calciner did not operate—and therefore did not emit—for a couple of months during the quarter. This analysis shows that the quarterly SOx emissions data is not suggestive of a seasonal shift in production enabled by the RECLAIM market.

Figure 7-6
Quarterly SOx Emissions from Calendar Years 2002 through 2013



Per Capita Exposure to Pollution

The predicted effects of RECLAIM on air quality and public health were thoroughly analyzed through modeling during program development. The results were compared to projected impacts from continuing traditional command-and-control regulations and implementing control measures in the 1991 AQMP. One of the criteria examined in the analysis was per capita population exposure.

Per capita population exposure reflects the length of time each person is exposed to unhealthful air quality. The modeling performed in the program development analysis projected that the reductions in per capita exposure under RECLAIM in calendar year 1994 would be nearly identical to the reductions projected for implementation of the control measures in the 1991 AQMP, and the reductions resulting from RECLAIM would be greater in calendar years 1997 and 2000. As reported in previous annual reports, actual per capita exposures to ozone for 1994 and 1997 were below the projections.

As part of the Children's Environmental Health Protection Act that was passed in 1999, and in consultation with the Office of Environmental Health Hazard Assessment, CARB is to "review all existing health-based ambient air quality standards to determine whether these standards protect public health, including infants and children, with an adequate margin of safety." As a result of that requirement, CARB adopted a new 8-hour ozone standard (0.070 ppm), which became effective May 17, 2006, in addition to the 1-hour ozone standard (0.09 ppm) already in place. Table 7-1 shows the number of days that both the new state 8-hour ozone standard of 0.070 ppm and the 1-hour standard of 0.09 ppm were exceeded.

In July 1997, the USEPA established a new ozone National Ambient Air Quality Standard (NAAQS) of 0.085 ppm based on an 8-hour average measurement. As part of the Phase I implementation that was finalized in June 2004, the federal 1-hour ozone standard (0.12 ppm) was revoked effective June 2005. Effective May 27, 2008, the 8-hour NAAQS ozone standard was reduced to 0.075 ppm. Table 7-1 shows monitoring results based on this revised 8-hour federal standard.

Table 7-1 summarizes ozone data for calendar years 2001 through 2014 in terms of the number of days that exceeded the state and federal ambient ozone standards and the Basin's maximum concentration in each calendar year. This table shows that the number of days that exceeded the 1-hour state and 8-hour federal ambient ozone standards in calendar year 2014 were the lowest since calendar year 2001. However, the number of days that exceeded the 8-hour state standard increased by 11 days when compared to Calendar Year 2013, which was the lowest since 2001. The Basin's maximum ozone concentrations were at or very close to the lowest levels since 2001, based on both the 1-hour and 8-hour averaging periods.

Table 7-1
Summary of Ozone Data

Year	Days exceeding state 1-hour standard (0.09 ppm)	Days exceeding state new 8-hour standard (0.07 ppm)	Days exceeding federal 8-hour standard (0.075 ppm)	Basin Maximum 1-hour ozone concentration (ppm)	Basin Maximum 8-hour ozone concentration (ppm)
2001	121	156	132	0.191	0.146
2002	118	149	135	0.169	0.148
2003	133	161	141	0.216	0.200
2004	110	161	126	0.163	0.148
2005	111	142	116	0.163	0.145
2006	102	121	114	0.175	0.142
2007	99	128	108	0.171	0.137
2008	98	136	121	0.176	0.131
2009	100	131	113	0.176	0.128
2010	83	128	109	0.143	0.123
2011	94	127	107	0.160	0.136
2012	97	140	111	0.147	0.112
2013	92	123	106	0.151	0.122
2014	76	134	93	0.142	0.114

The CCAA, which was enacted in 1988, established targets for reducing overall population exposure to severe non-attainment pollutants in the Basin—a 25% reduction by December 31, 1994, a 40% reduction by December 31, 1997, and a 50% reduction by December 31, 2000 relative to a calendar years 1986-88 baseline. These targets are based on the number of hours on average a person is exposed ("per capita exposure"[2]) to ozone above the state 1-hour standard of 0.09 ppm. Table 7-2 shows the 1986-88 baseline, the actual per capita exposures each year since 1994 (RECLAIM's initial year), and the 1997 and 2000 targets set by the CCAA for each of the four counties in the district and the Basin overall. As shown in Table 7-2, the CCAA reduction targets were achieved as early as 1994 (actual 1994 Basin per capita exposure was 37.6 hours, which is below the 2000 target of 40.2 hours). The per capita exposure continues to remain much lower than the CCAA targets. For calendar year 2014, the actual per capita exposure for the Basin was 1.8 hours, which represents a 98% reduction from the 1986-88 baseline level.

