

BOARD MEETING DATE: June 1, 2012

AGENDA NO. 14

REPORT: Report to Legislature and CARB on AQMD's Regulatory Activities for Calendar Year 2011

SYNOPSIS: The AQMD is required by law to submit a report to the Legislature on its regulatory activities for the preceding calendar year. The report is to include a summary of each rule and rule amendment adopted by AQMD, number of permits issued, denied, or cancelled, emission offset transactions, budget and forecast, and an update on the Clean Fuels Program. Also included is the Annual RECLAIM Audit Report, as required by RECLAIM Rule 2015: Backstop Provisions.

COMMITTEE: No Committee Review

RECOMMENDED ACTIONS:

Receive and file the attached report, and direct staff to forward the final report to the Legislature and the California Air Resources Board.

Barry R. Wallerstein, D.Env.
Executive Officer

OA:WS:MC:GU

Background

AQMD is subject to several internal and external reviews of its air quality programs. These include an annual review of AQMD's proposed operating budget for the upcoming fiscal year and compliance program audits.

In 1990, the Legislature directed AQMD to provide an annual review of its regulatory activities (SB 1928, Presley), and specified the type of information required (Health and Safety Code §40452). Many of the required elements overlap with other requirements of separate legislation. For example, information on AQMD's Clean Fuels Program is a

requirement of this report, but is now also a separate requirement under legislation passed in 1999 (SB 98, Alarcón). The purpose of this report is to fill in pieces of additional data needed to compile a comprehensive regulatory overview. Most of the information included in this report is not new, but simply a compilation of information previously seen by the Board. For example, Chapter I lists all the rules and rule amendments adopted by the Board during 2011. The Annual RECLAIM Audit Report is required to be submitted to the Legislature by RECLAIM Rule 2015: Backstop Provisions.

The specific requirements of this report include:

- A summary of each major rule and rule amendment adopted by the Board;
- The number of permits to operate or construct that were issued, denied, cancelled or not renewed;
- Data on emission offset transactions and applications during the previous year;
- The budget and forecast of staff increases or decreases for the following fiscal year;
- An identification of the source of all revenues used to finance the AQMD's activities;
- An update on the results of the AQMD's Clean Fuels Program; and
- The annual RECLAIM Audit Report

Attachment

Report to the Legislature for Calendar Year 2011

**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)**



June 2012

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)**

JUNE 2012

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GOVERNING BOARD**

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Barry R. Wallerstein, D.Env.
Executive Officer

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EXECUTIVE SUMMARY

The South Coast Air Quality Management District (AQMD) 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 AQMD 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 AQMD activities; and
- Results of the AQMD'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 AQMD'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 2010 Compliance Year (inclusion in this report to the Legislature is required by AQMD 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 AQMD Legislative & Public Affairs Office. Information on these activities is included in a monthly report to the AQMD's Governing Board and is available by contacting the AQMD at 909-396-3242 or visiting the website at www.aqmd.gov.

CHAPTER I
RULE DEVELOPMENT AND PERMIT ACTIVITIES

RULE ADOPTIONS AND AMENDMENTS FOR 2011

Rule 317 – Clean Air Act Non-Attainment Fees

Amended Rule 317 satisfies the requirements as specified in Sections 182(d), 182(e), 182(f) and 185 of the 1990 amendments to the federal Clean Air Act (CAA) by utilizing a fee equivalency approach applying the principle in Section 172(e) of the CAA to offset Rule 317 source fee obligations with credits surplus to the commitments in the 1997 SIP for 1-hour ozone. The rule mandates establishment of Section 172(e) Fee Equivalency Account to annually track, reconcile and report on compliance. In the event of an actual or anticipated shortfall the rule mandates the promulgation of a backstop rule with specific compliance provisions.

Estimated Emissions Reduction: Varies based on projects implemented; *Alternatives:* Not Applicable; *Cost-effectiveness:* Not Applicable; *Socioeconomic Impact:* Not Applicable; *Source of Funding:* Public funding from programs surplus to the commitments for reductions in the 1997 1-hour ozone SIP (e.g., AB 2766, Proposition 1B, DOE Grants).

[Amended February 4, 2011]

Rule 1150.1 – Control of Gaseous Emissions from Inactive Landfills

This amendment incorporates the requirements of the CARB AB 32 early action measure for municipal solid waste (MSW) landfills (Title 17, CCR, Article 4, and Sub article 6). The amendment improves enforceability and streamlines requirements by clarifying operation standards for control devices already installed, and eliminates duplicate recordkeeping and redundant reporting. Elements of the amendment fall into four categories: (1) incorporating CARB emission control requirements for Gas Collection and Control Systems (GCCS); (2) updating operational standards for control systems, including wellhead pressure gauge monitoring, to improve enforceability; (3) streamlining recordkeeping and reporting requirements; and, (4) administrative changes.

Estimated Emission Reduction: Not Applicable; *Alternatives:* Not Applicable; *Cost Effectiveness:* Not Applicable; *Socioeconomic Impact:* Not Applicable; *Source of funding:* Plan Evaluation Fees.

[Adopted April 1, 2011]

Rule 310.1 – Amnesty for Unpermitted Equipment and Small Business Discount for Control Equipment

In an effort to promote compliance with the permitting requirements of the District, Rule 310.1 provides certain qualified sources operating without a permit with a temporary window of opportunity to come to compliance with no civil or criminal penalties for violations of District Permit Rules. The rule provides amnesty from the late filing fees charge (including 50% surcharge and prior year annual operating fees) if the owner or operator of a qualifying facility applies for the necessary District permit(s) between July 1, 2011 and December 31, 2011, inclusive. Also, the rule

provides for a 50% discount for small business utilizing super compliant coatings that install associated control equipment.

Estimated Emissions Reduction: Not Applicable; *Alternatives:* Not Applicable; *Cost-effectiveness:* Not Applicable; *Socioeconomic Impact:* None, potential savings; *Source of Funding:* Permit Fees
[Adopted June 3, 2011]

Rule 1113 – Architectural Coatings

Rule 1113 was amended to further reduce volatile organic compound (VOC) emissions from architectural coatings by limiting the allowable VOC content of previously unregulated colorants used to tint coatings at the point of sale; establishing VOC limits for certain new coating categories; and reducing the allowable VOC content for several existing coating categories. The amendment also included a revision to the Averaging Compliance Option (ACO) and Small Container Exemption (SCE), remove outdated language and provide rule clarification to improve its enforceability.

Estimated Emission Reduction: Implementing the amendments to Rule 1113 will result in 4.4 tons of VOC reductions per day with an estimated cost-effectiveness to be \$6,211 per ton of VOC reduced. *Alternatives:* Not Applicable; *Cost-effectiveness:* \$6,211 per ton of VOC reduced; *Socioeconomic Impact:* Refer to Socioeconomic Impact Analysis Section; *Funding:* Emission/Sales Volume Fees
[Amended June 3, 2011]

Rule 1325 – Federal PM_{2.5} New Source Review Program

The purpose of Rule 1325 – Federal PM_{2.5} New Source Review Program, is to incorporate U.S. EPA's requirements for PM_{2.5}, into Regulation XIII – New Source Review. This rule applies only to the South Coast Air Basin and to new major polluting facilities of PM_{2.5}; major modifications to major polluting facilities of PM_{2.5}; and any facility with an emissions increase or a potential to emit 100 tons per year or more of PM_{2.5} and its precursors. The requirements of Rule 1325 are primarily drawn from the code of federal regulations provisions implementing federal NSR. Rule 1325 implements the requirements of the final EPA rule by including the same major source threshold, significant emissions rate, offset ratios, and calculation procedures for PM_{2.5}. As such, the rule language largely mirrors federal requirements. Staff has added language to harmonize federal requirements with AQMD elements such as the public notice requirement with District Rule 212 (g) and the offset requirements for NO_x and SO₂ with the RECLAIM program.

Estimated Emission Reductions: Not Applicable; Rule 1325 does not impose a new emissions limitation or standard or make an existing emissions limitation or standard more stringent; *Alternatives:* Not Applicable; *Cost Effectiveness:* Not Applicable; *Source of Funding:* Permit/Emission Fees; *Socioeconomic Impact:* The rule is consistent with existing federal requirements as currently implemented, and no additional control implementation costs are anticipated due to this rule.
[Adopted June 3, 2011]

Rule 2005 – New Source Review for RECLAIM

Amended Rule 2005 eliminates the requirement for existing RECLAIM facilities to hold RECLAIM Trading Credits (RTCs) in advance of second and subsequent years for the operation of a new or modified source, as long as the facility emission level remains below its starting Allocation plus non-tradable credits. Existing RECLAIM facilities are still required, however, to hold adequate RTCs for the first year of operation prior to commencement of operation of a new or modified source. All emissions will still be offset by RTCs at the end of the applicable compliance period. The offset requirements for new RECLAIM facilities will remain unchanged.

Estimated Emissions Reduction: Not Applicable; *Alternatives:* Not Applicable; *Cost-effectiveness:* Not Applicable; *Socioeconomic Impact:* The amendment as a whole would benefit the market by increasing RTC liquidity; *Source of Funding:* Permit/Emission Fees.
[Amended June 3, 2011]

Rule 1133.1 – Chipping and Grinding Activities

Rule 1133.1 was amended to strengthen maximum material holding time requirement to 48 hours or up to seven days to conform to that of the existing state regulation, the California Code of Regulations, Title 14, Division 7, Chapter 3.1 which is currently enforced by county-level local enforcement agencies (LEAs). *Estimated Emissions Reduction:* Not Applicable; *Alternatives:* Not Applicable; *Cost-effectiveness:* Not Applicable; *Socioeconomic Impact:* Not Applicable; *Source of Funding:* Compliance Plan/Emission Fees.
[Amended July 8, 2011]

Rule 1133.3 – Emission Reductions from Greenwaste Composting Operations

Rule 1133.3 establishes 48 hours of maximum holding time for raw greenwaste material before on-site composting which is consistent with the requirement of the state regulation, the California Code of Regulations, Title 14, Division 7, Chapter 3.1. Rule 1133.3 requires foodwaste be used for on-site composting within 48 hours of receipt or covered with screened or unscreened finished compost until used. Rule 1133.3 establishes mitigation measures that demonstrate emission reductions of at least 40% for VOCs and at least 20% for ammonia, by weight, for operations processing greenwaste-only, greenwaste with up to 20 percent manure, by volume, or greenwaste with up to 5,000 tons/year of foodwaste throughput. Mitigation measures established requires operators to cover every active phase composting pile with finished compost or compost covers within 24 hours of initial pile formation and the

pile is not turned for the first seven days of the active phase period of composting. If the pile is turned within the first seven days to maintain temperature or for pathogen reduction purpose, water application is then required to the pile before turning such that the pile is wet at a minimum depth of three inches during the first 15 days of the active phase period of composting. Rule 1133.3 establishes a hand-pressurized squeeze ball test to determine whether the pile is wet enough prior to turning. Rule 1133.3 also adds an emission control device requirement with overall system control efficiency of at least 80% for each of VOCs and ammonia, by weight, for operations processing greater than 5,000 tons/year of foodwaste throughput. Rule 1133.3 requires operators to install an emission control device on each active phase windrow that contains greater than 10% foodwaste, by weight. The adopted rule also establishes recordkeeping requirement for operations, and permitting requirements for emissions control device.

Estimated Emissions Reduction: 0.88 tons/day of VOC and 0.05 tons/day of ammonia; *Alternatives:* Not Applicable; *Cost-effectiveness:* Average cost effectiveness is \$1,340 per ton of VOCs reduced and \$1,270 per ton of VOCs and ammonia, combined, reduced; *Socioeconomic Impact:* Refer to Socioeconomic Impact Analysis section. *Source of Funding:* Compliance Plan/Permit/Emission Fees. [Adopted July 8, 2011]

Rule 1147 – NO_x Reductions from Miscellaneous Sources

Rule 1147 was amended to respond to compliance challenges by delaying compliance dates for equipment subject to the rule, and limiting the requirement for fuel and time meters. The amended rule also reduces compliance cost due to emissions testing and clarifies existing requirements. Although the rule amendment results in delayed emissions reductions from equipment subject to this rule, it achieves the same reductions as the original rule by 2014.

Estimated Emissions Reduction: Not Applicable; *Alternatives:* Not Applicable; *Cost-effectiveness:* Not Applicable; *Socioeconomic Impact:* The amendment does not result in any additional cost or other socioeconomic impact, but rather delays the costs; *Source of Funding:* Permit/Emission Fees. [Amended September 9, 2011]

Rule 463 – Organic Liquid Storage

This amendment addresses a request from industry to allow alternative test methods to demonstrate compliance with vapor pressure standards, update the vapor tightness definition to align with Rule 1178 – Further Reductions of VOC Emissions From Storage Tanks at Petroleum Facilities and reflect a detection limit of 500 ppmv rather than 1000 ppmv, incorporate additional administrative changes to clarify regulatory purpose, remove outdated language, and streamline reporting and notification requirements.

Estimated Emission Reduction: Not Applicable; Alternatives: Not Applicable; Cost Effectiveness: Not Applicable; Socioeconomic Impact: Not Applicable; Source of funding: Permit/Emission Fees.
[Amended November 4, 2011]

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 AQMD 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 AQMD operates under a regulatory program certified by the Secretary for Resources pursuant to Public Resources Code (PRC) §21080.5. Certification means that the AQMD 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 AQMD under its certified regulatory program are called Environmental Assessments (EAs). AQMD rules and regulations are subject to the AQMD’s certified CEQA program, while plans (e.g., AQMP) and permit projects are subject to the standard CEQA requirements.

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.

Listed below are all new and amended rules adopted by the Governing Board in 2011 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 7, 2011

No rules were adopted or amended in January.

FEBRUARY 4, 2011

1. Proposed Amended Rule 317 – Clean Air Act Non-Attainment Fees: Final

Subsequent Environmental Assessment: Sections 182 and 185 of the Clean Air Act (CAA), as amended in 1990, require major stationary sources of NO_x and VOC located in air basins that do not attain the federal one-hour ozone standard by the statutory deadline pay mitigation fees based upon a prescribed formula each year until attainment is demonstrated. The proposed amended rule provides for compliance with the Clean Air Act by utilizing a fee equivalent approach as provided in Section 172(e) of the CAA. A notice of exemption was prepared for the proposed project. Since the proposed project was exempt from CEQA, no alternatives analysis was required. A Subsequent Environmental Assessment with no significant adverse impacts was prepared for the proposed project. Since no significant adverse impacts were identified from implementing the proposed project, an alternatives analysis was not required.

MARCH 6, 2011

1. Proposed Amended Regulation IX – Standards of Performance for New Stationary

Sources: Notice of Exemption: Periodic amendments to Regulation IX incorporate new or amended federal standards by reference. The standard for Portland Cement Manufacturing enacted by U.S. EPA in 2010, for NSPS, is proposed for incorporation into Regulation IX. A notice of exemption was prepared for the proposed project. Since the proposed project was exempt from CEQA, no alternatives analysis was required.

2. Proposed Revisions to PM_{2.5} and Ozone State Implementation Plan for South Coast Air Basin and Coachella Valley: Addendum to the 2007 AQMP Final Program

Environmental Impact Report: On November 22, 2010, U.S. EPA published its notice of proposed partial approval and partial disapproval of the 2007 Air Quality Management Plan (AQMP) PM_{2.5} Plan primarily because the attainment demonstration relies heavily on emissions reductions from several State rules that have not been finalized or submitted to U.S. EPA for approval. The proposed revision to the PM_{2.5} and ozone SIP addresses the critical issues of the proposed disapproval. It updates the implementation status of the AQMP control measures to meet the 2015 PM_{2.5} attainment and retains the AQMD's proposal for contingency measures and also references and relies on CARB's proposed contingency measures. In addition, the SIP revision would re-initiate the request that U.S. EPA voluntarily accept reduction responsibility for 10 TPD NO_x emissions in 2014, but would propose that AQMD and CARB jointly provide a "fair share" backstop emissions reduction proposal, if necessary. The CEQA document for the proposed project was an Addendum to the 2007 AQMP Final Program Environmental Impact Report because the proposed project was considered to be a modification to the 2007 AQMP. An Addendum was prepared because no significant adverse impacts were identified from proposed project, so an alternatives analysis was not required.

APRIL 11, 2011

- 1. Proposed Amended Rule 1150.1 – Control of Gaseous Emissions from Municipal Solid Waste Landfills: Notice of Exemption:** The proposed amendments incorporated provisions to make the rule consistent with a CARB statewide rule for landfills, add NESHAP requirements which are already in effect, make minor corrections for clarity and amendments to reduce recordkeeping and reporting requirements to multiple agencies. A notice of exemption was prepared for the proposed project. Since the proposed project was exempt from CEQA, no alternatives analysis was required.

MAY 6, 2011

No rules were adopted or amended in May.

JUNE 3, 2011

- 1. Proposed Rule 310.1 – Amnesty for Unpermitted Equipment and Small Business Discount for Control Equipment: Notice of Exemption:** The proposed project exempted owners and operators of unpermitted equipment that meet certain conditions from civil and criminal penalties and late filing fees if the necessary permit applications and fees are voluntarily filed and paid during the amnesty period of July 1 through December 31, 2011. The proposed rule would also reduce permit filing fees by 50 percent for small businesses filing permit applications during the same time period. A notice of exemption was prepared for the proposed project. Since the proposed project was exempt from CEQA, no alternatives analysis was required.
- 2. Proposed Amended Rule 1113 – Architectural Coatings: Final Environmental Assessment:** The proposed amendments to Rule 1113 would further reduce VOC emissions from architectural coatings by limiting the allowable VOC content of previously unregulated colorants used to tint coatings at the point of sale; establishing VOC limits for certain new coating categories; and reducing the allowable VOC content for several existing coating categories. An Environmental Assessment with no significant adverse impacts was prepared for this proposed project. Since no significant adverse impacts were identified from implementing the proposed project, an alternatives analysis was not required.
- 3. Proposed Rule 1325 – Federal New Source Review Program: Notice of Exemption:** The proposed project would incorporate U.S. EPA's requirements for PM_{2.5} into Regulation XIII – New Source Review. This rule applies only to the South Coast Air Basin and to new major polluting facilities of PM_{2.5} and would require major modifications to major polluting facilities of PM_{2.5}; and any facility with an emissions increase or a potential to emit 100 tons or more per year of PM_{2.5} and its precursors. A notice of exemption was prepared for the proposed project. Since the proposed project was exempt from CEQA, no alternatives analysis was required.
- 4. Proposed Amended Rule 2005 – New Source Review for RECLAIM: Notice of Exemption:** The proposed project would eliminate the requirement for existing facilities

to hold RTCs in advance of second and subsequent years. All emissions would still be offset by RTCs at the end of the applicable compliance period. A notice of exemption was prepared for the proposed project. Since the proposed project was exempt from CEQA, no alternatives analysis was required.

JULY 8, 2011

- 1. Proposed Amended Rule 1133.1 – Chipping and Grinding Activities, and Adopt Rule 1133.3 – Emission Reductions from Greenwaste Composting Operations: Final Environmental Assessment:** Proposed Rule 1133.3 would implement 2007 AQMP Control Measure MCS-04 by establishing best management practices to reduce VOC and ammonia emissions from greenwaste composting operations. Proposed amended Rule 1133.1 would update the existing rule to be consistent with state requirements for greenwaste that is chipped and ground. An Environmental Assessment with no significant adverse impacts was prepared for this proposed project. Since no significant adverse impacts were identified from implementing the proposed project, an alternatives analysis was not required.

AUGUST, 2011

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

SEPTEMBER 9, 2011

- 1. Amend Rule 1147 - NOx Reductions from Miscellaneous Sources: Final Environmental Assessment:** To respond to compliance challenges currently being experienced by affected sources, staff is recommending delay of the NOx emission limit compliance dates for equipment subject to Rule 1147. The proposed rule would also limit the requirements for fuel and time meters. The CEQA document concluded that the proposed amendments could generate significant adverse air quality impacts, therefore, an alternatives analysis was required.

The only environmental topic areas identified that could be adversely affected by the proposed project was air quality and greenhouse gases. The analysis concluded that project-specific and cumulative operation air quality impacts, specifically NOx emissions, would exceed the applicable regional significance threshold. Because of the potential for significant adverse NOx air quality impacts, an alternatives analysis was prepared that included the following alternatives.

Alternative A (No Project) – Alternative A or ‘no project’ means that the proposed 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. By not delaying the compliance schedule for certain in-use equipment categories, some equipment owners/operators would continue to experience compliance challenges, in particular, with certain effective dates in the rule. (In some cases, the effective dates may have already passed.) Thus, under Alternative A, owners/operators of equipment not able to meet the applicable NOx emission limit by the applicable compliance date would need to shut down the equipment. No adverse significant air quality impacts would occur from

shutting down noncompliant equipment under Alternative A because the NO_x emission reductions would occur according to the original schedule in Rule 1147.

Alternative B (Delayed Compliance) – Alternative B is the delayed compliance alternative because it contains an additional two- to three-year delay in the compliance schedule, depending on the equipment category, beyond what is proposed in PAR 1147, for meeting the NO_x emission limits. Alternative B also contains a unique provision that would harmonize any potential conflicts in compliance dates for multiple in-use equipment units operating in series to the latest of the applicable compliance dates. Lastly, Alternative B contains a provision that would exempt certain in-use equipment emitting less than one pound of NO_x per day from the NO_x limits and compliance schedule. Under Alternative B, the amount of NO_x emission reductions delayed would vary by equipment category and compliance year. In addition, the amount of NO_x emission reductions to be delayed overall would exceed the air quality significance threshold for NO_x during operation and thus, would create significant adverse project-specific and cumulative air quality impacts for NO_x during operation.

Alternative C (Expedited Compliance) – Alternative C is the expedited compliance alternative because it contains less of a delay in the compliance schedule (e.g., from six-months to 1.5 years, depending on the equipment category) than what is proposed in PAR 1147 for meeting the NO_x emission limits. Alternative C also contains a unique provision that would harmonize any potential conflicts in compliance dates for multiple in-use equipment units operating in series to the earliest of the applicable compliance dates. Under Alternative C, the amount of NO_x emission reductions delayed would vary by equipment category and compliance year. In addition, the amount of NO_x emission reductions to be delayed overall would exceed the air quality significance threshold for NO_x during operation and thus, would create significant adverse project-specific and cumulative air quality impacts for NO_x during operation.

The staff proposal was adopted by the Governing Board.

OCTOBER 7, 2011

- 1. Proposed Revisions to 2007 PM_{2.5} State Implementation Plan for South Coast Air Basin: Notice of Exemption:** On July 14, 2011, U.S. EPA issued a notice of proposed partial approval and partial disapproval of the 2007 South Coast SIP for the 1997 Fine Particulate Matter Standards. U.S. EPA proposed to disapprove the plan's contingency measures specifying the need for measures that are either fully adopted or otherwise ready for quick implementation and a trigger mechanism that achieves emission reductions equivalent to one year of Reasonable Further Progress (RFP). Revisions to the PM_{2.5} SIP are needed to address U.S. EPA's disapproval. A three-prong approach was proposed to identify contingency measures that: (1) rely on equivalent emissions reductions achieved through improvements in air quality, (2) rely on committed emissions reductions for the 2007 ozone plan, and (3) would quantify excess emissions reductions achieved by existing rules and programs that were not originally included in the 2007 PM_{2.5} SIP. A notice of exemption was prepared for the proposed project.

Since the proposed project was exempt from CEQA, no alternatives analysis was required.

2. Proposed Amendments to the Employee Commute Reduction Program Guidelines to Rule 2202 - On-Road Motor Vehicle Mitigation Options: Notice of Exemption:

The amendments include the addition of a Parking Cash-Out Program for employer worksites submitting an Employee Commute Reduction Plan Annual Program in which the program has not achieved the average vehicle ridership (AVR) performance requirement and whose AVR fails to show an overall improvement in comparison to the previously submitted annual program, and are subject to provisions of the Health and Safety Code §43845. A notice of exemption was prepared for the proposed project. Since the proposed project was exempt from CEQA, no alternatives analysis was required.

NOVEMBER 4, 2011

1. Proposed Amended Rule 463 – Organic Liquid Storage: Notice of Exemption:

The proposed amendment would address a request from industry to allow alternative test methods for demonstrating compliance with vapor pressure standards, update the vapor tightness definition to align with Rule 1178 – Further Reductions of VOC Emissions From Storage Tanks at Petroleum Facilities, and reflect a detection limit of 500 ppmv rather than 1000 ppmv. A notice of exemption was prepared for the proposed project. Since the proposed project was exempt from CEQA, no alternatives analysis was required.

DECEMBER 4, 2011

No rules were adopted or amended in December.

SOCIOECONOMIC IMPACT ANALYSES

California Health and Safety Code Section 40440.8 requires that AQMD perform socioeconomic impact assessments for its rules and regulations that will significantly affect air quality or emissions. Prior to the requirements of Section 40440.8, AQMD staff had been evaluating the socioeconomic impacts of its actions pursuant to a 1989 resolution of its Governing Board. Additionally, AQMD staff assesses socioeconomic impacts of CEQA (California Environmental Quality Act) alternatives to those rules with significant 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, AQMD staff uses an economic model developed by Regional Economic Models, Inc. (REMI) to analyze the potential direct and indirect socioeconomic impacts of AQMD 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 2011, eight rules were amended and four new rules were adopted. The details of CEQA alternatives are discussed in the section of Alternatives to Rules and Rule Amendments of this report.

Newly-Adopted Rules

Of the four newly-adopted rules, Rule 1325 (Federal New Source Review Program) and Rule 310.1 (Amnesty for Unpermitted Equipment and Small Business Discount for Control Equipment) were not evaluated for socioeconomic impacts. Rule 1325 implements the requirements of EPA's final rule for PM_{2.5} by mirroring the federal requirements, which represents no additional cost beyond those associated with the federal requirements. Rule 310.1 gives temporary relief from late filing fees associated with existing permit requirements, which represents a reduction in compliance costs to late filers. Rule 1133.3 (Emission Reductions from Greenwaste Composting Operations) and Rule 1315 (Federal New Source Review Tracking System) were analyzed for socioeconomic impacts.

Rule 1133.3 established a requirement for Greenwaste composting operations to use a set of best management practices in the handling of greenwaste. Rule 1315 establishes the equivalency of AQMD's NSR program with federal NSR offset requirements and allows AQMD to issue permits to sources under Rules 1309.1 (Priority Reserve) and 1304 (exemptions).

Rule 1315 memorialized procedures for permit issuance that were assumed in the 2007 AQMP. As such, the socioeconomic evaluation of Rule 1315 was performed relative to the 2007 AQMP baseline as if no permits for new sources would be issued. Lowered job growth in the AQMD would be expected as a result.

The cost and corresponding job impacts for these rules (1315 and 1133.3) are shown in Table 1. Also included in Table 1 are the impacts of the CEQA alternatives to Rule 1315.

Table 1: Socioeconomic Impacts of Rules and Amendments¹

Rule Number	Rule	Cost-Effectiveness (in 2011\$/Ton)	Annual Implementation Cost (in millions of 2011\$)	Employment Impact (Jobs/Year)
1315	Federal New Source Review Tracking System Alternative A Alternative B Alternative C Alternative D Alternative E	N/A	N/A	+563,944* -563,944 similar to Rule 1315 -162,132 -407,403 -268,751
1133.3	Emission Reductions from Greenwaste Composting Operations	\$1,340/ton VOC	\$0.53	0 to -4
1113	Architectural Coatings	\$6,211/ton VOC	\$9.0	-1 to -21

¹Cost effectiveness is not assessed for rules or amendments without emission reductions in criteria pollutants.

*Relative to projected job growth in 2014 without Rule 1315.

Rule Amendments

In 2010, Rule 1113 (Architectural Coatings) was amended and for socioeconomic impacts. Amendments to the remaining seven rules were administrative in nature and thus no socioeconomic analysis was performed.

The proposed amendments to Rule 1113 reduces the VOC emissions from architectural coatings by limiting the VOC content of previously unregulated colorants that are used to tint coatings at the point of sale. Table 1 shows the cost and job impacts of Rule 1113.

Regulation III – Fees

Amendments to Regulation III included inflationary cost recovery of various programs and clarification of existing rule language. The across-the-board 1.4 percent (CPI) increase in fee rates was projected to increase revenue for the FY 2011-2012 year by \$1.06 million, relative to the estimated fiscal year (FY) 2010-2011 revenue. There were few revenue implications of amendments pursuant to rule language clarifications.

CEQA LEAD AGENCY PROJECTS

The AQMD also acts as the Lead Agency under CEQA for non-AQMD projects where the AQMD typically has primary 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.

Since January 2011, AQMD staff has been responsible for preparing or having prepared CEQA documents for two stationary source permit projects. The lead agency projects certified by the AQMD in 2011 are identified below.

JANUARY, 2011

No projects were certified in January.

FEBRUARY 2011

No projects were certified in February.

MARCH 2011

No projects were certified in March.

APRIL, 2011

No projects were certified in April.

MAY 2011

No projects were certified in May.

JUNE 2011

No projects were certified in June.

JULY 2011

- 1. CEQA Evaluation of the Rhodia Inc. Wet Gas Scrubber/SOx RECLAIM Project:**
On November 5, 2010, the AQMD adopted amendments to Regulation XX – Regional Clean Air Incentives Market (RECLAIM), specifically Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx), to reduce the allowable SOx emission limits. Rhodia Inc. owns and operates a spent sulfuric acid processing facility located in Carson, California. To comply with the future SOx emissions allocations that would occur in accordance with the November 5, 2010 amendments to Regulation XX – RECLAIM, Rhodia proposed to install a wet gas scrubber system to reduce sulfur dioxide

(SO₂) emissions from its sulfuric acid gas plant. The purpose of the Evaluation for the proposed project was to determine whether or not the proposed project is within the scope of the project covered by the November 2010 Final PEA, this CEQA Evaluation included an examination of: 1) whether the proposed project would have new effects that were not examined in the November 2010 Final PEA pursuant to CEQA Guidelines §15168 (c)(1); and, 2) whether new mitigation measures would be required pursuant to CEQA Guidelines §15168 (c)(2). AQMD staff determined that the proposed project was within the scope of the Final PEA, so no further analysis was necessary. As a result, an alternatives analysis was not required and, therefore, not performed.

- 2. Final Subsequent Mitigated Negative Declaration for: Warren E&P, Inc. WTU Central Facility, New Equipment Project:** In 2006 the City of Los Angeles certified a Mitigated Negative Declaration (2006 MND) and approved a Zoning Determination for the Warren E&P, Inc. Wilmington Townlot Unit (WTU) oil and gas extraction, production and separation facilities. The project analyzed in the 2006 MND consisted primarily of constructing five multiple well drilling cellars that would allow drilling of up to 540 wells and extracting up to 5,000 barrels of oil per day (bpd) that would be transferred offsite via pipeline. The proposed Warren project was considered to be a modification to the WTU project analyzed in the 2006 MND. The proposed modifications to the previously approved WTU project included: replacing older, previously permitted combustion equipment (e.g., flare) with newer, more efficient equipment (e.g., clean enclosed Bekaert burner), installation of a new heater treater and up to nine (9) microturbines all of which must meet best available control technology (BACT) requirements (South Coast Air Quality Management District (AQMD) Rule 1303); and installing new equipment to allow gas re-injection and/or off-site gas sales. A Subsequent Mitigated Negative Declaration was prepared for this proposed project. Since significant adverse impacts from the project could be mitigated to less than significant, an alternatives analysis was not required.

AUGUST 2011

No projects were certified in August.

SEPTEMBER 2011

No projects were certified in September.

OCTOBER 2011

No projects were certified in October.

NOVEMBER 2011

No projects were certified in November.

DECEMBER 2011

No projects were certified in December.

PERMITTING & COMPLIANCE

SB 1928 REPORT	
Permit Applications Processed During CY 2011	
Application Type	Count
Permits to Construct Issued	863
Permits to Operate Issued	3,778
Plans	588
Denied	27
Cancelled	1,057
Change of ownership	1,037
Area Sources & Certification/Registration	3,743
Total	11,093
<i>Permits Not Renewed*</i>	1,319

*These permits were not renewed and inactivated due to failure to pay the permit renewal fees.