[2] SCAQMD staff divides the air basin into a grid of square cells and interpolates recorded ozone data from ambient air quality monitors to determine ozone levels experienced in each of these cells. The total person-hours in a county experiencing ozone higher than the state ozone standard is determined by summing over the whole county the products of the number of hours exceeding the state ozone standard per grid cell with the number of residents in the corresponding cell. The per capita ozone exposures are then calculated by dividing the sum of person-hours by the total population within a county. Similar calculations are used to determine the Basin-wide per capita exposure by summing and dividing over the whole Basin.

Table 7-2
Per Capita Exposure to Ozone above the State One-Hour Standard of 0.09 ppm (hours)

Calendar Year	Basin	Los Angeles	Orange	Riverside	San Bernardino
1986-88 baseline[1]	80.5	75.8	27.2	94.1	192.6
1994 actual	37.6	26.5	9	71.1	124.9
1995 actual	27.7	20	5.7	48.8	91.9
1996 actual	20.3	13.2	4	42.8	70
1997 actual	5.9	3	0.6	13.9	24.5
1998 actual	12.1	7.9	3.1	25.2	40.2
2000 actual	3.8	2.6	0.7	8.5	11.4
2001 actual	1.73	0.88	0.15	6	5.68
2002 actual	3.87	2.16	0.13	11.12	12.59
2003 actual	10.92	6.3	0.88	20.98	40.21
2004 actual	3.68	2.26	0.50	6.82	12.34
2005 actual	3.11	1.43	0.03	6.06	12.54
2006 actual	4.56	3.08	0.68	8.02	13.30
2007 actual	2.90	1.50	0.35	4.65	10.53
2008 actual	4.14	2.04	0.26	7.50	14.71
2009 actual	2.872	1.538	0.078	3.884	10.539
2010 actual	1.184	0.377	0.107	2.451	4.476
2011 actual	2.099	0.848	0.015	3.456	8.125
2012 actual	2.366	1.050	0.050	2.587	9.776
2013 actual	1.314	0.519	0.067	1.609	5.497
2014 actual	1.837	1.263	0.293	1.472	6.022
1997 target[2]	48.3	45.5	16.3	56.5	115.6
2000 target[3]	40.2	37.9	13.6	47	96.3

[1] Average over three years, 1986 through 1988.

[2] 60% of the 1986-88 baseline exposures.

[3] 50% of the 1986-88 baseline exposures.

Table 7-2 shows that actual per capita exposures during all the years mentioned were well under the 1997 and 2000 target exposures limits. It should also be noted that air quality in the Basin is a complex function of meteorological conditions and an array of different emission sources, including mobile, area, RECLAIM stationary sources, and non-RECLAIM stationary sources. Therefore, the reduction of per capita exposure beyond the projected level is not necessarily wholly attributable to implementation of the RECLAIM program in lieu of the command-and-control regulations.

Toxic Impacts

Based on a comprehensive toxic impact analysis performed during program development, it was concluded that RECLAIM would not result in any significant impacts on air toxic emissions. Nevertheless, to ensure that the implementation of RECLAIM does not result in adverse toxic impacts, each annual program audit is required to assess any increase in the public health exposure to air toxics potentially caused by RECLAIM.

One of the safeguards to ensure that the implementation of RECLAIM does not result in adverse air toxic health impacts is that RECLAIM sources are subject to the same air toxic statutes and regulations (*e.g.*, SCAQMD Regulation XIV, State

AB 2588, State Air Toxics Control Measures, Federal National Emissions Standards for Hazardous Air Pollutants, etc.) as other sources in the Basin. Additionally, air toxic health risk is primarily caused by emissions of VOCs and fine particulates such as certain metals. VOC sources at RECLAIM facilities are subject to source-specific command-and-control rules the same way as are non-RECLAIM facilities, in addition to the toxics requirements described above. Sources of fine particulates and toxic metal emissions are also subject to the above-identified regulations pertaining to toxic emissions. Moreover, new or modified RECLAIM sources with NOx or SOx emission increases are also required to be equipped with BACT, which minimizes to the best extent feasible NOx and SOx emissions.

Under the AER program, facilities that have the potential to emit: 1) four tons per year or more of VOC, NO_X, SO_X, or PM, or 100 tons per year or more of CO; or 2) any one of 24 toxic air contaminants (TACs) and ozone depleting compounds (ODCs) emitted above specific thresholds (Rule 301 Table IV), are required to report their emissions annually to SCAQMD. Beginning with the FY 2000-01 reporting cycle, toxics emission reporting for the AB2588 Program was incorporated into SCAQMD's AER Program. The data collected in the AER program is used to determine which facilities will be required to take further actions under the AB2588 Hot Spots Program.