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
Blank	Blank	210	983	164	9	173	2258	136	271	476
0179	FRUITS AND TREE NUTS, NEC	0	0	0	0	0	1	0	0	0
0181	ORNAMENTAL NURSERY PRODUCTS	0	0	0	0	1	0	0	0	0
0211	BEEF CATTLE FEEDLOTS	0	1	1	0	0	0	0	0	0
0241	DAIRY FARMS	0	3	2	0	0	1	0	0	1
0252	CHICKEN EGGS	0	0	0	0	0	1	0	0	0
0723	CROP PREPARATION SVCS FOR MKT	0	1	0	0	0	0	0	0	0
0781	LANDSCAPE COUNSELING/PLANNING	0	0	0	0	1	0	0	0	0
0782	LAWN AND GARDEN SERVICES	0	2	0	0	0	0	0	0	0
0783	ORNAMENTAL SHRUB AND TREE SERV	0	1	0	0	1	0	0	0	0
0851	FORESTRY SERVICES	0	1	0	0	0	0	0	0	0
1099	METAL ORES, NEC	0	1	0	0	0	0	0	0	0
1311	CRUDE PETRO AND NATURAL GAS	34	42	1	0	23	5	0	33	2
1381	DRILLING AND OIL AND GAS WELLS	0	0	0	0	0	1	0	0	0
1382	OIL/GAS EXPLORATION SERVICES	0	7	0	0	0	0	0	0	0
1389	OIL/GAS FIELD SERVICES, NEC	0	0	0	0	0	1	0	0	0
1422	CRUSHED AND BROKEN LIMESTONE	0	1	0	0	0	0	0	0	0
1442	CONSTRUCTION SAND AND GRAVEL	2	2	0	0	1	0	0	0	0
1541	INDUSTRIAL BUILDINGS/WAREHOUSE	0	0	1	0	0	0	0	0	0
1611	HIGHWAY & STREET CONSTRUCTION	0	1	0	0	0	0	0	0	0
1622	BRIDGE/TUNNEL/ELEVATED HIGHWAY	0	0	1	0	0	0	0	0	0
1623	WATER, SEWER, AND UTILITY LINE	0	0	1	0	0	3	1	0	2
1629	HEAVY CONSTRUCTION, NEC	0	4	1	0	0	0	0	0	0
1711	PLUMB, HEAT, AIR CONDITION	0	1	1	0	0	0	0	0	0
1793	GLASS AND GLAZING WORK	0	2	0	0	0	0	0	0	0
1794	EXCAVATING AND FOUNDATION WORK	4	15	158	0	13	1	0	3	2
1795	WRECKING AND DEMOLITION WORK	0	2	1	0	0	0	0	0	44
1799	SPECIAL TRADE CONTRACTORS, NEC	0	25	14	0	2	49	3	0	30

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
2011	MEAT PACKING PLANTS	0	0	0	0	0	1	0	0	0
2013	SAUSAGES & OTHER PREPARED MEAT	0	0	0	0	1	1	0	1	0
2021	CREAMERY BUTTER	5	2	0	0	0	0	0	0	0
2022	CHEESE, NATURAL AND PROCESSED	0	0	1	0	0	2	0	0	0
2024	ICE CREAM AND FROZEN DESSERTS	0	0	2	0	0	2	0	2	0
2026	FLUID MILK	0	0	3	0	0	0	0	0	0
2033	CANNED FRUITS AND VEGETABLES	1	0	3	0	0	1	0	0	9
2034	DEHYDRATED FRUITS/VEGETABLES/SOUP	7	11	4	0	1	0	0	0	0
2035	PICKLES/SAUCES/SALAD DRESSINGS	1	0	0	0	0	1	0	0	0
2037	FROZEN FRUITS AND VEGETABLES	1	2	0	0	0	0	0	0	0
2038	FROZEN SPECIALTIES, NEC	0	2	0	0	0	0	0	0	0
2041	FLOUR/OTHER GRAIN MILL PRODUCT	0	0	1	0	0	1	0	0	0
2043	CEREAL BREAKFAST FOODS	0	0	0	0	0	1	0	0	0
2045	BLENDED AND PREPARED FLOUR	0	1	0	0	0	0	0	0	0
2047	DOG AND CAT FOOD	1	0	1	0	0	0	0	0	0
2048	PREPARED FEEDS, NEC	0	6	0	0	0	0	0	6	0
2051	BREAD, CAKE, & RELATED PROD	1	26	0	0	4	4	0	8	0
2074	COTTONSEED OIL MILLS	0	1	1	0	0	0	0	0	0
2079	SHORTENING AND COOKING OILS	0	0	1	0	0	0	0	0	0
2082	MALT BEVERAGES	2	0	0	0	1	0	0	0	0
2086	BOTTLED & CANNED SOFT DRINKS	1	1	3	0	0	0	0	0	0
2087	FLAVORING EXTRACTS/SIRUPS, NEC	0	2	1	0	0	2	0	0	0
2091	CANNED & CURED FISH & SEAFOODS	3	0	1	0	0	0	0	0	0
2092	FRESH OR FROZEN PACKAGED FISH	0	0	0	0	1	0	0	0	0
2095	ROASTED COFFEE	0	1	0	0	0	0	0	0	1
2096	POTATO CHIPS & SIMILAR SNACKS	4	2	0	0	4	2	0	0	0
2099	FOOD PREPARATIONS, NEC	9	20	1	0	1	5	0	0	1
2221	WEAVING MILLS, SYNTHETICS	0	0	0	0	0	2	0	0	0
2261	FINISHING PLANTS, COTTON	0	2	2	0	0	0	0	0	0

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
2262	FINISHING PLANTS, SYNTHETICS	0	1	0	0	0	0	0	0	0
2269	FINISHING PLANTS, NEC	1	5	0	0	0	0	0	0	0
2272	TUFTED CARPETS AND RUGS	0	2	0	0	0	0	0	0	0
2273	CARPETS AND RUGS	1	6	0	0	1	0	0	0	0
2293	PADDINGS & UPHOLSTERY FILLING	0	4	0	0	0	0	0	0	0
2296	TIRE CORD AND FABRIC	0	1	0	0	0	0	0	0	0
2299	TEXTILE GOODS, NEC	0	1	0	0	1	0	0	0	0
2389	APPAREL AND ACCESSORIES, NEC	0	0	0	0	0	0	0	1	0
2392	HOUSE FURNISHINGS, NEC	0	2	0	0	0	0	0	0	0
2431	MILLWORK	0	0	0	0	0	0	0	1	2
2434	WOOD KITCHEN CABINETS	0	4	0	0	0	0	0	0	19
2451	MOBILE HOMES	0	1	0	0	0	0	0	0	0
2491	WOOD PRESERVING	0	2	0	0	0	0	0	0	0
2499	WOOD PRODUCTS, NEC	0	11	0	0	0	0	0	0	15
2511	WOOD HOUSEHOLD FURNITURE	2	12	0	0	3	0	0	8	28
2512	UPHOLSTERED HOUSEHLD FURNITURE	2	4	1	0	0	0	0	0	0
2514	METAL HOUSEHOLD FURNITURE	0	1	0	0	0	0	1	0	11
2517	WOOD TV AND RADIO CABINETS	0	0	0	0	0	0	0	1	1
2521	WOOD OFFICE FURNITURE	0	6	0	0	0	0	0	0	4
2522	OFFICE FURNITURE, EXCEPT WOOD	0	0	0	0	0	0	0	0	0
2531	PUBLIC BUILDING/REL FURNITURE	0	1	0	0	0	0	0	0	0
2541	WOOD PARTITIONS AND FIXTURES	0	1	0	0	15	0	0	0	1
2542	PARTITIONS & FIXTURES, EX WOOD	0	1	0	0	0	0	0	0	0
2599	FURNITURE AND FIXTURES, NEC	1	11	0	0	1	0	0	0	3
2621	PAPER MILLS	1	0	0	0	0	0	0	0	0
2631	PAPERBOARD MILLS	0	3	0	0	0	0	0	0	2
2653	CORRUGATED & SOLID FIBER BOXES	5	4	5	0	1	0	0	8	0
2655	FIBER CANS/DRUMS/SIMILAR PROD	1	0	0	0	1	0	0	0	0

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
2656	SANITARY FOOD CONTAINERS	0	1	0	0	0	0	0	0	0
2657	FOLDING PAPERBOARD BOXES	1	7	1	0	2	0	0	0	0
2672	PAPER COATED & LAMINATED, NEC	1	2	0	0	0	2	0	7	0
2673	BAGS:PLASTICS,LAMNTD & COATED	0	0	0	2	0	1	0	0	0
2679	CONVERTED PAPER PRODUCTS, NEC	0	0	1	0	0	0	0	0	0
2711	NEWSPAPERS	0	10	3	0	0	1	0	0	0
2731	BOOK PUBLISHING	0	0	0	0	0	2	0	0	0
2732	BOOK PRINTING	1	0	0	0	0	0	0	0	0
2751	COMMERCIAL PRINT/LETTERPRESS	1	1	0	0	0	0	0	0	0
2752	COMMERCIAL PRINT/LITHOGRAPH	6	26	2	0	7	1	0	26	24
2759	COMMERCIAL PRINTING, NEC	0	6	1	0	0	0	0	2	18
2812	ALKALIES AND CHLORINE	2	1	0	0	0	0	0	0	0
2813	INDUSTRIAL GASES	0	6	1	0	4	1	0	4	3
2819	INDUSTRIAL INORGANIC CHMLS,NEC	5	21	1	0	6	0	0	0	1
2821	PLASTICS MATERIALS AND RESINS	3	10	2	0	3	3	0	0	0
2831	BIOLOGICAL PRODUCTS	0	0	0	0	0	1	0	0	0
2833	MEDICINALS AND BOTANICALS	0	2	0	0	0	0	0	0	0
2834	PHARMACEUTICAL PREPARATIONS	8	64	2	0	1	6	0	0	3
2836	BIOLOGICAL PRDTS EXC DIAGNOSTC	1	3	0	0	0	0	0	0	0
2841	SOAPS AND OTHER DETERGENTS	1	14	1	0	0	1	0	0	0
2842	POLISHES AND SANITATION GOODS	0	0	0	0	0	1	0	0	0
2843	SURFACE ACTIVE AGENTS	0	1	0	0	0	0	0	0	0
2844	TOILET PREPARATIONS	0	0	0	0	0	2	0	0	2
2851	PAINTS AND ALLIED PRODUCTS	3	10	0	0	8	1	0	0	3
2869	INDUSTRIAL ORGANIC CHMLS, NEC	0	55	1	0	0	0	0	0	0
2891	ADHESIVES AND SEALANTS	6	8	0	0	1	2	0	0	0
2893	PRINTING INK	2	5	0	0	0	0	0	0	0
2899	CHEMICAL PREPARATIONS, NEC	3	21	1	0	2	0	0	0	0
2911	PETROLEUM REFINING	39	120	16	0	185	1	0	15	0

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
2951	PAVING MIXTURES AND BLOCKS	7	27	1	0	1	0	0	0	0
2952	ASPHALT FELTS AND COATINGS	3	40	2	0	7	1	0	0	2
2992	LUBRICATING OILS AND GREASES	3	96	2	0	10	1	0	20	0
2999	PETROLEUM & COAL PRODUCTS, NEC	1	6	0	0	6	1	0	0	0
3011	TIRES AND INNER TUBES	0	4	0	0	0	0	0	0	0
3052	RUBBER,PLASTICS HOSE & BELTING	0	3	0	0	10	0	0	0	0
3053	GASKETS, PACKING/SEALING DVCS	1	0	0	0	0	0	0	0	0
3061	MECHANICAL RUBBER GOODS	0	2	0	0	1	0	0	0	0
3069	FABRICATED RUBBER PRODUCTS,NEC	1	30	1	0	3	2	0	0	0
3079	MISC PLASTICS PRODUCTS	0	23	0	0	0	0	0	0	1
3081	UNSUPPORTED PLSTCS FILM/SHEET	1	8	1	0	0	0	0	0	0
3082	UNSUPPORTD PLSTCS PROFL SHAPES	0	1	1	0	0	0	0	0	0
3083	LAMINATED PLSTCS PLATE & SHEET	2	0	0	2	0	0	0	0	0
3084	PLASTICS PIPE	0	1	0	0	0	1	0	0	0
3086	PLASTICS FOAM PRODUCTS	14	10	4	0	13	0	0	4	0
3087	CUSTOM COMPOUND PRCHSD RESINS	1	5	1	0	1	0	0	0	0
3088	PLASTICS PLUMBING FIXTURES	0	0	0	0	2	0	0	0	0
3089	PLASTICS PRODUCTS, NEC	6	53	3	0	6	2	0	36	1
3221	GLASS CONTAINERS	0	2	0	0	0	0	0	0	0
3231	PRODUCTS OF PURCHASED GLASS	1	2	1	0	3	0	0	0	3
3241	CEMENT, HYDRAULIC	0	14	0	1	11	0	0	0	0
3251	BRICK AND STRUCTURAL CLAY TILE	0	3	0	0	2	0	0	0	0
3255	CLAY REFRACTORIES	0	0	0	0	0	1	0	0	0
3259	STRUCTURAL CLAY PRODUCTS, NEC	0	2	0	0	0	0	0	0	0
3269	POTTERY PRODUCTS, NEC	1	0	0	0	3	0	0	0	0
3271	CONCRETE BLOCK AND BRICK	0	2	0	0	0	0	0	0	0
3272	CONCRETE PRODUCTS, NEC	0	10	1	0	13	0	0	0	1
3273	READY-MIXED CONCRETE	0	16	0	0	1	0	0	26	4
3291	ABRASIVE PRDUCTS	0	3	0	0	0	0	0	0	0

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
3295	MINERALS, GROUND OR TREATED	0	3	0	0	0	0	0	0	0
3299	NONMETALLIC MIN. PRODUCTS, NEC	0	4	0	0	0	0	0	0	0
3312	BLAST FURNACES AND STEEL MILLS	0	1	0	0	3	0	0	0	1
3315	STEEL WIRE & RELATED PRODUCTS	1	0	1	0	0	0	0	0	0
3317	STEEL PIPE & TUBES	11	2	0	0	2	0	0	0	0
3321	GRAY IRON FOUNDRIES	0	1	0	0	0	0	0	0	0
3324	STEEL INVESTMENT FOUNDRIES	0	2	0	0	0	1	0	0	0
3325	STEEL FOUNDRIES, NEC	0	1	1	0	0	0	0	0	0
3339	PRIMARY NONFERROUS METALS, NEC	0	1	0	0	0	0	0	0	0
3341	SECONDARY NONFERROUS METALS	25	51	3	1	19	0	0	0	0
3354	ALUMINUM EXTRUDED PRODUCTS	3	2	0	0	0	0	0	0	0
3363	ALUMINUM DIE-CASTINGS	0	2	0	0	0	0	0	0	0
3365	ALUMINUM FOUNDRIES	1	1	0	0	0	1	0	6	2
3366	COPPER FOUNDRIES	0	0	0	0	0	0	0	0	0
3369	NONFERROUS FOUNDRIES, NEC	0	7	0	0	3	1	0	1	11
3398	METAL HEAT TREATING	0	8	0	0	0	0	0	0	6
3399	PRIMARY METAL PRODUCTS, NEC	0	6	0	0	0	0	0	0	2
3411	METAL CANS	0	3	1	0	1	4	0	0	0
3412	METAL BARRELS, DRUMS, & PAILS	0	0	1	0	0	1	0	0	0
3423	HAND AND EDGE TOOLS, NEC	0	0	0	0	0	0	0	0	1
3429	HARDWARE, NEC	0	0	0	0	0	1	0	0	0
3441	FABRICATED STRUCTURAL METAL	0	3	0	0	0	0	0	0	5
3443	FABRICATE PLATE WK-BOILER SHOP	0	4	0	0	0	0	0	0	4
3444	SHEET METALWORK	3	3	0	0	0	0	0	3	5
3446	ARCHITECTURAL METAL WORK	1	2	0	0	0	0	0	1	1
3448	PREFABRICATED METAL BUILDINGS	0	5	0	0	0	0	0	0	0
3449	MISCELLANEOUS METAL WORK	2	18	0	0	7	1	0	12	3
3451	SCREW MACHINE PRODUCTS	2	0	0	0	0	0	0	0	0
3452	BOLTS, NUTS, RIVETS, & WASHERS	0	3	0	0	1	0	0	0	0

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
3462	IRON AND STEEL FORGINGS	4	29	1	0	0	0	0	0	0
3463	NONFERROUS FORGINGS	0	11	0	0	5	0	0	0	0
3465	AUTOMOTIVE STAMPINGS	0	0	0	0	0	0	0	1	0
3469	METAL STAMPINGS, NEC	2	0	0	0	0	0	0	0	0
3471	PLATING AND POLISHING	36	64	1	3	4	1	1	4	46
3479	METAL COATING/ALLIED SERVICES	11	42	0	0	5	6	0	8	9
3483	AMMUNITION EXC SMALL ARMS, NEC	3	0	0	0	0	0	0	0	0
3492	FLUID PWR VLVS/HOSE FITTINGS	0	2	0	0	0	0	0	0	0
3494	VALVES AND PIPE FITTINGS, NEC	0	1	0	0	0	0	0	0	0
3496	MISC FABRICATED WIRE PRODUCTS	0	0	0	0	0	1	0	0	0
3498	FABRICATED PIPE AND FITTINGS	0	1	0	0	0	0	0	0	0
3499	FABRICATED METAL PRODUCTS, NEC	0	3	1	0	7	3	0	0	6
3536	HOISTS, CRANES, AND MONORAILS	0	1	0	0	0	0	0	0	0
3541	MACHINE TOOLS METAL CUT TYPES	0	0	0	5	0	0	0	0	0
3544	SPEC DIES/TOOLS/JIGS/FIXTURES	3	1	0	0	0	0	0	0	0
3562	BALL AND ROLLER BEARINGS	1	1	0	0	0	1	0	0	0
3565	PACKAGING MACHINERY	0	1	0	0	0	0	0	0	0
3569	GENERAL INDSTRL MACHINERY, NEC	2	4	0	0	2	0	0	0	0
3571	ELECTRONIC COMPUTERS	0	1	0	0	0	0	0	0	2
3579	OFFICE MACHINES, NEC	0	3	0	0	1	2	0	0	0
3582	COMMERCIAL LAUNDRY EQUIPMENT	0	0	0	0	1	0	0	0	0
3585	REFRIGERATION & HEATING EQPMT	0	8	0	0	0	0	0	0	0
3593	FLUID PWR CYLINDERS/ACTUATORS	0	1	0	0	0	0	0	0	0
3599	INDUSTRIAL MACHINERY, NEC	1	3	0	0	1	1	0	4	0
3612	TRANSFORMERS	0	1	0	0	0	0	0	0	0
3613	SWITCHGEAR & SWTCHBRD APARATUS	0	0	0	0	0	1	0	0	0
3621	MOTORS AND GENERATORS	0	0	0	0	4	0	0	0	6
3625	RELAYS AND INDUSTRIAL CONTROLS	3	0	0	0	2	0	0	3	0