Facilities in the AB2588 Program are required to submit a comprehensive toxics inventory, which is then prioritized using Board-approved procedures (see SCAQMD website at http://www.aqmd.gov/home/regulations/compliance/toxic-hot-spots-ab-2588) into one of three categories: low, intermediate, or high priority. Facilities ranked with low priority are exempt from future reporting. Facilities ranked with intermediate priority are classified as District tracking facilities, which are then required to submit a complete toxics inventory once every four years (or quadrennially). In addition to reporting their toxic emissions quadrennially, facilities designated as high priority are required to submit a health risk assessment (HRA) to determine their impacts to the surrounding community. As of June 2014, SCAQMD staff has reviewed and approved 311 facility HRAs. About 95 percent of the facilities have cancer risks below 10 in a million and over 98 percent of the facilities have acute and chronic non-cancer hazard indices less than 1.

Facilities with cancer risks above 10 in a million or a non-cancer hazard index above 1 are required to issue public notices informing the community. A public meeting is held at which SCAQMD discusses their health risk. To date, SCAQMD has conducted 50 such public notification meetings for the AB2588 Program.

The Board also established the following action risk levels in Rule 1402: Cancer burden of 0.5, a cancer risk of 25 in a million, and a hazard index of 3.0. Facilities above any of the action risk levels must reduce their risks below the action risk levels within three years. According to SCAQMD's 2013 Annual Report on AB 2588 Air Toxics "Hot Spots" program[3], 22 facilities were required to

[3] Data and descriptions about the AB2588 Program were taken from SCAQMD's June 2014 Annual Report on AB 2588 Air Toxics "Hot Spots" Program. http://www.aqmd.gov/docs/default-source/planning/risk-assessment/annual_report_2013.pdf

reduce risks and all of these facilities have reduced risks well below the action risk levels mandated by Rule 1402.

Finally, SCAQMD staff conducts Multiple Air Toxic Exposure Studies (MATES) periodically to assess cumulative air toxic impacts to the residents and workers of southern California. These studies also help document progress in reducing toxic impacts. The fourth version of MATES (*i.e.*, MATES IV) was conducted over a one year period from July 2012 to June 2013. Monitoring conducted at that time indicated that the basin-wide population-weighted air toxics exposure was reduced by 57 percent since MATES III (conducted from April 2004 to March 2006). The Draft Report for MATES IV was released for the 90-day public review period on October 3, 2014.

There have been concerns voiced raised the potential that trading of RTCs can allow for higher production at a RECLAIM facility, which may indirectly cause higher secondary emissions of toxic air contaminants, and thereby make the health risk in the vicinity of the facility worse. Other SCAQMD rules and programs for toxic air contaminants apply to facilities regardless of them being in RECLAIM or under traditional command and control rules. Emission increases at permit units are subject to new source review. RECLAIM facilities must also comply with any applicable Regulation XIV rule for toxics. Permits generally include limiting throughput conditions for new source review or applicable source specific rules. AB2588 and/or Rule 1402 could also be triggered and the appropriate risk reduction measures would be required for any facility with emissions of toxic air contaminants that would trigger these requirements.

Based on the results of recent MATES studies, the region-wide cumulative air toxic impacts on residents and workers in southern California have been declining. Nonetheless, air toxic risk did increase in a few areas and, in particular, for those living near the San Pedro Bay ports between 1997 and 2005, those risk increases can be primarily attributed to goods movement-related sources that are not part of RECLAIM. Therefore, staff has not found any evidence that would suggest that the substitution of NOx and SOx RECLAIM for the command-and-control rules and the measures RECLAIM subsumes caused a significant increase in public exposure to air toxic emissions relative to what would have happened if the RECLAIM program was not implemented. Staff will continue to monitor and assess toxic impacts as part of future annual program audits.

APPENDIX A
RECLAIM UNIVERSE OF SOURCES

The RECLAIM universe of active sources as of the end of Compliance Year 2013 is provided below.

Facility ID	Cycle	Facility Name	Program
800088	2	3M COMPANY	NOx
23752	2	AEROCRAFT HEAT TREATING CO INC	NOx
175124	1	AEROJET ROCKETDYNE OF DE, INC.	NOX
115394	1	AES ALAMITOS, LLC	NOx
115389	2	AES HUNTINGTON BEACH, LLC	NOx/SOx
115536	1	AES REDONDO BEACH, LLC	NOx
148236	2	AIR LIQUIDE LARGE INDUSTRIES U.S., LP	NOx/SOx
3417	1	AIR PROD & CHEM INC	NOx
101656	2	AIR PRODUCTS AND CHEMICALS, INC.	NOx
5998	1	ALL AMERICAN ASPHALT	NOx
114264	1	ALL AMERICAN ASPHALT	NOx
3704	2	ALL AMERICAN ASPHALT, UNIT NO.01	NOx
800196	2	AMERICAN AIRLINES INC	NOx
145836	2	AMERICAN APPAREL DYEING & FINISHING, INC	NOx
156722	1	AMERICAN APPAREL KNIT AND DYE	NOx
21598	2	ANGELICA TEXTILE SERVICES	NOx
74424	2	ANGELICA TEXTILE SERVICES	NOx
16642	1	ANHEUSER-BUSCH LLC., (LA BREWERY)	NOx/SOx
117140	2	AOC, LLC	NOx
124619	1	ARDAGH METAL PACKAGING USA INC.	NOx
167066	1	ARLON GRAPHICS L.L.C.	NOx
174406	1	ARLON GRAPHICS LLC	NOx
12155	1	ARMSTRONG WORLD INDUSTRIES INC	NOx
122666	2	A'S MATCH DYEING & FINISHING	NOx
10094	2	ATLAS CARPET MILLS INC	NOx
117290	2	B BRAUN MEDICAL, INC	NOx
800016	2	BAKER COMMODITIES INC	NOx
800205	2	BANK OF AMERICA NT & SA, BREA CENTER	NOx
40034	1	BENTLEY PRINCE STREET INC	NOx
119907	1	BERRY PETROLEUM COMPANY	NOx