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
3643	CURRENT-CARRING WIRING DEVICES	0	0	0	0	22	0	0	0	0
3646	COMMERCIAL LIGHTING FIXTURES	0	1	0	0	0	0	0	0	0
3651	RADIO AND TV RECEIVING SETS	0	2	1	0	4	0	0	0	0
3661	TELEPHONE/TELEGRAPH APPARATUS	0	0	0	0	0	1	0	0	1
3662	RADIO & TV COMMUNICATION EQUIP	0	1	0	0	0	0	0	0	0
3663	RADIO/TV COMMUNICATIONS EQPMT	0	0	0	0	0	2	0	0	0
3669	COMMUNICATIONS EQUIPMENT, NEC	0	0	0	0	0	1	0	0	0
3672	PRINTED CIRCUIT BOARDS	0	10	1	0	4	0	0	0	12
3674	SEMICONDUCTORS/RELATED DEVICES	2	33	0	0	0	6	0	0	7
3678	ELECTRONIC CONNECTORS	0	0	0	0	4	0	0	0	0
3679	ELECTRONIC COMPONENTS, NEC	17	12	1	0	14	1	0	3	2
3691	STORAGE BATTERIES	0	0	0	0	3	0	0	0	0
3695	MAGNETIC & OPTICAL RECDG MEDIA	0	1	0	0	0	0	0	0	0
3699	ELECTRICAL EQUIP/SUPPLIES, NEC	2	1	0	0	0	0	0	0	4
3713	TRUCK AND BUS BODIES	2	0	0	0	15	0	0	0	0
3714	MOTOR VEHICLE PARTS/ACCESORIES	1	4	0	0	0	0	0	0	29
3716	MOTOR HOME MANUFACTURE	0	3	0	0	0	0	0	0	0
3721	AIRCRAFT	0	9	2	0	1	2	0	0	0
3724	AIRCRAFT ENGINES/ENGINE PARTS	1	2	0	0	0	0	0	0	0
3728	AIRCRAFT PARTS/EQUIPMENT, NEC	20	16	0	0	8	8	0	0	7
3732	BOAT BUILDING AND REPAIRING	0	3	0	0	0	0	0	1	2
3761	GUIDED MISSILES AND SPACE VEH	8	7	0	0	0	3	0	0	0
3764	SPACE PROPULSION UNITS & PARTS	1	5	0	0	0	0	0	0	0
3769	SPACE VEHICLE EQUIPMENT, NEC	2	4	0	0	0	1	1	0	0
3792	TRAVEL TRAILERS AND CAMPERS	0	0	0	0	0	0	0	0	0
3799	TRANSPORTATION EQUIPMENT, NEC	1	1	0	0	0	1	0	0	0
3812	SEARCH & NAVIGATION EQUIPMENT	0	3	1	0	0	3	2	0	0
3822	ENVIRONMENTAL CONTROLS	0	1	0	0	0	0	0	0	0
3823	PROCESS CONTROL INSTRUMENTS	0	5	2	0	2	0	0	0	1

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
3824	FLUID METERS/COUNTING DEVICES	0	1	0	0	0	0	0	0	0
3825	INSTRU TO MEASURE ELECTRICITY	0	0	0	0	0	0	0	1	0
3826	ANALYTICAL INSTRUMENTS	0	0	0	0	0	0	0	1	0
3829	MEASURING/CONTROLLING DVCS,NEC	1	0	0	0	0	1	0	0	0
3841	SURGICAL & MEDICAL INSTRUMENTS	0	6	0	0	16	5	0	0	0
3843	DENTAL EQUIPMENT AND SUPPLIES	0	6	0	0	0	0	0	0	0
3861	PHOTOGRAPHIC EQUIPMENT/SUPPLY	0	0	0	0	0	1	0	0	0
3931	MUSICAL INSTRUMENTS	2	10	0	0	0	0	0	0	0
3944	GAMES, TOYS, & CHILDRENS VEH	0	1	0	0	0	0	0	0	0
3993	SIGNS & ADVERTISING DISPLAYS	0	4	0	0	0	0	0	0	1
3996	HARD SURFACE FLOOR COVERINGS	4	2	0	0	0	1	0	0	0
3999	MANUFACTURING INDUSTRIES, NEC	1	4	0	0	0	0	0	1	6
4131	INTERCITY HIGHWAY TRANS	0	1	0	0	0	0	2	0	0
4212	LOCAL TRUCKING,WITHOUT STORAGE	0	7	2	0	0	0	0	2	0
4213	TRUCKING, EXCEPT LOCAL	0	0	0	0	0	1	0	0	0
4221	FARM PRODUCT WAREHOUSE/STORAGE	0	0	0	0	0	1	0	0	0
4222	REFRIGERATED WAREHOUSING	0	6	0	0	0	0	0	0	0
4225	GEN WAREHOUSING & STORAGE	0	5	0	0	1	0	0	0	1
4226	SPECIAL WAREHOUSING/STRGE ,NEC	14	46	2	0	9	0	0	0	3
4311	U.S. POSTAL SERVICE	0	0	0	0	0	5	0	0	0
4411	DEEP SEA FOREIGN TRANS	0	0	1	0	0	0	0	0	0
4412	DEEP SEA FRGN TRANS OF FRGHT	0	0	1	0	0	0	0	0	0
4463	MARINE CARGO HANDLING	0	0	0	0	1	0	0	0	0
4491	MARINE CARGO HANDLING	4	0	0	0	1	0	0	0	0
4512	AIR TRANSPORTATION, SCHDLD	0	1	0	0	0	0	0	0	0
4581	AIRPORTS/FLYING FIELDS/SVCS	6	12	1	0	0	2	0	19	1
4612	CRUDE PETROLEUM PIPE LINES	0	0	2	0	0	0	0	4	0
4613	REFINED PETROLEUM PIPE LINES	0	0	1	0	0	0	0	0	0

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
4619	PIPE LINES, NEC	0	0	1	0	2	0	0	0	0
4741	RENTAL OF RAILROAD CARS	0	1	0	0	0	0	0	0	0
4812	RADIOTELEPHONE COMMUNICATIONS	0	1	0	0	0	1	0	0	0
4813	TELEPHONE COMMS, EXC RADIO	0	7	0	0	1	9	3	0	1
4832	RADIO BROADCASTING STATIONS	0	0	0	0	0	1	0	0	0
4841	CABLE & OTHER PAY TV SERVICES	0	1	0	0	0	0	0	0	0
4899	COMMUNICATION SERVICES, NEC	0	1	0	0	0	0	0	0	0
4911	ELECTRIC SERVICES	41	60	8	0	44	28	7	19	8
4922	NATURAL GAS TRANSMISSION	0	0	0	0	2	2	1	0	0
4923	GAS TRANSMISSION/DISTRIBUTION	0	4	1	0	1	0	0	0	0
4924	NATURAL GAS DISTRIBUTION	0	1	0	0	0	0	0	0	0
4931	ELECTRIC & OTHER SERVICES COMB	0	5	0	0	0	1	0	0	0
4932	GAS & OTHER SERVICES COMBINED	2	1	0	0	3	0	0	0	0
4939	COMBINATION UTILITY SERV, NEC	0	3	0	0	0	0	0	0	0
4941	WATER SUPPLY	5	56	2	0	8	5	2	0	0
4952	SEWERAGE SYSTEMS	19	46	2	0	38	1	2	0	9
4953	REFUSE SYSTEMS	1	11	9	0	21	2	0	7	3
4959	SANITARY SERVICES, NEC	2	0	0	1	7	0	0	0	0
4961	STEAM SUPPLY	0	9	0	0	0	2	0	0	0
4971	IRRIGATION SYSTEMS	0	1	0	0	0	0	0	0	0
5012	AUTO & OTHER MOTOR VEHICLES	0	11	1	0	3	0	0	0	0
5015	MOTOR VEHICLE PARTS, USED	0	0	0	0	0	0	0	1	0
5051	METALS SERVICE CENTERS/OFFICES	0	2	0	0	0	0	0	0	0
5063	ELECTRICAL APPARATUS AND EQPMT	0	1	0	0	0	0	0	0	0
5065	ELECTRONIC PARTS AND EQUIPMENT	0	0	0	0	0	1	0	0	0
5074	PLUMB/HYDRONIC HEATING SUPPLY	0	1	0	0	0	0	0	0	0
5084	INDUSTRIAL MACHINERY AND EQPMT	1	1	0	0	0	0	0	0	0
5085	INDUSTRIAL SUPPLIES	2	1	0	0	0	1	0	0	0
5087	SERVICE ESTABLISHMENT EQUIP	1	0	0	0	0	0	0	0	0

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
5088	TRANSPORTATION EQUIP/SUPPLIES	0	0	0	0	1	0	0	0	0
5093	SCRAP & WASTE MATERIALS	1	2	1	0	0	0	0	0	0
5122	DRUGS/PROPRIETARIES/SUNDRIES	0	0	0	0	0	0	1	1	0
5141	GROCERIES, GENERAL LINE	0	5	0	0	0	13	0	0	0
5142	FROZEN FOODS	1	0	0	0	0	0	0	0	0
5146	FISH AND SEAFOODS	0	0	0	0	0	1	0	0	0
5149	GROCERIES/RELATED PRODUCTS,NEC	0	3	0	0	0	80	0	0	0
5169	CHEMICALS & ALLIED PRDCTS, NEC	0	4	1	0	0	0	0	26	0
5171	PETRO BULK STATIONS/TERMINALS	8	60	4	0	24	0	0	11	0
5181	BEER AND ALE	0	0	0	0	0	1	0	0	0
5199	NONDURABLE GOODS, NEC	0	0	0	0	0	1	0	0	1
5211	LUMBER & OTHER BLDG MATERIALS	0	1	0	0	0	0	0	0	0
5231	PAINT, GLASS & WALLPAPER STORE	0	1	0	0	0	0	0	0	0
5261	RETAIL NURSERIES/GARDEN STORES	0	1	0	0	0	0	0	0	0
5311	DEPARTMENT STORES	0	5	0	0	0	19	1	4	0
5399	MISC GNRL MERCHANDISE STORES	0	1	0	0	1	6	0	0	0
5411	GROCERY STORES	1	6	0	0	0	296	0	2	0
5441	CANDY, NUTS, & CONF STORES	0	0	0	0	0	0	0	1	0
5451	DAIRY PRODUCTS STORES	0	1	0	0	0	1	0	0	0
5511	NEW AND USED CAR DEALERS	0	4	0	0	0	2	0	8	3
5531	AUTO & HOME SUPPLY STORES	0	2	0	0	0	0	0	0	1
5541	GASOLINE SERVICE STATIONS	2	129	0	0	9	8	0	104	13
5599	AUTOMOTIVE DEALERS, NEC	0	0	1	0	0	0	0	0	0
5611	MEN'S & BOYS' CLOTHING & FURN	0	1	0	0	0	0	0	0	0
5621	WOMEN'S READY-TO-WEAR STORES	0	1	0	0	0	1	0	0	0
5699	MISC APPAREL & ACCESSORIES	0	1	0	0	0	0	0	0	0
5812	EATING PLACES	4	0	3	0	0	6	0	0	34
5912	DRUG STORES/PROPRIETARY STORES	1	1	0	0	0	2	0	0	0
5989	FUEL DEALERS, NEC	0	0	0	0	1	0	0	0	1

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
5999	MISCELLANEOUS RETAIL STORE,NEC	0	1	0	0	0	8	0	0	0
6011	FEDERAL RESERVE BANKS	0	1	0	0	0	0	0	0	0
6019	CENTRAL RESERVE DEPOSITORY,NEC	0	0	0	0	0	1	0	0	0
6021	NATIONAL COMMERCIAL BANKS	0	1	0	0	0	2	0	0	0
6035	FEDERAL SAVINGS INSTITUTIONS	0	0	1	0	0	2	0	2	0
6099	FUNCTIONS RELD TO DEPOSIT BKNG	0	0	0	0	0	3	0	0	0
6162	MORTGAGE BANKERS & CORRESPOND	0	0	0	0	0	1	0	0	0
6211	SECURITY BROKERS AND DEALERS	0	0	0	0	0	2	0	0	0
6311	LIFE INSURANCE	0	1	0	0	0	0	0	0	0
6321	ACCIDENT AND HEALTH INSURANCE	0	0	0	0	0	1	0	0	0
6324	HOSPITAL & MEDICAL SERVICE PLA	0	0	0	0	0	1	0	0	0
6371	PENSION/HEALTH/WELFARE FUNDS	0	0	0	0	0	1	0	0	0
6411	INSURANCE AGENTS/BROKERS/SVCS	0	0	0	0	0	9	0	0	0
6512	NONRESIDENTIAL BLDG OPERATORS	1	8	0	0	0	15	1	10	0
6513	APARTMENT BLDG OPERATORS	0	12	0	0	0	0	0	0	0
6519	REAL PROPERTY LESSORS, NEC	0	0	0	0	0	6	0	0	0
6531	REAL ESTATE AGENTS/MANAGERS	0	5	0	0	0	3	0	0	0
6541	TITLE ABSTRACT OFFICES	0	0	0	0	1	2	0	0	0
6552	SUBDIVIDERS & DEVELOPERS, NEC	0	3	0	0	0	28	0	0	1
6719	HOLDING COMPANIES, NEC	0	0	0	0	0	1	0	1	0
6798	REAL ESTATE INVESTMENT TRUSTS	0	0	0	0	0	1	0	1	0
7011	HOTELS, MOTELS & TOURIST COURT	8	3	4	0	1	37	1	1	0
7033	TRAILERING PARKS FOR TRANSIENT	0	0	0	0	1	0	0	0	0
7211	POWER LAUNDRIES, FAMILY & COMM	0	1	0	0	0	0	0	1	0
7212	GARMENT PRESS/CLEANERS' AGENTS	0	0	0	0	0	0	0	2	0
7213	LINEN SUPPLY	0	1	6	0	0	0	0	0	0
7216	DRY CLEANING PLANTS, EXC RUG	0	75	1	0	4	17	0	31	52
7218	INDUSTRIAL LAUNDRETERS	0	7	5	0	3	0	0	0	0
7219	LAUNDRY AND GARMENT SVCS, NEC	0	8	3	0	1	2	0	0	1

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
7221	PHOTOGRAPHIC STUDIOS, PORTRAIT	0	1	0	0	0	0	0	0	0
7261	FUNERAL SERVICE & CREMATORIES	9	1	0	0	0	0	0	0	0
7311	ADVERTISING AGENCIES	0	1	0	0	0	0	0	0	0
7349	BUILDING MAINTENANCE SVCS, NEC	0	2	1	0	0	6	0	0	0
7359	EQUIPMENT RENTAL & LEASING, NEC	0	7	0	0	0	6	0	0	6
7372	PREPACKAGED SOFTWARE	0	0	0	0	0	1	0	0	0
7376	COMPUTER FACILITIES MANAGEMENT	0	0	0	0	0	1	0	0	0
7389	BUSINESS SERVICES, NEC	0	1	0	0	0	1	0	0	0
7512	PASSENGER CAR RENTAL & LEASING	0	1	0	0	0	0	0	1	0
7513	TRUCK RENTAL & LEASING	0	0	0	0	0	0	0	1	0
7514	PASSENGER CAR RENTAL	0	2	0	0	0	0	0	1	0
7521	AUTOMOBILE PARKING	0	3	0	0	0	10	0	0	0
7523	PARKING LOTS	0	1	0	0	0	0	0	0	0
7531	TOP & BODY REPAIR SHOPS	8	6	0	0	2	0	1	3	3
7532	TOP & BODY REPAIR/PAINT SHOPS	16	123	0	1	4	0	0	66	65
7534	TIRE RETREADING & REPAIR SHOPS	0	2	0	0	0	0	0	4	2
7535	PAINT SHOPS	0	6	0	0	0	0	0	2	3
7538	GENERAL AUTO REPAIR SHOPS	3	34	0	0	1	2	0	26	7
7539	AUTO REPAIR SHOPS, NEC	2	22	0	0	4	1	0	3	4
7542	CAR WASHES	0	1	0	0	0	1	0	2	0
7549	AUTOMOTIVE SERVICES, NEC	1	6	0	0	1	0	0	0	1
7641	REUPHOLSTERY/FURNITURE REPAIR	0	0	0	0	0	0	0	2	3
7699	REPAIR SERVICES, NEC	0	1	0	0	0	3	0	0	0
7812	MOTION PICTURE & VIDEO PRDTN	1	5	6	0	0	8	0	0	0
7819	SERV ALLIED TO MOTION PICTURES	1	14	0	0	27	1	0	0	5
7948	RACING INC TRACK OPERATION	0	1	0	0	0	0	0	0	0
7996	AMUSEMENT PARKS	0	16	0	0	1	2	0	0	0
7997	MEMBERSHIP SPORTS/REC CLUBS	0	0	0	0	0	3	0	1	0
7999	AMUSEMENT AND RECREATION, NEC	0	7	0	0	0	0	0	0	1