Facility ID	Cycle	Facility Name	Program
166073	1	BETA OFFSHORE	NOx
155474	2	BICENT (CALIFORNIA) MALBURG LLC	Nox
132068	1	BIMBO BAKERIES USA INC	NOx
1073	1	BORAL ROOFING LLC	NOx
174544	2	BREITBURN OPERATING LP	NOx
25638	2	BURBANK CITY, BURBANK WATER & POWER	NOx
128243	1	BURBANK CITY,BURBANK WATER & POWER,SCPPA	NOx
800344	1	CALIFORNIA AIR NATIONAL GUARD, MARCH AFB	NOx
22607	2	CALIFORNIA DAIRIES, INC	NOx
138568	1	CALIFORNIA DROP FORGE, INC	NOx
800181	2	CALIFORNIA PORTLAND CEMENT CO	NOx/SOx
46268	1	CALIFORNIA STEEL INDUSTRIES INC	NOx
107653	2	CALMAT CO	NOx
107654	2	CALMAT CO	NOx
107655	2	CALMAT CO	NOx
107656	2	CALMAT CO	NOx
119104	1	CALMAT CO	NOx/SOx
153992	1	CANYON POWER PLANT	NOx
94930	1	CARGILL INC	NOx
22911	2	CARLTON FORGE WORKS	NOx
118406	1	CARSON COGENERATION COMPANY	NOx
141555	2	CASTAIC CLAY PRODUCTS, LLC	NOx
800373	1	CENCO REFINING COMPANY	NOx/SOx
14944	1	CENTRAL WIRE, INC.	NOx/SOx
42676	2	CES PLACERITA INC	NOx
148925	1	CHERRY AEROSPACE	NOx
800030	2	CHEVRON PRODUCTS CO.	NOx/SOx
56940	1	CITY OF ANAHEIM/COMB TURBINE GEN STATION	NOx
172077	1	CITY OF COLTON	NOx
129810	1	CITY OF RIVERSIDE PUBLIC UTILITIES DEPT	NOx
139796	1	CITY OF RIVERSIDE PUBLIC UTILITIES DEPT	NOx
164204	2	CITY OF RIVERSIDE, PUBLIC UTILITIES DEPT	NOx
16978	2	CLOUGHERTY PACKING LLC/HORMEL FOODS CORP	NOx
38440	2	COOPER & BRAIN - BREA	NOx
68042	2	CORONA ENERGY PARTNERS, LTD	NOx
152707	1	CPV SENTINEL LLC	NOx

Facility ID	Cycle	Facility Name	Program
50098	1	D&D DISPOSAL INC,WEST COAST RENDERING CO	NOx
63180	1	DARLING INTERNATIONAL INC	NOx
3721	2	DART CONTAINER CORP OF CALIFORNIA	NOx
7411	2	DAVIS WIRE CORP	NOx
143738	2	DCOR LLC	NOx
143739	2	DCOR LLC	NOx
143740	2	DCOR LLC	NOx
143741	1	DCOR LLC	NOx
132071	1	DEAN FOODS CO. OF CALIFORNIA	NOx
47771	1	DELEO CLAY TILE CO INC	NOx
800037	2	DEMENNO/KERDOON	NOx
125579	1	DIRECTV	NOx
800189	1	DISNEYLAND RESORT	NOx
174371	2	DP3 HANGARS, LLC	NOx
142536	2	DRS SENSORS & TARGETING SYSTEMS, INC	NOx
800264	2	EDGINGTON OIL COMPANY	NOx/SOx
115663	1	EL SEGUNDO POWER, LLC	NOx
800372	2	EQUILON ENTER. LLC, SHELL OIL PROD. US	NOx/SOx
124838	1	EXIDE TECHNOLOGIES	NOx/SOx
17344	1	EXXONMOBIL OIL CORP	NOx
25058	2	EXXONMOBIL OIL CORP	NOx
800089	1	EXXONMOBIL OIL CORPORATION	NOx/SOx
800094	1	EXXONMOBIL OIL CORPORATION	NOx
95212	1	FABRICA	NOx
11716	1	FONTANA PAPER MILLS INC	NOx
175154	2	FREEPORT-MCMORAN OIL & GAS	NOx
175191	1	FREEPORT-MCMORAN OIL & GAS	NOx
346	1	FRITO-LAY, INC.	NOx
2418	2	FRUIT GROWERS SUPPLY CO	NOx
142267	2	FS PRECISION TECH LLC	NOx
5814	1	GAINEY CERAMICS INC	NOx
153033	2	GEORGIA-PACIFIC CORRUGATED LLC	NOx
176934	1	GI TC IMPERIAL HIGHWAY, LLC	NOx
124723	1	GREKA OIL & GAS, INC	NOx
137471	2	GRIFOLS BIOLOGICALS INC	NOx
156741	2	HARBOR COGENERATION CO, LLC	NOx