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
8011	OFFICE/CLINICS OF MDCL DOCTORS	9	2	3	0	7	8	0	0	1
8051	SKILLED NURSING CARE FACILITY	0	0	0	0	0	2	0	0	0
8052	INTERMEDIATE CARE FACILITIES	0	0	0	0	0	1	0	0	0
8059	NURSING AND PERSONAL CARE, NEC	0	0	0	0	1	0	0	0	0
8062	GENERAL MED/SURGICAL HOSPITALS	22	23	24	1	2	30	6	16	1
8063	PSYCHIATRIC HOSPITALS	2	0	0	0	0	0	0	0	0
8069	SPEC HOSPITAL, EXC PSYCHIATRIC	0	3	1	0	0	1	0	1	0
8071	MEDICAL LABORATORIES	0	0	0	0	0	2	0	0	0
8091	HEALTH & ALLIED SERVICES, NEC	0	1	1	0	0	1	0	1	0
8211	ELEMENTARY & SECONDARY SCHOOLS	2	7	0	0	2	59	1	0	2
8221	COLLEGES & UNIVERSITIES, NEC	6	7	6	0	2	20	0	0	5
8222	JUNIOR COLLEGES	0	2	1	0	0	55	0	0	0
8231	LIBRARIES & INFORMATION CENTER	0	0	0	0	0	4	0	0	0
8299	SCHOOLS/EDUCATIONAL SVCS,NEC	0	0	0	0	0	2	0	0	0
8331	JOB TRAINING & RELATED SERVICE	0	0	0	0	0	0	1	0	0
8361	RESIDENTIAL CARE	0	0	0	0	0	2	0	0	0
8412	MUSEUMS AND ART GALLERIES	0	3	1	0	0	1	2	0	0
8641	CIVIC & SOCIAL ASSOCIATIONS	0	3	0	0	0	0	0	0	0
8661	RELIGIOUS ORGANIZATIONS	0	0	0	0	0	4	0	0	0
8711	ENGINEERING SERVICES	0	12	2	0	0	0	2	0	2
8712	ARCHITECTURAL SERVICES	0	0	0	0	0	1	0	0	0
8731	COMMERCIAL PHYSICAL RESEARCH	0	6	1	0	1	0	2	0	1
8733	NONCOMMERCIAL RESEARCH ORGNZTN	0	0	0	0	0	4	0	0	0
8734	TESTING LABORATORIES	2	2	0	0	0	0	0	7	0
8741	MANAGEMENT SERVICES	0	0	0	0	0	1	0	3	0
8742	MANAGEMENT CONSULTING SERVICES	0	4	0	0	0	4	0	0	0
8744	FACILITIES SUPPORT SERVICES	0	1	1	0	1	0	0	0	0

SIC Code	SIC Description	PC Count	PO Count	Plans	Deny Count	Cancel Count	Area Sources	Cert Reg	Change Owner	Not Renewed
8748	BUSINESS CONSULTING, NEC	0	1	0	0	0	0	0	0	0
9111	EXECUTIVE OFFICES	0	1	0	0	0	2	0	0	0
9199	GENERAL GOVERNMENT, NEC	2	38	7	0	9	37	2	5	0
9211	COURTS	0	0	0	0	0	10	0	8	0
9221	PUBLIC PROTECTION	0	7	0	0	3	8	3	1	0
9223	CORRECTIONAL INSTITUTIONS	3	2	1	0	2	2	2	0	12
9224	FIRE PROTECTION	0	8	0	0	1	0	0	0	0
9229	PUBLIC ORDER & SAFETY, NEC	3	5	2	0	0	0	0	0	0
9441	ADMIN OF SOCIAL/MANPOWER PROG	0	1	0	0	0	8	0	0	0
9511	AIR WATER & SOLID WASTE MANAG	1	6	2	0	1	2	2	7	4
9512	LAND MINERAL WILDLIFE CONSERV	0	1	0	0	0	0	0	0	1
9532	URBAN & COMMUNITY DEVELOPMENT	0	0	1	0	0	0	0	0	0
9621	REG, ADMIN OF TRANSPORTATION	0	4	0	0	1	1	1	0	1
9631	REG, ADMIN OF UTILITIES	0	29	1	0	9	0	0	0	1
9641	REG OF AGRICULTURAL MARKETING	0	0	0	0	0	1	0	0	0
9661	SPACE RESEARCH & TECHNOLOGY	0	0	1	0	0	0	0	0	0
9711	NATIONAL SECURITY	1	3	0	0	0	0	0	0	1
9721	INTERNATIONAL AFFAIRS	0	0	0	0	0	0	0	2	0
9999	UNKNOWN	39	189	15	1	62	142	4	83	152
	Total	863	3,778	588	27	1,057	3,548	195	1,037	1,319

Annual Publication of Emission Reduction Credit (ERC) Transactions for Fiscal Year 2010-11¹ (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.

Table 2 summarizes Emission Reduction Credit (ERC) and Short Term Emission Reduction Credit (STERC) transactions for Fiscal Year 2010-11, 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 3 provides details on the amount of each ERC offset transaction.

Table 2. ERC Transactions – Fiscal Year 2010-11

Criteria Pollutant	No. of Emission Offset Transfer Transactions ²			Quantity of Emission Offsets Transferred ³ (lb/day)			Annualized Quantity of Emission Offsets Transferred (ton/year)		
	ERC	STERC	TOTAL	ERC	STERC	TOTAL	ERC	STERC	TOTAL
ROG	35	13	48	1,088	105	1,193	198.6	19.2	217.7
NOX	24	1	25	620	53	673	113.2	9.7	122.8
SOX	7	0	7	147	0	147	26.8	0.0	26.8
CO	1	0	1	1	0	1	0.2	0.0	0.2
PM10	18	8	26	67	54	121	12.2	9.9	22.1

-
1. This report does not include RECLAIM Trading Credit (RTC) transactions.
 2. Includes all ERC certificates that transferred ownership.
 3. Includes the total amount (pounds per day) of ERCs transferred.

Table 3 provides details on the amount of each emission offset transaction.

**Table 3. Emission Offset Transaction Summary – Fiscal Year 2010-11
Sorted by Pollutant and Amount**

CERTIFICATE NUMBER	POLLUTANT	AMOUNT⁴ (LB/DAY)	AMOUNT⁴ (TON/YR)	TYPE	START YEAR	END YEAR
SC1011-001	ROG	1	0.2	ERC	N/A	N/A
SC1011-002	ROG	1	0.2	ERC	N/A	N/A
SC1011-003	ROG	0	0.0	STERC	2010	2010
SC1011-004	ROG	0	0.0	STERC	2011	2011
SC1011-005	ROG	0	0.0	STERC	2012	2012
SC1011-006	ROG	1	0.2	STERC	2013	9999
SC1011-007	ROG	1	0.2	ERC	N/A	N/A
SC1011-008	ROG	1	0.2	ERC	N/A	N/A
SC1011-009	ROG	1	0.2	ERC	N/A	N/A
SC1011-010	ROG	1	0.2	ERC	N/A	N/A
SC1011-011	ROG	1	0.2	ERC	N/A	N/A
SC1011-012	ROG	1	0.2	ERC	N/A	N/A
SC1011-013	ROG	0	0.0	STERC	2010	2010
SC1011-014	ROG	0	0.0	STERC	2011	2011
SC1011-015	ROG	0	0.0	STERC	2012	2012
SC1011-016	ROG	0	0.0	STERC	2013	2013
SC1011-017	ROG	0	0.0	STERC	2014	2014
SC1011-018	ROG	2	0.4	STERC	2015	9999
SC1011-019	ROG	2	0.4	STERC	2011	9999
SC1011-020	ROG	2	0.4	ERC	N/A	N/A
SC1011-021	ROG	0	0.0	STERC	2010	2010
SC1011-022	ROG	0	0.0	STERC	2011	2011
SC1011-023	ROG	3	0.5	STERC	2012	9999
SC1011-024	ROG	3	0.5	ERC	N/A	N/A
SC1011-025	ROG	4	0.7	ERC	N/A	N/A
SC1011-026	ROG	4	0.7	ERC	N/A	N/A
SC1011-027	ROG	4	0.7	ERC	N/A	N/A
SC1011-028	ROG	0	0.0	STERC	2010	2010
SC1011-029	ROG	0	0.0	STERC	2011	2011
SC1011-030	ROG	0	0.0	STERC	2012	2012
SC1011-031	ROG	5	0.9	STERC	2013	9999
SC1011-032	ROG	5	0.9	ERC	N/A	N/A
SC1011-033	ROG	5	0.9	ERC	N/A	N/A
SC1011-034	ROG	0	0.0	STERC	2010	2010
SC1011-035	ROG	0	0.0	STERC	2011	2011
SC1011-036	ROG	0	0.0	STERC	2012	2012
SC1011-037	ROG	6	1.1	STERC	2013	9999
SC1011-038	ROG	0	0.0	STERC	2010	2010

⁴ Includes all ERC and long term STERC (ending year of 9999) emission offsets.

CERTIFICATE NUMBER	POLLUTANT	AMOUNT⁴ (LB/DAY)	AMOUNT⁴ (TON/YR)	TYPE	START YEAR	END YEAR
SC1011-039	ROG	0	0.0	STERC	2011	2011
SC1011-040	ROG	0	0.0	STERC	2012	2012
SC1011-041	ROG	0	0.0	STERC	2013	2013
SC1011-042	ROG	0	0.0	STERC	2014	2014
SC1011-043	ROG	6	1.1	STERC	2015	9999
SC1011-044	ROG	6	1.1	ERC	N/A	N/A
SC1011-045	ROG	0	0.0	STERC	2010	2010
SC1011-046	ROG	0	0.0	STERC	2011	2011
SC1011-047	ROG	0	0.0	STERC	2012	2012
SC1011-048	ROG	7	1.3	STERC	2013	9999
SC1011-049	ROG	0	0.0	STERC	2010	2010
SC1011-050	ROG	0	0.0	STERC	2011	2011
SC1011-051	ROG	0	0.0	STERC	2012	2012
SC1011-052	ROG	7	1.3	STERC	2013	9999
SC1011-053	ROG	7	1.3	ERC	N/A	N/A
SC1011-054	ROG	8	1.5	ERC	N/A	N/A
SC1011-055	ROG	8	1.5	ERC	N/A	N/A
SC1011-056	ROG	10	1.8	ERC	N/A	N/A
SC1011-057	ROG	0	0.0	STERC	2010	2010
SC1011-058	ROG	0	0.0	STERC	2011	2011
SC1011-059	ROG	0	0.0	STERC	2012	2012
SC1011-060	ROG	0	0.0	STERC	2013	2013
SC1011-061	ROG	0	0.0	STERC	2014	2014
SC1011-062	ROG	11	2.0	STERC	2015	9999
SC1011-063	ROG	11	2.0	ERC	N/A	N/A
SC1011-064	ROG	12	2.2	ERC	N/A	N/A
SC1011-065	ROG	12	2.2	ERC	N/A	N/A
SC1011-066	ROG	0	0.0	STERC	2010	2010
SC1011-067	ROG	0	0.0	STERC	2011	2011
SC1011-068	ROG	0	0.0	STERC	2012	2012
SC1011-069	ROG	14	2.6	STERC	2013	9999
SC1011-070	ROG	0	0.0	STERC	2010	2010
SC1011-071	ROG	0	0.0	STERC	2011	2011
SC1011-072	ROG	0	0.0	STERC	2012	2012
SC1011-073	ROG	14	2.6	STERC	2013	9999
SC1011-074	ROG	15	2.7	ERC	N/A	N/A
SC1011-075	ROG	18	3.3	ERC	N/A	N/A
SC1011-076	ROG	18	3.3	ERC	N/A	N/A
SC1011-077	ROG	0	0.0	STERC	2010	2010
SC1011-078	ROG	0	0.0	STERC	2011	2011
SC1011-079	ROG	0	0.0	STERC	2012	2012
SC1011-080	ROG	0	0.0	STERC	2013	2013
SC1011-081	ROG	0	0.0	STERC	2014	2014
SC1011-082	ROG	27	4.9	STERC	2015	9999

CERTIFICATE NUMBER	POLLUTANT	AMOUNT ⁴ (LB/DAY)	AMOUNT ⁴ (TON/YR)	TYPE	START YEAR	END YEAR
SC1011-083	ROG	28	5.1	ERC	N/A	N/A
SC1011-084	ROG	30	5.5	ERC	N/A	N/A
SC1011-085	ROG	33	6.0	ERC	N/A	N/A
SC1011-086	ROG	44	8.0	ERC	N/A	N/A
SC1011-087	ROG	46	8.4	ERC	N/A	N/A
SC1011-088	ROG	64	11.7	ERC	N/A	N/A
SC1011-089	ROG	100	18.3	ERC	N/A	N/A
SC1011-090	ROG	100	18.3	ERC	N/A	N/A
SC1011-091	ROG	483	88.1	ERC	N/A	N/A

CERTIFICATE NUMBER	POLLUTANT	AMOUNT ⁴ (LB/DAY)	AMOUNT ⁴ (TON/YR)	TYPE	START YEAR	END YEAR
SC1011-092	NOX	1	0.2	ERC	N/A	N/A
SC1011-093	NOX	1	0.2	ERC	N/A	N/A
SC1011-094	NOX	1	0.2	ERC	N/A	N/A
SC1011-095	NOX	1	0.2	ERC	N/A	N/A
SC1011-096	NOX	3	0.5	ERC	N/A	N/A
SC1011-097	NOX	3	0.5	ERC	N/A	N/A
SC1011-098	NOX	3	0.5	ERC	N/A	N/A
SC1011-099	NOX	3	0.5	ERC	N/A	N/A
SC1011-100	NOX	4	0.7	ERC	N/A	N/A
SC1011-101	NOX	4	0.7	ERC	N/A	N/A
SC1011-102	NOX	5	0.9	ERC	N/A	N/A
SC1011-103	NOX	5	0.9	ERC	N/A	N/A
SC1011-104	NOX	6	1.1	ERC	N/A	N/A
SC1011-105	NOX	12	2.2	ERC	N/A	N/A
SC1011-106	NOX	13	2.4	ERC	N/A	N/A
SC1011-107	NOX	14	2.6	ERC	N/A	N/A
SC1011-108	NOX	17	3.1	ERC	N/A	N/A
SC1011-109	NOX	21	3.8	ERC	N/A	N/A
SC1011-110	NOX	40	7.3	ERC	N/A	N/A
SC1011-111	NOX	44	8.0	ERC	N/A	N/A
SC1011-112	NOX	0	0.0	STERC	2011	2011
SC1011-113	NOX	0	0.0	STERC	2012	2012
SC1011-114	NOX	0	0.0	STERC	2013	2013
SC1011-115	NOX	53	9.7	STERC	2014	9999
SC1011-116	NOX	70	12.8	ERC	N/A	N/A
SC1011-117	NOX	77	14.1	ERC	N/A	N/A
SC1011-118	NOX	115	21.0	ERC	N/A	N/A
SC1011-119	NOX	157	28.7	ERC	N/A	N/A

CERTIFICATE NUMBER	POLLUTANT	AMOUNT ⁴ (LB/DAY)	AMOUNT ⁴ (TON/YR)	TYPE	START YEAR	END YEAR
SC1011-120	SOX	1	0.2	ERC	N/A	N/A

CERTIFICATE NUMBER	POLLUTANT	AMOUNT ⁴ (LB/DAY)	AMOUNT ⁴ (TON/YR)	TYPE	START YEAR	END YEAR
SC1011-121	SOX	1	0.2	ERC	N/A	N/A
SC1011-122	SOX	3	0.5	ERC	N/A	N/A
SC1011-123	SOX	10	1.8	ERC	N/A	N/A
SC1011-124	SOX	10	1.8	ERC	N/A	N/A
SC1011-125	SOX	47	8.6	ERC	N/A	N/A
SC1011-126	SOX	75	13.7	ERC	N/A	N/A

CERTIFICATE NUMBER	POLLUTANT	AMOUNT ⁴ (LB/DAY)	AMOUNT ⁴ (TON/YR)	TYPE	START YEAR	END YEAR
SC1011-127	CO	1	0.2	ERC	N/A	N/A