Facility ID	Cycle	Facility Name	Program
157359	1	HENKEL ELECTRONIC MATERIALS, LLC	NOx
123774	1	HERAEUS PRECIOUS METALS NO. AMERICA, LLC	NOx
113160	2	HILTON COSTA MESA	NOx
800066	1	HITCO CARBON COMPOSITES INC	NOx
2912	2	HOLLIDAY ROCK CO INC	NOx
800003	2	HONEYWELL INTERNATIONAL INC	NOx
124808	2	INEOS POLYPROPYLENE LLC	NOx/SOx
129816	2	INLAND EMPIRE ENERGY CENTER, LLC	NOx
157363	2	INTERNATIONAL PAPER CO	NOx
169678	1	ITT CANNON, LLC	NOx
90957	2	J PACIFIC INC, DELTA DYEING & FINISHING	NOx
16338	1	KAISER ALUMINUM FABRICATED PRODUCTS, LLC	NOx
21887	2	KIMBERLY-CLARK WORLDWIDE INC.-FULT. MILL	NOx/SOx
1744	2	KIRKHILL - TA COMPANY	NOx
36909	2	LA CITY, DEPARTMENT OF AIRPORTS	NOx
800335	2	LA CITY, DEPT OF AIRPORTS	NOx
800170	1	LA CITY, DWP HARBOR GENERATING STATION	NOx
800074	1	LA CITY, DWP HAYNES GENERATING STATION	NOx
800075	1	LA CITY, DWP SCATTERGOOD GENERATING STN	NOx
800193	2	LA CITY, DWP VALLEY GENERATING STATION	NOx
61962	1	LA CITY, HARBOR DEPT	NOx
550	1	LA CO., INTERNAL SERVICE DEPT	NOx
173904	2	LAPEYRE INDUSTRIAL SANDS, INC	NOx
141295	2	LEKOS DYE AND FINISHING, INC	NOx
144455	2	LIFOAM INDUSTRIES, LLC	NOx
83102	2	LIGHT METALS INC	NOx
151394	2	LINN OPERATING INC	NOx
151532	2	LINN OPERATING, INC	NOx
152054	1	LINN WESTERN OPERATING INC	NOx
151415	2	LINN WESTERN OPERATING, INC	NOx
115314	2	LONG BEACH GENERATION, LLC	NOx
17623	2	LOS ANGELES ATHLETIC CLUB	NOx
58622	2	LOS ANGELES COLD STORAGE CO	NOx
125015	2	LOS ANGELES TIMES COMMUNICATIONS LLC	NOx
800080	2	LUNDAY-THAGARD COMPANY	NOx/SOx
38872	1	MARS PETCARE U.S., INC.	NOx

Facility ID	Cycle	Facility Name	Program
14049	2	MARUCHAN INC	NOx
3029	2	MATCHMASTER DYEING & FINISHING INC	NOx
2825	1	MCP FOODS INC	NOx
173290	1	MEDICLEAN	NOx
94872	2	METAL CONTAINER CORP	NOx
155877	1	MILLERCOORS, LLC	NOx
12372	1	MISSION CLAY PRODUCTS	NOx
11887	2	NASA JET PROPULSION LAB	NOx
115563	1	NCI GROUP INC., DBA, METAL COATERS OF CA	NOx
40483	2	NELCO PROD. INC	NOx
172005	2	NEW- INDY ONTARIO, LLC	NOx
12428	2	NEW NGC, INC.	NOx
131732	2	NEWPORT FAB, LLC	NOx
18294	1	NORTHROP GRUMMAN CORP, AIRCRAFT DIV	NOx
800408	1	NORTHROP GRUMMAN SYSTEMS	NOx
800409	2	NORTHROP GRUMMAN SYSTEMS CORPORATION	NOx
115315	1	NRG CALIFORNIA SOUTH LP, ETIWANDA GEN ST	NOx
89248	2	OLD COUNTRY MILLWORK INC	NOx
47781	1	OLS ENERGY-CHINO	NOx
35302	2	OWENS CORNING ROOFING AND ASPHALT, LLC	NOx/SOx
7427	1	OWENS-BROCKWAY GLASS CONTAINER INC	NOx/SOx
169754	1	OXY USA INC	NOx
151594	1	OXY USA, INC	NOx
151601	1	OXY USA, INC.	NOx
45746	2	PABCO BLDG PRODUCTS LLC,PABCO PAPER, DBA	NOx/SOx
17953	1	PACIFIC CLAY PRODUCTS INC	NOx
59618	1	PACIFIC CONTINENTAL TEXTILES, INC.	NOx
2946	1	PACIFIC FORGE INC	NOx
130211	2	PAPER-PAK INDUSTRIES	NOx
800183	1	PARAMOUNT PETR CORP	NOx/SOx
800168	1	PASADENA CITY, DWP	NOx
168088	1	PCCR USA	NOx
171107	2	PHILLIPS 66 CO/LA REFINERY WILMINGTON PL	NOx/SOx
171109	1	PHILLIPS 66 COMPANY/LOS ANGELES REFINERY	NOx/SOx
137520	1	PLAINS WEST COAST TERMINALS LLC	NOx
800416	1	PLAINS WEST COAST TERMINALS LLC	NOx

Facility ID	Cycle	Facility Name	Program
800417	2	PLAINS WEST COAST TERMINALS LLC	NOx
800419	2	PLAINS WEST COAST TERMINALS LLC	NOx
800420	2	PLAINS WEST COAST TERMINALS LLC	NOx
176708	2	POMONA POWER GENERATION LLC	NOx
11435	2	PQ CORPORATION	NOx/SOx
7416	1	PRAXAIR INC	NOx
42630	1	PRAXAIR INC	NOx
152501	1	PRECISION SPECIALTY METALS, INC.	NOx
136	2	PRESS FORGE CO	NOx
105903	1	PRIME WHEEL	NOx
132191	1	PURENERGY OPERATING SERVICES, LLC	NOx
132192	1	PURENERGY OPERATING SERVICES, LLC	NOx
173392	1	QUAD/GRAPHICS MARKETING, LLC	NOx
8547	1	QUEMETCO INC	NOx/SOx
19167	2	R J. NOBLE COMPANY	NOx
3585	2	R. R. DONNELLEY & SONS CO, LA MFG DIV	NOx
20604	2	RALPHS GROCERY CO	NOx
115041	1	RAYTHEON COMPANY	NOx
114997	1	RAYTHEON COMPANY	NOx
115172	2	RAYTHEON COMPANY	NOx
800371	2	RAYTHEON SYSTEMS COMPANY - FULLERTON OPS	NOx
20203	2	RECYCLE TO CONSERVE INC.	NOx
15544	2	REICHHOLD INC	NOx
52517	1	REXAM BEVERAGE CAN COMPANY	NOx
61722	2	RICOH ELECTRONICS INC	NOx
800182	1	RIVERSIDE CEMENT CO	NOx/SOx
800113	2	ROHR, INC.	NOx
18455	2	ROYALTY CARPET MILLS INC	NOx
4242	2	SAN DIEGO GAS & ELECTRIC	NOx
161300	2	SAPA EXTRUDER, INC	NOx
155221	2	SAVE THE QUEEN LLC (DBA QUEEN MARY)	NOx
15504	2	SCHLOSSER FORGE COMPANY	NOx
14926	1	SEMPRA ENERGY (THE GAS CO)	NOx
800129	1	SFPP, L.P.	NOx
37603	1	SGL TECHNIC INC, POLYCARBON DIVISION	NOx
131850	2	SHAW DIVERSIFIED SERVICES INC	NOx