CERTIFICATE NUMBER	POLLUTANT	AMOUNT ⁴ (LB/DAY)	AMOUNT ⁴ (TON/YR)	TYPE	START YEAR	END YEAR
SC1011-128	PM10	1	0.2	ERC	N/A	N/A
SC1011-129	PM10	1	0.2	ERC	N/A	N/A
SC1011-130	PM10	1	0.2	ERC	N/A	N/A
SC1011-131	PM10	1	0.2	ERC	N/A	N/A
SC1011-132	PM10	0	0.0	STERC	2011	2011
SC1011-133	PM10	0	0.0	STERC	2012	2012
SC1011-134	PM10	0	0.0	STERC	2013	2013
SC1011-135	PM10	0	0.0	STERC	2014	2014
SC1011-136	PM10	1	0.2	STERC	2015	9999
SC1011-137	PM10	1	0.2	ERC	N/A	N/A
SC1011-138	PM10	0	0.0	STERC	2011	2011
SC1011-139	PM10	0	0.0	STERC	2012	2012
SC1011-140	PM10	0	0.0	STERC	2013	2013
SC1011-141	PM10	0	0.0	STERC	2014	2014
SC1011-142	PM10	0	0.0	STERC	2015	2015
SC1011-143	PM10	0	0.0	STERC	2016	2016
SC1011-144	PM10	0	0.0	STERC	2017	2017
SC1011-145	PM10	1	0.2	STERC	2018	9999
SC1011-146	PM10	0	0.0	STERC	2011	2011
SC1011-147	PM10	0	0.0	STERC	2012	2012
SC1011-148	PM10	0	0.0	STERC	2013	2013
SC1011-149	PM10	0	0.0	STERC	2014	2014
SC1011-150	PM10	0	0.0	STERC	2015	2015
SC1011-151	PM10	0	0.0	STERC	2016	2016
SC1011-152	PM10	0	0.0	STERC	2017	2017
SC1011-153	PM10	1	0.2	STERC	2018	9999
SC1011-154	PM10	2	0.4	ERC	N/A	N/A
SC1011-155	PM10	0	0.0	STERC	2011	2011
SC1011-156	PM10	0	0.0	STERC	2012	2012
SC1011-157	PM10	0	0.0	STERC	2013	2013
SC1011-158	PM10	2	0.4	STERC	2014	9999

CERTIFICATE NUMBER	POLLUTANT	AMOUNT⁴ (LB/DAY)	AMOUNT⁴ (TON/YR)	TYPE	START YEAR	END YEAR
SC1011-159	PM10	2	0.4	ERC	N/A	N/A
SC1011-160	PM10	2	0.4	ERC	N/A	N/A
SC1011-161	PM10	2	0.4	ERC	N/A	N/A
SC1011-162	PM10	3	0.5	ERC	N/A	N/A
SC1011-163	PM10	4	0.7	ERC	N/A	N/A
SC1011-164	PM10	4	0.7	ERC	N/A	N/A
SC1011-165	PM10	4	0.7	ERC	N/A	N/A
SC1011-166	PM10	4	0.7	ERC	N/A	N/A
SC1011-167	PM10	5	0.9	ERC	N/A	N/A
SC1011-168	PM10	5	0.9	ERC	N/A	N/A
SC1011-169	PM10	0	0.0	STERC	2011	2011
SC1011-170	PM10	0	0.0	STERC	2012	2012
SC1011-171	PM10	0	0.0	STERC	2013	2013
SC1011-172	PM10	7	1.3	STERC	2014	9999
SC1011-173	PM10	8	1.5	ERC	N/A	N/A
SC1011-174	PM10	0	0.0	STERC	2011	2011
SC1011-175	PM10	0	0.0	STERC	2012	2012
SC1011-176	PM10	0	0.0	STERC	2013	2013
SC1011-177	PM10	0	0.0	STERC	2014	2014
SC1011-178	PM10	0	0.0	STERC	2015	2015
SC1011-179	PM10	0	0.0	STERC	2016	2016
SC1011-180	PM10	0	0.0	STERC	2017	2017
SC1011-181	PM10	13	2.4	STERC	2018	9999
SC1011-182	PM10	0	0.0	STERC	2011	2011
SC1011-183	PM10	0	0.0	STERC	2012	2012
SC1011-184	PM10	0	0.0	STERC	2013	2013
SC1011-185	PM10	0	0.0	STERC	2014	2014
SC1011-186	PM10	0	0.0	STERC	2015	2015
SC1011-187	PM10	0	0.0	STERC	2016	2016
SC1011-188	PM10	0	0.0	STERC	2017	2017
SC1011-189	PM10	13	2.4	STERC	2018	9999
SC1011-190	PM10	0	0.0	STERC	2011	2011
SC1011-191	PM10	0	0.0	STERC	2012	2012
SC1011-192	PM10	0	0.0	STERC	2013	2013
SC1011-193	PM10	0	0.0	STERC	2014	2014
SC1011-194	PM10	0	0.0	STERC	2015	2015
SC1011-195	PM10	0	0.0	STERC	2016	2016
SC1011-196	PM10	16	2.9	STERC	2017	9999
SC1011-197	PM10	17	3.1	ERC	N/A	N/A

**CHAPTER II
BUDGET AND FORECAST**

*[For information on this chapter, please see the AQMD's FY 2012-13
Draft Budget and Work Program]*

CHAPTER III
CLEAN FUELS ANNUAL REPORT FOR 2011/2012

[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.]

**CHAPTER IV
ANNUAL RECLAIM AUDIT REPORT
FOR 2010 COMPLIANCE YEAR**



SOUTH COAST
AIR QUALITY
MANAGEMENT
DISTRICT

DRAFT BUDGET & DRAFT WORK PROGRAM

FISCAL YEAR 2012-2013

DRAFT BUDGET & DRAFT WORK PROGRAM

FISCAL YEAR 2012-13

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



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

DENNIS YATES
Vice Chair
County of San Bernardino
Cities Representative

MICHAEL D. ANTONOVICH
County of Los Angeles Representative

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

JOHN BENOIT
County of Riverside Representative

JUDY MITCHELL
County of Los Angeles
Cities Representative
Western Region

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

SHAWN NELSON
County of Orange Representative

JANE CARNEY
Senate Rules Committee Appointee

JAN PERRY
City of Los Angeles Representative

JOSIE GONZALES
County of San Bernardino Representative

MIGUEL A. PULIDO
County of Orange
Cities Representative

RONALD O. LOVERIDGE
County of Riverside
Cities Representative

BARRY R. WALLERSTEIN, D.Env.
Executive Officer



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • <http://aqmd.gov>

April 5, 2012

South Coast Air Quality
Management District Board

Transmittal of the Executive Officer's Draft Fiscal Year 2012-13 Budget and Work Program

This proposed draft Budget and Work Program for FY 2012-13 continues AQMD's commitment to protecting public health and streamlining operations while meeting program requirements. Since 1991-92, when legislation went into effect limiting the agency's fee authority, the AQMD has successfully reduced staffing and program costs despite increased program complexities. The proposed level of expenditures for FY 2012-13 is \$133.4 million with staffing of 798 funded positions. In comparison to the FY 2011-12 adopted budget, the FY 2012-13 proposed budget represents a \$1.7 million increase in total expenditures and includes a net reduction of 19 vacant funded positions. Compared to the early nineties when AQMD staffing was at 1,163 positions, this year's request reflects 31% less staffing and a modest increase in expenditures of 18% over the 1991-92 adopted budget. Adjusting for inflation, this expenditure proposal is 29% less than the 1991-92 adopted budget.

Our financial data for the current fiscal year indicates that the economy of the South Coast Air Basin is beginning to recover from the downturn of the past several years; however, we are still faced with significant challenges as we prepare for the next fiscal year and beyond. Operating costs continue to rise due to the market losses experienced by our retirement system and the increased maintenance level required by the aging systems within our headquarters building. Next year's revenues, which include a proposed CPI fee adjustment of 2.4%, are projected to increase by approximately 2.5% or \$3.1 million from the FY 2011-12 adopted budget; retirement costs are increasing by approximately \$2.7 million (15%). As we continue to explore restructuring options and develop the long-term strategies necessary to deal with the continued economic realities without sacrificing continued progress toward clean air, I am proposing a budget utilizing prior year revenues to supplement estimated FY 2012-13 revenues.

This budget is based on the goals and objectives presented to the Governing Board at the February 3, 2012 meeting. AQMD will highlight the following three projects for FY 2012-13 which are particularly important to achieving our mission and goals: continue demonstration/deployment of a zero-emission cargo container movement system; develop modified or new permitting programs to meet the region's evolving air quality and economic needs, including incentivizing the use of new, lower emitting technologies, manufacture of such clean technologies within the region, addressing availability issues associated with emission offsets for new or modified sources, and reducing administrative burdens while providing equivalent or better protection of public health; and initiate an overhaul of AQMD's information technology systems, including the use of state-of-the-art software, hardware, and communications systems to improve overall agency effectiveness and efficiency. AQMD will continue to address other priority issues such as the 2012 AQMP preparation, Goods Movements projects, Architectural Coating compliance, and Environmental Justice activities.

The public and the business community have 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 and a public workshop to discuss the proposed budget and work program.

In summary, I am proposing a budget for FY 2012-13 that allows our programs to operate efficiently and in a manner sensitive to businesses and the public yet addresses the need to streamline our operations. AQMD will continue its efforts to make progress toward attaining the federal and state clean air mandates in the most cost-effective manner possible.

Respectfully,

A handwritten signature in black ink, appearing to read "Barry R. Wallerstein". The signature is fluid and cursive, with a long horizontal stroke at the end.

Barry R. Wallerstein, D.Env.
Executive Officer

BRW:MBO

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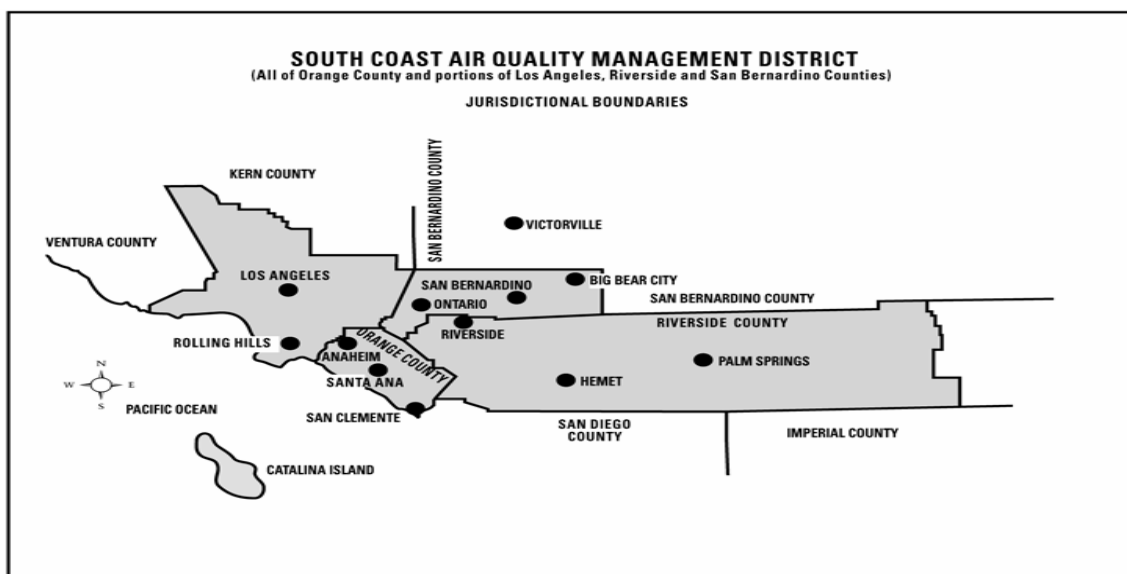
SUMMARY

Preface

This document represents the proposed FY 2012-2013 Draft Budget and Work Program of the South Coast Air Quality Management District (AQMD). The proposed budget is available for public review and comment during the month of April. Two workshops are scheduled to discuss the budget, one for the public on April 10, 2012 and one for the Governing Board on April 13, 2012. 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 scheduled for May 4, 2012.

Introduction

The South Coast Air Quality Management District (AQMD) 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 AQMD 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 AQMD Governing Board is composed of 13 members, including four members appointed by the Boards of Supervisors of the four counties in AQMD's jurisdiction, six members appointed by cities in the AQMD'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 various 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 of the county and one member representing the City of Los Angeles.



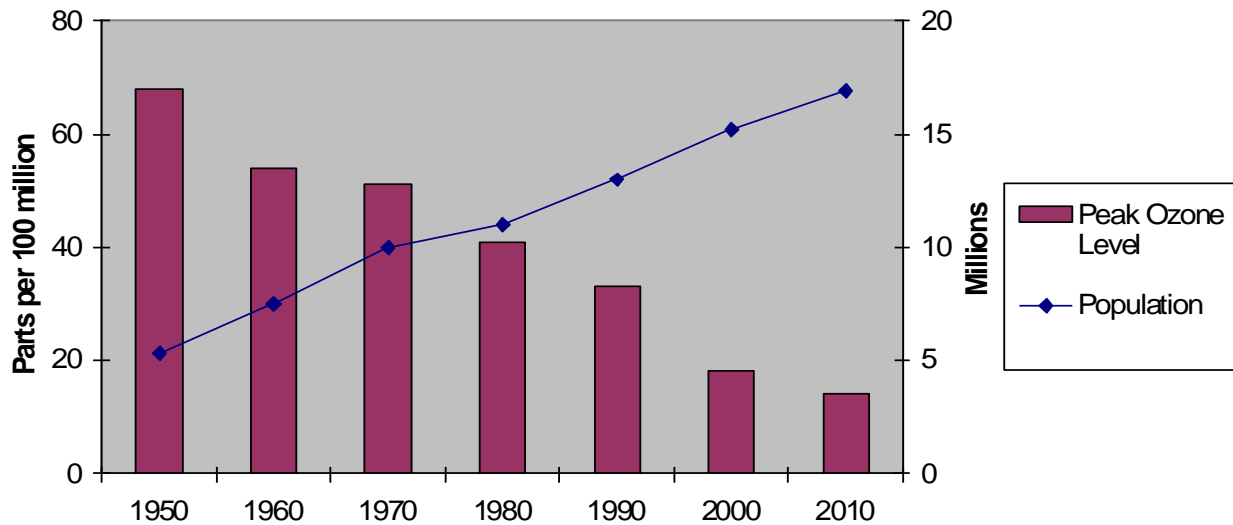
Air Quality History

The South Coast Air Basin has suffered unhealthy 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 60-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 16.9 million; the number of motor vehicles has increased over five-fold from 2.3 million to over 12.1 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.

60 Years of Progress in Reducing Ozone Levels



Mission

The mission of the AQMD is to protect public health from air pollution with sensitivity to the impacts of its actions on the community and businesses. It does this through a comprehensive program of planning, regulation, education, enforcement, compliance incentives, technical innovation and promoting public understanding of air quality issues. The AQMD 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 AQMD has developed a set of Program Goals and Objectives, which is evaluated and revised annually and presented at a public hearing. The following Goals have been established for FY 2012-2013:

- 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 AQMD staff.
- IV. Operate a “Clean and Green” program to promote and support sustainable practice strategies.

These goals are the foundation for the AQMD’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 Objectives for FY 2012-2013 was held on February 3, 2012.

Air Quality

Overview

The four-county Southern California region, designated for air quality purposes as the South Coast Air Basin, has the dirtiest air 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 (O₃); nitrogen dioxide (NO₂); particulates (PM₁₀); fine particulates (PM_{2.5}); carbon monoxide (CO); lead (Pb); and sulfur dioxide (SO₂).

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 generally are tighter than the federal Environmental Protection Agency’s (EPA) reflecting the conclusion on CARB’s part that 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. Lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide levels have gone down from nonattainment to full attainment of federal health standards. In November 2008, US EPA revised the lead standard from a 1.5 µg/m³ quarterly average to a 0.15 µg/m³ rolling 3-month average. The current Basin lead network remains below the new standard; however, new source-specific monitoring requirements have been implemented by US EPA that could impact this status. US EPA revised the 8-hour ozone standard, effective May 2008, from concentrations exceeding 0.08 ppm to concentrations exceeding 0.075 ppm. In 2011, the Basin exceeded the current federal 8-hour ozone standard on 107 days. 2010 was the cleanest year on record for ozone in the Basin, exceeding the federal standard on 102 days. The standard was exceeded on 113 days in 2009.

In 2007 US EPA formally redesignated 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, US EPA established a new NO₂ 1-hour standard at a level of 100 ppb (0.100ppm) and SO₂ 1-hour standard at a level of 75 ppb (0.075 ppm). In 2011, a few sites in Los Angeles County exceeded the new 1-hour NO₂ standard on one day. Based on the 3-year design values, the region continues to remain in attainment of the NO₂ and SO₂ standards.

In 2006, US EPA rescinded the annual federal standard for PM₁₀ but retained the 24-hour standard. Ambient levels of PM₁₀ in the Basin meet the federal 24-hour PM₁₀ standard and the AQMD has requested US EPA to redesignate the Basin as in attainment of the health based standard for PM₁₀. PM_{2.5} levels have decreased dramatically in the Basin since the beginning of the decade; however, regional concentrations continue to exceed the federal annual and 24-hour standards. While our air quality continues to improve, the South Coast Air Basin remains one of the most unhealthful areas in the nation.

Mandates

The South Coast AQMD 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 AQMD to take prescribed steps to improve air quality.

Generally speaking, AQMD is responsible for stationary sources such as factories and businesses. The CARB is primarily responsible for motor vehicles. The AQMD and CARB share responsibilities with respect to area sources. The AQMD and Southern California Association of Governments (SCAG) share some responsibilities with CARB regarding some aspects of mobile source emissions. Control of emissions from sources such as airports, harbors, and trains is shared by the federal EPA, CARB and the AQMD.

Under state law, the AQMD 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 AQMD's Governing Board has adopted such plans demonstrating attainment in 1989, 1991, 1994, 1997, 1999 (amendments to plan adopted in 1997) 2003 and 2007. Earlier plans in 1979 and 1982 did not show attainment and predicted continued unhealthful air well into this century. The current AQMP demonstrates attainment of the federal annual PM_{2.5} standard by 2015 and the federal 8-hour standard by 2024. Revisions to the federal 24-hour PM_{2.5} standard, adopted by US EPA to further protect public health, will extend the projected attainment of the 24-hour PM_{2.5} standard to 2019. The revised 2008 federal 8-hour ozone standard is projected to extend beyond 2024, possibly to 2030. Determination of the final attainment date is pending.

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

Under the Federal Clean Air Act, the AQMD must develop and submit to CARB for review and submittal to the federal 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, PM₁₀, 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 eight-hour period. Plans to attain these federal standards were submitted to EPA in November, 2007. The South Coast Air Basin must attain the new federal standard for PM_{2.5} by 2015 and the eight hour standard for ozone by 2024. 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 our 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 AQMD.

Air Quality Control

Developing solutions to the air quality problem involves 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. AQMD operates 38 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 fewer 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 AQMD, in cooperation with CARB and SCAG, estimates the sources of emissions causing the air pollution problem. Nature itself causes a small portion of the emissions and must be considered. In general, the AQMD 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 pulled together in the AQMP for use in developing the necessary control strategies.

Air Quality Modeling: Using air quality, meteorological and emissions models, AQMD 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 (NO₂) 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 PM₁₀). 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 AQMD 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 divisions within AQMD.

Planning: With emissions data and an air quality model in place, planners can develop possible control strategies and scenarios. The AQMD focuses most of its effort on stationary source controls. As mentioned earlier, for the most part, strategies to reduce driving 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, the AQMD is required to hold multiple public meetings to present the proposed control strategies and receive public input. The AQMD also conducts a socioeconomic analysis of the strategies. The AQMD 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 calls for significant reductions from projected baseline emissions (2015 for PM_{2.5} and 2024 for eight-hour ozone). These 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 attainment plan is estimated to cost \$2.3 billion dollars per year to achieve and will provide more than \$14.6 billion per year in benefits relative to achieving the federal standards.

The AQMD is working on improving the emissions inventory and modeling techniques to address the new federal PM_{2.5} and 8-hour ozone air quality standards for the next AQMP revision, the 2012 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 AQMD'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 that rulemaking will 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 AQMD 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, AQMD 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 AQMD. 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 AQMD with \$1.20 going to the AQMD for mobile source emissions reductions, \$1.60 subvented 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, AQMD'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 AQMD strives to involve and inform the public through the Legislative and Public Affairs office, public meetings, publications, the press, and public service announcements.

Budget

The AQMD's annual appropriated budget is adopted for the General Fund. The annual budget is adopted on a budgetary basis that includes encumbrances as expenditures. All annual appropriations lapse at fiscal year end to the extent they have not been expended or encumbered. Throughout the year, budget amendments may be necessary to accommodate additional revenue streams and expenditure needs. These amendments must be approved by AQMD's Governing Board.

To meet its financial needs, the AQMD utilizes a system of permit evaluation fees, annual operating fees, emission fees, Hearing Board fees, penalties/settlements and investments that generate approximately 71% of its revenues. The remaining 29% of its revenue are from federal grants, California Air Resources Board (CARB) subvention, and California Clean Air Act Motor Vehicle fees. Beginning with its Fiscal Year 1978-79 Budget, the AQMD became a fee supported agency no longer receiving financial support from property taxes.

The budget is structured by office and account. It is supplemented with work programs which estimate staff resources and expenditures along program and activity lines. The period covered by this budget for FY 2012-13 is from July 1, 2012 to June 30, 2013.

The proposed budget for FY 2012-13 uses approximately \$2.9 million which had been set aside in Fund Balance Designations for Permit Streamlining and Retirement Actuarial Increases; \$3.1 million in prior-year revenues from the Undesignated Fund Balance; and proposed revenues of \$127.4 million to fund a requested expenditure budget of \$133.4 million. A CPI-based fee increase of 2.4% is proposed for FY 2012-13.

Budget Process

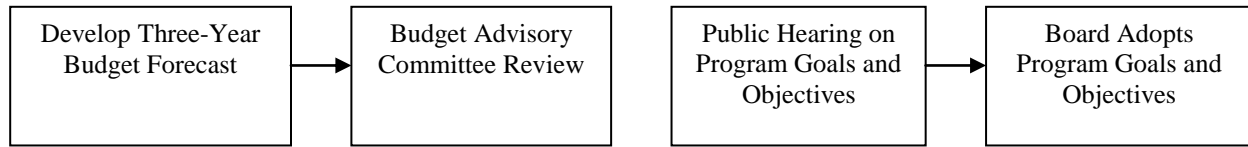
The AQMD has a comprehensive annual budget process which begins with developing a three-year forecast and establishing the Program Goals and Objectives for the fiscal year. The annual budget is then developed based on the approved Goals and Objectives. The final budget, including final fee schedules, is adopted by AQMD's Governing Board in May and is in place on July 1 for the start of the new fiscal year.

Up to and including the budget adoption hearing by the Governing Board, the public and the business community have several opportunities to participate in the budget process

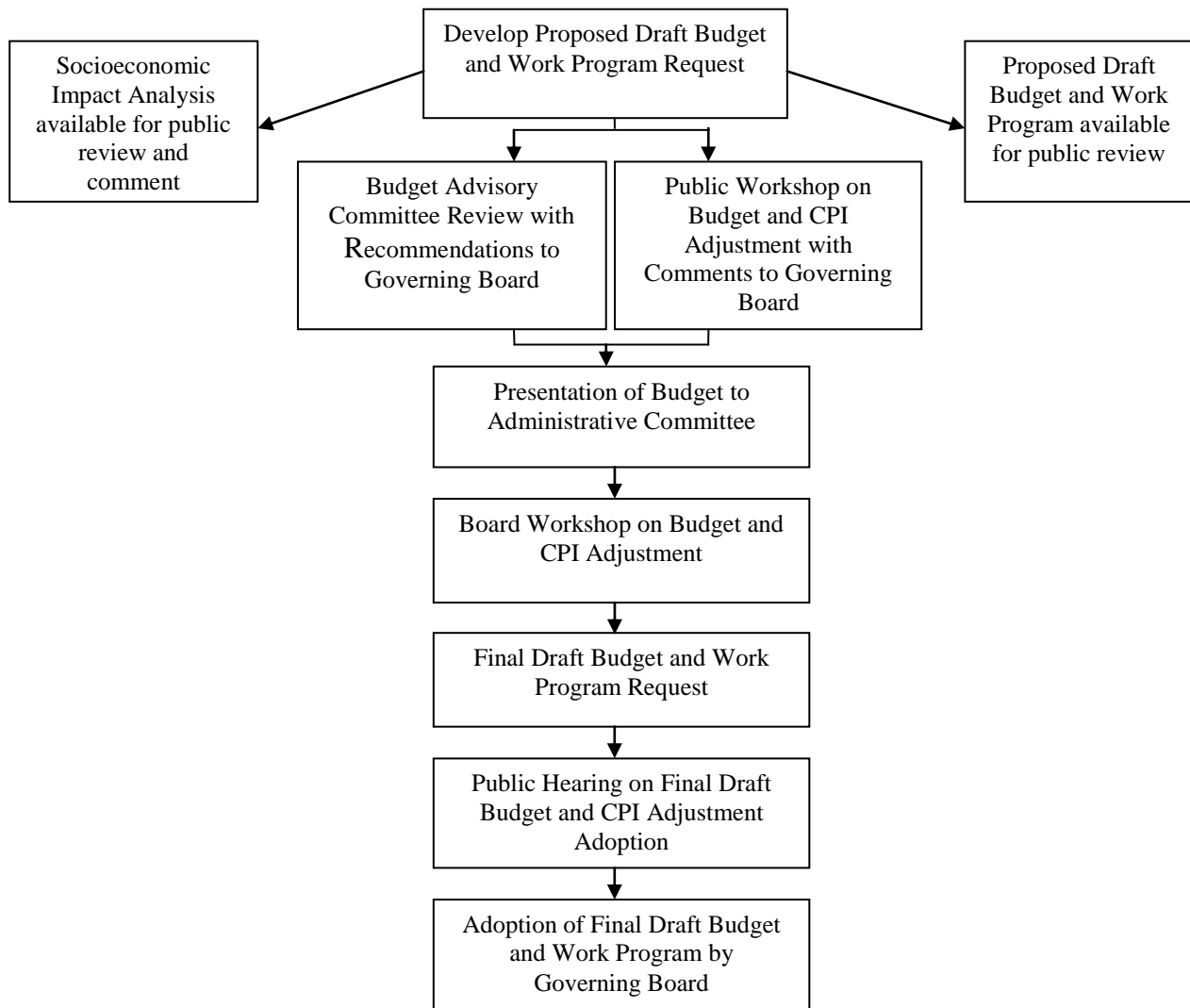
- two meetings of a budget advisory committee whose members include business and non-business representatives
- public workshop—to discuss proposed changes to the fee rule and to discuss the proposed budget
- two public hearings—one on the Goals and Objectives and one on the proposed budget

The following flow chart represents the major milestones and processes that take place in the development of the AQMD budget.

PRELIMINARY BUDGET PROCESS



ANNUAL BUDGET PROCESS

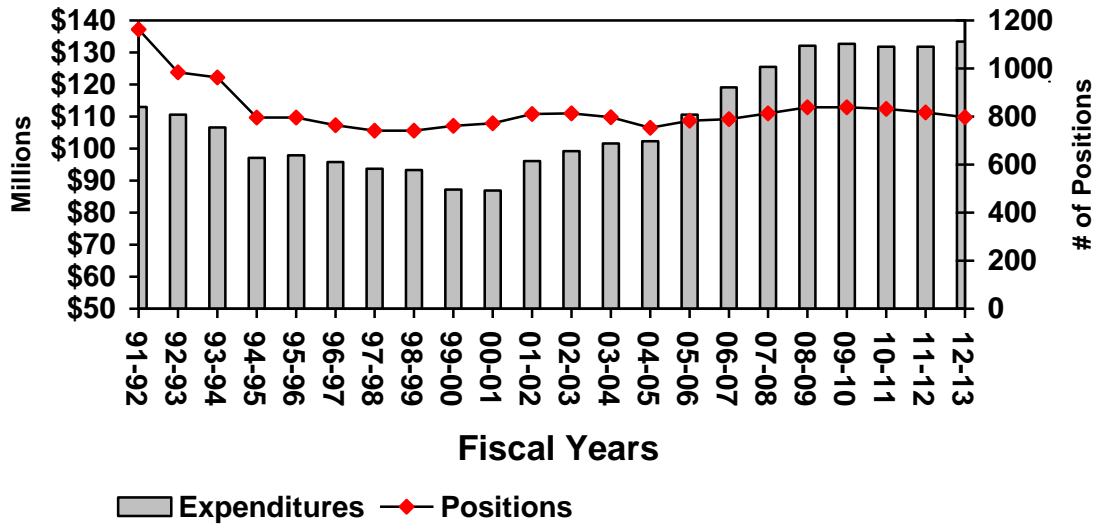


Budget Changes

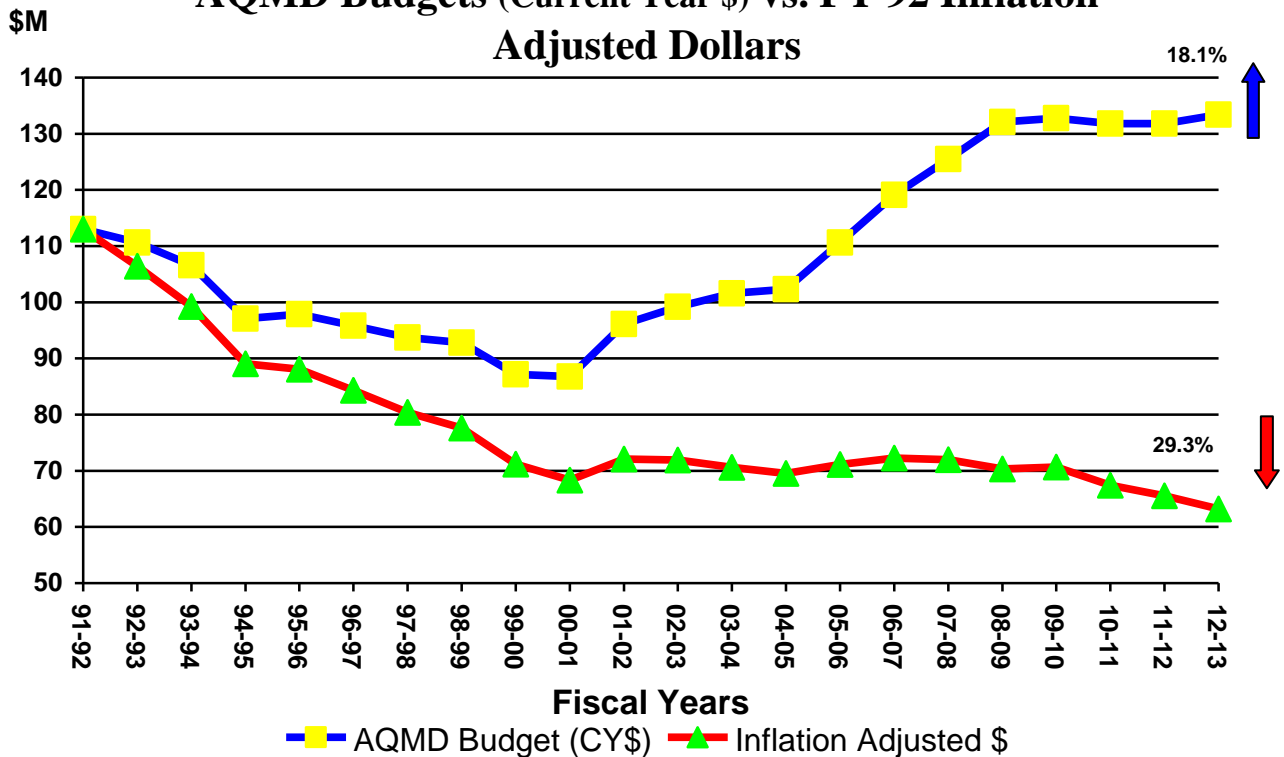
Over the years, AQMD has focused on streamlining many of its operations while still meeting its program commitments, despite new federal and state mandates and increased workload complexity. This effort has resulted in reduced program costs and is reflected in the following charts showing AQMD's staffing and budget levels starting in FY 1991-92 when staffing was at

1,163 FTEs. The proposal for FY 12-13 reflects a staffing level of 798 FTEs. This level is 31% (365 FTEs) below the 1991-92 level. The proposed expenditures for FY 2012-13, when adjusted for inflation, are 29% less than in FY 1991-92.

Changes in AQMD Budgets



AQMD Budgets (Current Year \$) vs. FY 92 Inflation Adjusted Dollars



The following table shows AQMD amended budgets and actuals for Fiscal Years (FY) 2010-11, adopted and amended budgets for FY 2011-12 and proposed budget for FY 2012-13.

	<u>FY 10-11</u> <u>AMENDED</u>	<u>FY 10-11</u> <u>ACTUAL</u>	<u>FY 11-12</u> <u>BUDGET</u>	<u>FY 11-12</u> <u>AMENDED</u>	<u>FY 12-13</u> <u>PROPOSED</u>
Program Costs/Transfers Out	\$142.8	\$136.3	\$131.8	\$137.5	\$133.4
Revenue/Transfers In	\$128.8	\$127.5	\$124.3	\$128.9	\$127.4

This budget reflects a decrease of approximately \$4.1 million in expenditures from the FY 2011-12 amended budget and a \$1.7 million increase in expenditures from the budget adopted last June for FY 11-12. The FY 12-13 proposed budget reduces the funded staffing level by 19 vacant positions (from 817 to 798) from the current year's adopted budget. The following vacant positions were identified by management to be deleted while still maintaining the level of service required to meet program commitments: one Office Assistant and one Purchasing Assistant in Finance; one Human Resources Technician in Administrative and Human Resources; one Facility Services Specialist and one Tech Info Center Librarian in Information Management; three AQ Specialists in Planning; one Office Assistant and two Staff Assistants, offset by the addition of one Community Relations Manager and one Graphic Arts Illustrator in Legislative and Public Affairs; one AQ Instrument Specialist I, one AQ Instrument Specialist II, and one Senior Air Quality Engineer in Science & Technology Advancement; and one AQ Inspector II, three Supervising AQ Inspectors, two AQ Engineer IIs, and one Senior Office Assistant in Engineering and Compliance.