Facility ID	Cycle	Facility Name	Program
117227	2	SHCI SM BCH HOTEL LLC, LOEWS SM BCH HOTE	NOx
16639	1	SHULTZ STEEL CO	NOx
54402	2	SIERRA ALUMINUM COMPANY	NOx
85943	2	SIERRA ALUMINUM COMPANY	NOx
101977	1	SIGNAL HILL PETROLEUM INC	NOx
119596	2	SNAK KING CORPORATION	NOx
43201	2	SNOW SUMMIT INC	NOx
4477	1	SO CAL EDISON CO	NOx
5973	1	SO CAL GAS CO	NOx
800127	1	SO CAL GAS CO	NOx
800128	1	SO CAL GAS CO	NOx
8582	1	SO CAL GAS CO/PLAYA DEL REY STORAGE FACI	NOx
114801	1	SOLVAY USA, INC.	NOx/SOx
14871	2	SONOCO PRODUCTS CO	NOx
160437	1	SOUTHERN CALIFORNIA EDISON	NOx
800338	2	SPECIALTY PAPER MILLS INC	NOx
1634	2	STEELCASE INC, WESTERN DIV	NOx
126498	2	STEELSCAPE, INC	NOx
105277	2	SULLY MILLER CONTRACTING CO	NOx
19390	1	SULLY-MILLER CONTRACTING CO.	NOx
2083	1	SUPERIOR INDUSTRIES INTERNATIONAL INC	NOx
3968	1	TABC, INC	NOx
18931	2	TAMCO	NOx/SOx
174591	1	TESORO REF & MKTG CO LLC,CALCINER	NOX/SOx
174655	2	TESORO REFINING & MARKETING CO, LLC	NOX/SOx
151798	1	TESORO REFINING AND MARKETING CO, LLC	NOx/SOx
800436	1	TESORO REFINING AND MARKETING CO, LLC	NOx/SOx
96587	1	TEXOLLINI INC	NOx
148340	2	THE BOEING CO. COMMERCIAL AVIATION SRVCS	NOx
14736	2	THE BOEING COMPANY	NOx
16660	2	THE BOEING COMPANY	NOx
115241	1	THE BOEING COMPANY	NOx
800067	1	THE BOEING COMPANY	NOx
800038	2	THE BOEING COMPANY - C17 PROGRAM	NOx
11119	1	THE GAS CO./ SEMPRA ENERGY	NOx
153199	1	THE KROGER CO/RALPHS GROCERY CO	NOx

Facility ID	Cycle	Facility Name	Program
62548	2	THE NEWARK GROUP, INC.	NOx
97081	1	THE TERMO COMPANY	NOx
800330	1	THUMS LONG BEACH	NOx
129497	1	THUMS LONG BEACH CO	NOx
800325	2	TIDELANDS OIL PRODUCTION CO	NOx
68118	2	TIDELANDS OIL PRODUCTION COMPANY ETAL	NOx
171960	2	TIN, INC. DBA INTERNATIONAL PAPER	NOx
137508	2	TONOGA INC, TACONIC DBA	NOx
53729	1	TREND OFFSET PRINTING SERVICES, INC	NOx
165192	2	TRIUMPH AEROSTRUCTURES, LLC	NOx
43436	1	TST, INC.	NOx
800026	1	ULTRAMAR INC	NOx/SOx
9755	2	UNITED AIRLINES INC	NOx
73022	2	US AIRWAYS INC	NOx
800149	2	US BORAX INC	NOx
800150	1	US GOVT, AF DEPT, MARCH AIR RESERVE BASE	NOx
800393	1	VALERO WILMINGTON ASPHALT PLANT	NOx
9053	1	VEOLIA ENERGY LOS ANGELES, INC	NOx
11034	2	VEOLIA ENERGY LOS ANGELES, INC	NOx
14502	2	VERNON CITY, LIGHT & POWER DEPT	NOx
148896	2	VINTAGE PRODUCTION CALIFORNIA LLC	NOx
148897	2	VINTAGE PRODUCTION CALIFORNIA LLC	NOx
151899	2	VINTAGE PRODUCTION CALIFORNIA LLC	NOx
14495	2	VISTA METALS CORPORATION	NOx
146536	1	WALNUT CREEK ENERGY, LLC	NOx/SOx
42775	1	WEST NEWPORT OIL CO	NOx/SOx
17956	1	WESTERN METAL DECORATING CO	NOx
51620	1	WHEELABRATOR NORWALK ENERGY CO INC	NOx
127299	2	WILDFLOWER ENERGY LP/INDIGO GEN., LLC	NOx

APPENDIX B
FACILITY INCLUSIONS

As discussed in Chapter 1, six facilities were added to the RECLAIM universe in Compliance Year 2013. The included facilities are identified, and the reasons for inclusion are also provided.

Facility ID	Cycle	Facility Name	Market	Date	Reason
1634	2	STEELCASE INC, WESTERN DIV	NOx	7/1/2013	Reactivation of a previously shut down facility
36909	2	LA CITY, DEPARTMENT OF AIRPORTS	NOx	7/1/2013	Reported emissions from permitted sources exceeded four tons of NOx in a year
90957	2	J PACIFIC INC, DELTA DYEING & FINISHING	NOx	9/10/2013	Reported emissions from permitted sources exceeded four tons of NOx in a year
122666	2	A'S MATCH DYEING & FINISHING	NOx	9/10/2013	Reported emissions from permitted sources exceeded four tons of NOx in a year
174406	1	ARLON GRAPHICS LLC	NOx	9/11/2013	Partial relocation of an existing facility
800129	1	SFPP	NOx	4/1/2013	Opt-in at facility's request

One facility was added to the SOx market, but this inclusion did not affect the number of facilities in the entire RECLAIM universe because it formerly participated in the NOx-only market. The data presented below is associated with the entry of this facility into the SOx market.

Facility ID	Cycle	Facility Name	Market	Date	Reason
18391	2	TAMCO	NOx/SOx	12/4/2013	Reported emissions from permitted sources exceeded four tons of SOx in a year

APPENDIX C
RECLAIM FACILITIES CEASING OPERATION OR EXCLUDED

SCAQMD staff is aware of the following RECLAIM facilities that permanently shut down all operations, inactivated all their RECLAIM permits, or were excluded from the RECLAIM universe during Compliance Year 2013. The reasons for shutdowns and exclusions cited below are based on the information provided by the facilities and other information available to SCAQMD staff.

Facility ID	16737
Facility Name	Atkinson Brick Co
City and County	Huntington Beach, Orange County
SIC	3259
Pollutant(s)	NOx
1994 Allocation	25,870
Reason for Shutdown	All equipment removed from site and property sold for development as a warehouse/distribution center.

Facility ID	152857
Facility Name	Georgia-Pacific Gypsum LLC
City and County	Long Beach, Los Angeles County
SIC	3275
Pollutant(s)	NOx
1994 Allocation	95,914
Reason for Shutdown	Declining demand for products.

Facility ID	158950
Facility Name	Windsor Quality Food Co. Ltd
City and County	Riverside, Riverside County
SIC	5142
Pollutant(s)	NOx
1994 Allocation	8,066
Reason for Shutdown	High cost of manufacturing, production, or raw material.

Facility ID	800210
Facility Name	Conexant Systems Inc
City and County	Newport Beach, Orange County
SIC	3674
Pollutant(s)	NOx
1994 Allocation	12,496
Reason for Shutdown	The facility claimed that it had been consolidated to another ID within SCAQMD. However, the facility had closed down and filed for bankruptcy, and its permits had expired; the facility that took over the property did not obtain any permits through the change of operator process.

APPENDIX D
FACILITIES THAT EXCEEDED THEIR ANNUAL ALLOCATION FOR COMPLIANCE YEAR 2013

The following is a list of facilities that did not have enough RTCs to cover their NOx and/or SOx emissions in Compliance Year 2013 based on the results of audits conducted by SCAQMD staff.

Facility ID	Facility Name	Compliance Year	Emittant
1073	BORAL ROOFING LLC	2013	NOx
18931	TAMCO	2013	NOx
19390	SULLY-MILLER CONTRACTING CO.	2013	NOx
122666	A'S MATCH DYEING & FINISHING	2013	NOx
133996	PLAINS EXPLORATION & PRODUCTION CO	2013	NOx
145836	AMERICAN APPAREL DYEING & FINISHING, INC	2013	NOx
153199	THE KROGER CO/RALPHS GROCERY CO	2013	NOx
800182	RIVERSIDE CEMENT CO	2013	NOx & SOx
800373	LAKELAND DEVELOPMENT CO	2013	SOx

APPENDIX E
REPORTED JOB IMPACTS ATTRIBUTED TO RECLAIM

Each year, RECLAIM facility operators are asked to provide employment data in their APEP reports. The report asks company representatives to quantify job increases and/or decreases, and to report the positive and/or negative impacts of the RECLAIM program on employment at their facilities.

This appendix is included in each Annual RECLAIM Audit Report to provide detailed information for facilities reporting that RECLAIM contributed to job gains or losses. During Compliance Year 2013, three facilities reported actual job gains or losses attributable to RECLAIM.

Facilities with reported job gains or losses attributed to RECLAIM:

Facility ID	115536
Facility Name	AES Redondo Beach, LLC
City and County	Redondo Beach, Los Angeles County
SIC	4911
Pollutant(s)	NOx
Cycle	1
Job Gain	1
Job Loss	0
Comments	The facility hired an additional Continuous Emissions and Monitoring Systems (CEMS) technician to ensure proper operation of the CEMS at the site.
Facility ID	141295
Facility Name	Lekos Dye and Finishing, Inc
City and County	Compton, Los Angeles County
SIC	2269
Pollutant(s)	NOx
Cycle	2
Job Gain	0
Job Loss	4
Comments	The facility stated that the cost of RECLAIM was too large to bear and that expense cutting such as employee reduction had to be made.
Facility ID	800074
Facility Name	LA City, DWP Haynes Generating Station
City and County	Long Beach, Los Angeles County
SIC	4911
Pollutant(s)	NOx
Cycle	1
Job Gain	1
Job Loss	0
Comments	The facility hired an additional person in order to comply with the RECLAIM Monitoring, Reporting and Recordkeeping (MRR) requirements for new equipment that it began operating in the 2013 Compliance Year.