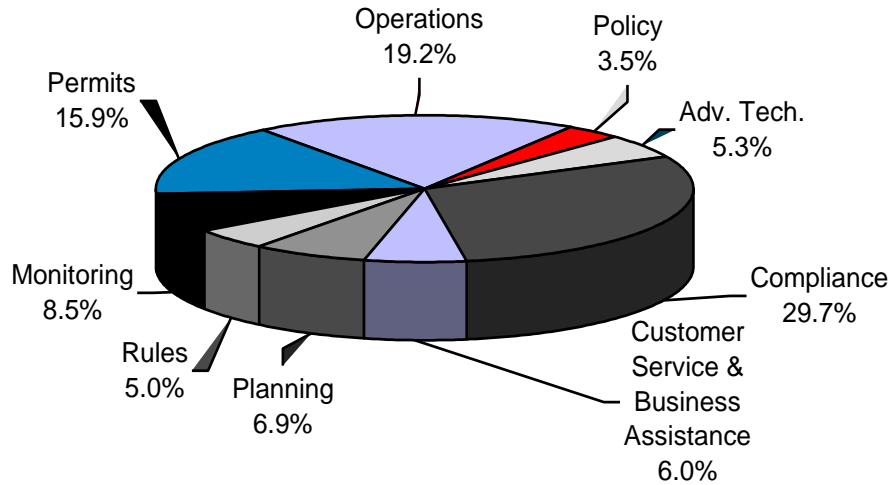
Expenditures

Work Program

AQMD expenditures are organized into nine Work Program Categories: Policy Support; Monitoring Air Quality; Develop Programs to Achieve Clean Air; Develop Rules to Achieve Clean Air; Advance Clean Air Technology; Timely Review of Permits; Ensure Compliance with Clean Air Rules; Customer Service and Business Assistance; and Operational 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 2012-13.

Work Program Category Expenditures



The following table compares AQMD Work Program expenditures by category for FY 2011-12 adopted budget and FY 2012-13 proposed budget.

<u>Work Program Categories</u>	<u>FY 11-12 Adopted Budget</u>	<u>FY 12-13 Proposed Budget</u>
Advance Clean Air Technology	\$ 6,735,710	\$ 7,103,969
Ensure Compliance with Clean Air Rules	38,704,790	39,619,893
Customer Service and Business Assistance	7,497,992	7,995,388
Develop Programs to Achieve Clean Air	8,877,573	9,270,338
Develop Rules to Achieve Clean Air	7,289,910	6,620,958
Monitoring Air Quality	10,886,345	11,353,786
Permit Review	20,950,897	21,189,964
Operational Support	25,764,521	25,666,515
Policy Support	5,058,441	4,625,389
Total	<u>\$ 131,766,179</u>	<u>\$ 133,446,200</u>

For FY 2012-13, AQMD will highlight the following three projects which are particularly important to achieving our mission and goals: continue demonstration/deployment of a zero-emission cargo container movement system; develop modified or new permitting programs to meet the region's evolving air quality and economic needs, including incentivizing the use of new, lower emitting technologies, manufacture of such clean technologies within the region, addressing availability issues associated with emission offsets for new or modified sources, and reducing administrative burdens while providing equivalent or better protection of public health; and initiate an overhaul of AQMD's information technology systems, including the use of state-of-the-art software, hardware, and communications systems to improve overall agency effectiveness and efficiency. AQMD will continue to address other priority issues such as the 2012 AQMP preparation, Goods Movements projects, Architectural Coating compliance, and Environmental Justice activities.

Account Categories

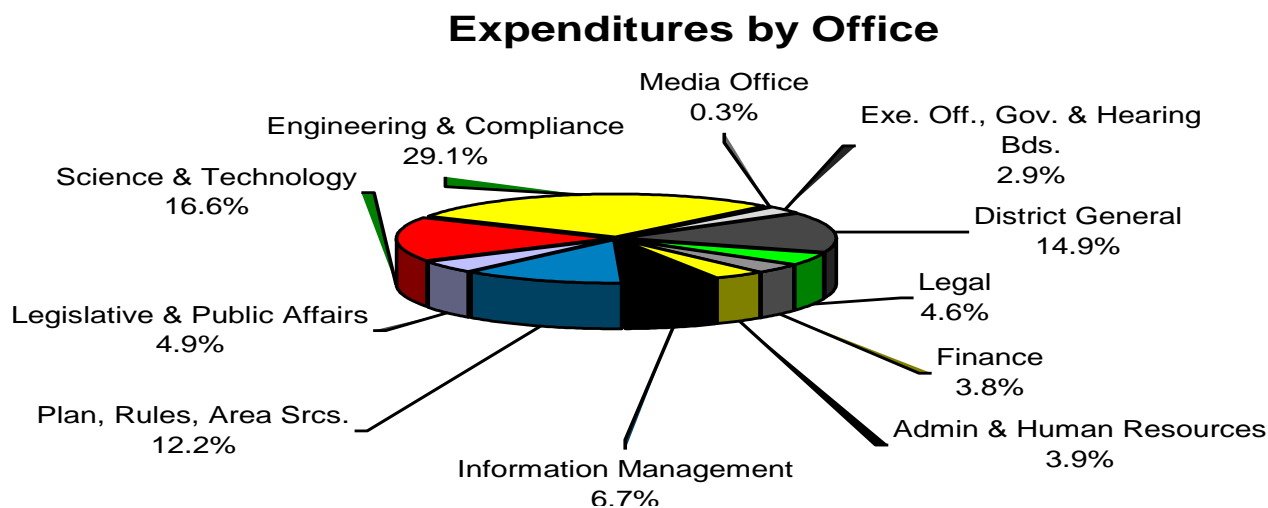
The following table compares the 2011-12 adopted budget to the proposed budget for 2012-13 by account category. The middle column is the 2011-12 amended budget that includes the Board-approved mid-year adjustments for FY 2011-12.

	FY 11-12 Adopted Budget	FY 11-12 Amended Budget	FY 12-13 Proposed Budget
Salaries/Benefits	\$ 103,938,975	\$ 104,025,842	\$ 104,533,326
Insurance	1,147,400	1,147,474	1,097,400
Rents	552,135	674,515	426,180
Supplies	2,495,430	2,912,836	2,409,174
Contracts and Services	6,640,773	9,891,080	6,426,410
Maintenance	1,414,074	1,561,499	1,357,269
Travel/Auto Expense	691,249	815,663	694,587
Utilities	1,718,490	1,561,360	1,591,881
Communications	628,436	662,516	623,436
Capital Outlay	1,217,100	2,881,500	3,075,000
Other	1,126,479	1,218,239	991,559
Debt Service	10,195,638	10,195,638	10,219,978
Total	\$ 131,766,179	\$ 137,548,162	\$ 133,446,200

As mentioned previously, the proposed budget for FY 2012-13 represents a decrease of approximately \$4.1 million from FY 2011-12 amended budgeted expenditures. The amended budget includes mid-year increases associated with productions costs for videos documenting air quality challenges and success stories of AQMD’s major regions, AQMD Signature Video distribution, legislative advocacy, flood remediation, and morning weather report sponsorship.

Office Categories

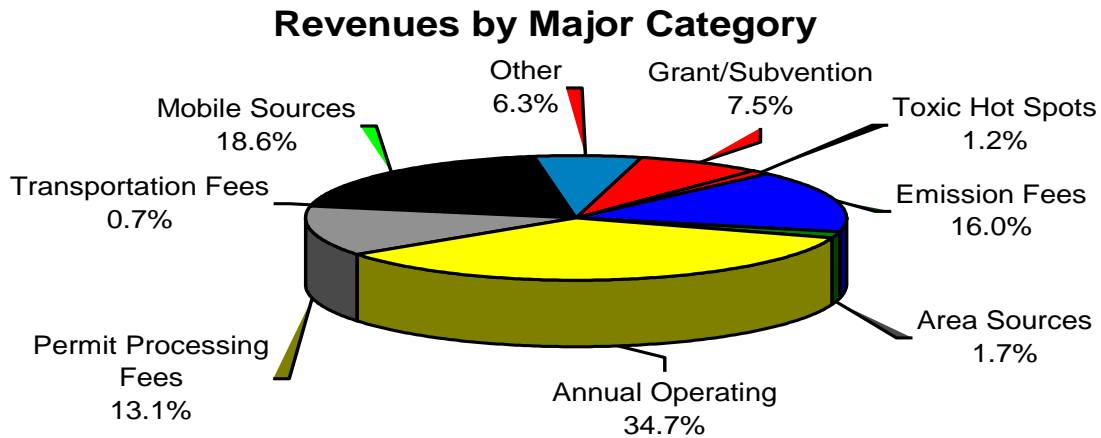
The following pie chart represents budgeted expenditures by office for FY 2012-13.



Revenues

Revenue Categories

Each year, in order to meet its financial needs, the AQMD Governing Board adopts a budget supported by a system of permit processing fees, annual operating and emission fees, toxic “hot spots” fees, transportation plan fees, and area sources fees which are estimated to generate approximately \$86 million or about 68% of AQMD revenues. Other sources, which include contracts, penalties/settlements, investment, and miscellaneous income, generate approximately 6% of total revenues. The remaining 26% of revenue are projected to be received in the form of federal grants, CARB subvention, and California Clean Air Act motor vehicle fees.



The following table compares the 2011-12 adopted revenues to the proposed revenues for 2012-13. The middle column is the adjusted revenues for 2011-12 that include Board-approved mid-year changes.

	FY 11-12	FY 11-12	FY 12-13
	<u>Adopted Budget</u>	<u>Amended Budget</u>	<u>Proposed Budget</u>
Annual Operating Emission Fees	\$ 19,233,721	\$ 19,233,721	\$ 20,401,917
Annual Operating Permit Renewal Fees/Annual Assessments	42,408,835	42,408,835	43,446,195
Area Sources	2,149,373	2,149,373	2,200,576
Permit Processing Fees	16,105,832	16,105,832	16,746,850
Mobile Sources	22,261,451	22,261,451	23,740,194
Transportation Program	882,180	882,180	921,600
Toxic Hot Spots	1,880,289	1,880,289	1,515,446
Grant/Subvention	10,820,353	12,618,804	9,578,786
Portable Equip Registration Prgm	789,942	789,941	794,502
Other ¹	7,762,483	10,589,371	8,053,184
Total	\$ 124,294,459	\$ 128,919,797	\$ 127,399,250

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

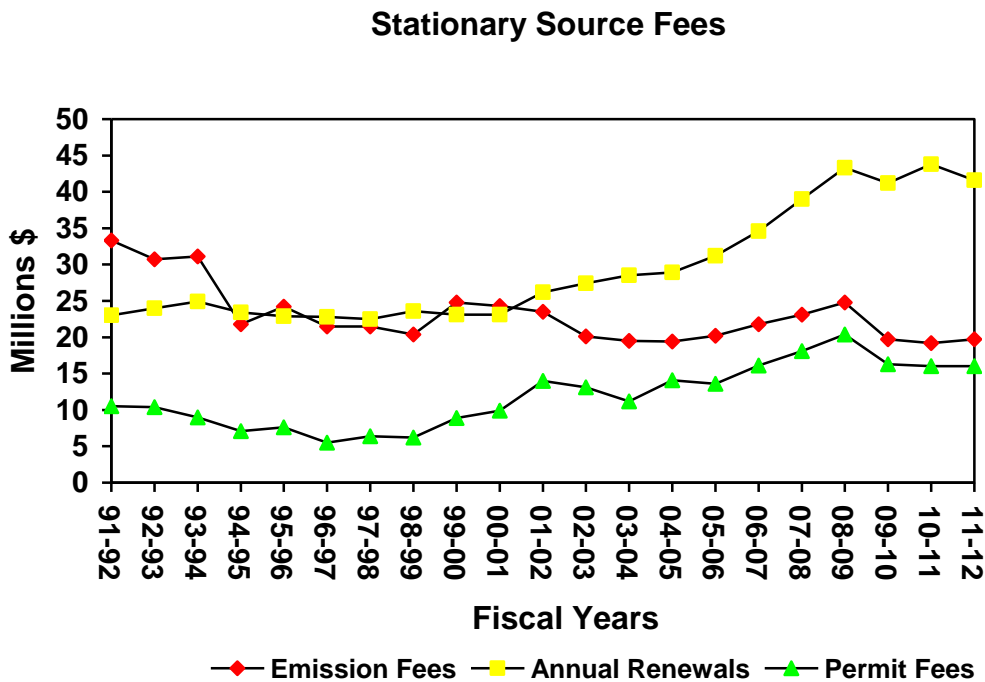
A 2.4% CPI-based fee rate increase is being proposed for FY 2012-13.

Mobile source revenues that are subvned to the AQMD by the Department of Motor Vehicles (DMV) are projected to increase slightly, from the FY 2011-12 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 recorded in the Mobile Source revenue category.

Revenues from the federal government, (Environmental Protection Agency, Department of Homeland Security, and Department of Energy) are projected to decrease in FY 12-13 from FY 2011-12 budgeted levels reflecting the anticipated amount of federal dollars from the economic stimulus package and other one-time and on-going grants in support of air quality efforts. State Subvention funding is expected to remain close to current levels (reduced approximately 33% from FY 2001-02) for FY 2012-13.

Over the past several years, total permit fees (including permit processing, annual operating permit, and annual emissions based fees) collected from stationary sources has increased by about 17% from \$66.8 million in 1991-92 to \$78.0 million (estimated) in 2011-12. When adjusted for inflation however, stationary source revenues have decreased by 30% over this same period.

The following graph tracks actual stationary source revenues by type of fee from FY 1991-92 (when CPI limits were placed on AQMD fee authority) to estimated revenues for FY 2011-12.



Debt Structure

Installment Sale Revenue Bonds

These bonds were issued by the South Coast Air Quality Management District Building Corporation (Corporation) in August 1988 and September 1989 for the purpose of financing the building of the AQMD Diamond Bar Headquarters. The bonds are secured by a pledge of the semiannual payments to be made by the AQMD pursuant to an Installment Purchase Agreement between the Corporation and AQMD, whereby the AQMD is required to make the debt service payments on the Corporation's bonds. On December 1, 1992, AQMD's obligation to the Corporation under the installment purchase agreement was refinanced to take advantage of lower interest rates. In August 1998 the AQMD further reduced its debt service through the defeasance of a portion of the debt with proceeds from the sale of its El Monte facility. On June 1, 2002, AQMD again refinanced its obligation to the Corporation to take advantage of lower interest rates, obtaining a present value savings of \$1,958,135.

The annual payment requirements under the installment purchase agreement are as follows:

Annual Debt Service Requirement

Year Ending	Principal	Interest	Total
<u>June 30</u>	<u> </u>	<u> </u>	<u> </u>
2013	\$ 5,515,000	\$ 513,085	\$ 6,028,085
2014	5,740,000	282,358	6,022,358
2015	3,875,000	82,340	3,957,340
Total	<u>\$ 15,130,000</u>	<u>\$ 877,783</u>	<u>\$ 16,007,783</u>

Pension Obligation Bonds

These bonds were issued jointly by the County of San Bernardino and the AQMD in December 1995. In June 2004 the AQMD 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. In December 2006 the AQMD invested \$19.1 million in a collateralized Guaranteed Investment Contract (GIC) which provided approximately \$3.0 million in annual budgeted debt service payments through 2014, and made a one-time \$10 million payment to the Association to further reduce the AQMD's unfunded liability which resulted in an average annual budget savings of approximately \$1.1 million. With the deterioration in the financial markets and the ratings downgrade of the GIC provider, the AQMD in February 2009 elected to terminate its GIC agreement without penalty and setup a separate debt service fund with its treasurer to provide debt service payments through 2014.

The annual payment requirements under the refunding bonds are as follows:

Annual Debt Service Requirement

Year Ending June 30	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
2013	\$ 3,047,007	\$ 4,144,886	\$ 7,191,893
2014	3,099,025	4,094,658	7,193,683
2015-2019	16,711,900	19,244,037	35,955,937
2020-2024	19,323,964	10,511,082	29,835,046
Total	<u>\$ 42,181,896</u>	<u>\$ 37,994,663</u>	<u>\$ 80,176,559</u>

Fund Balance

The AQMD is projecting an undesignated fund balance for June 30, 2013 of \$9,737,805. Following are the Reserves and Designations proposed for FY 2012-13.

Reserve for Encumbrances	\$ 7,117,000
Reserve for Inventory of Supplies	80,000
Designations	
for Self-Insurance	2,000,000
for Unemployment Claims	80,000
for Litigation/Enforcement	1,600,000
for Facilities Refurbishing	494,239
for Retirement Actuarial Increase	3,812,463
for Permit Streamlining	288,385
for Budget Stabilization	8,000,000
for Enhanced Compliance Activities	883,018
for Equipment Replacement	296,516
for Other Post Employment Benefit Obligations	2,952,496
for Information Systems Improvements	800,000
	<u>\$ 28,404,117</u>

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 AQMD is self-insured for general liability, workers' compensation, automobile liability, premises liability, and unemployment. These designations have been made to provide for unanticipated judgments against the AQMD, which exceed the budget. The Designation for Litigation/Enforcement provides funding for outside legal support. The Designation for Budget Stabilization provides for revenue shortfalls in

future years and the Designation for Retirement Actuarial Increase provides funding to cushion the agency in times of increased retirement rates related to market losses experienced by the retirement association. The Designation for Enhanced Compliance Activity is to provide funding for inspection/compliance efforts. The Designation for Equipment Replacement is to provide funding for the periodic purchase of costly replacement equipment or systems that have reached the end of their useful life. The Designation for Other Post Employment Benefit (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 Information Systems Improvements, created in FY 2012-13, provides funding for state-of-the-art software, hardware, and communications systems to improve overall agency effectiveness and efficiency.

Long-Term Projection

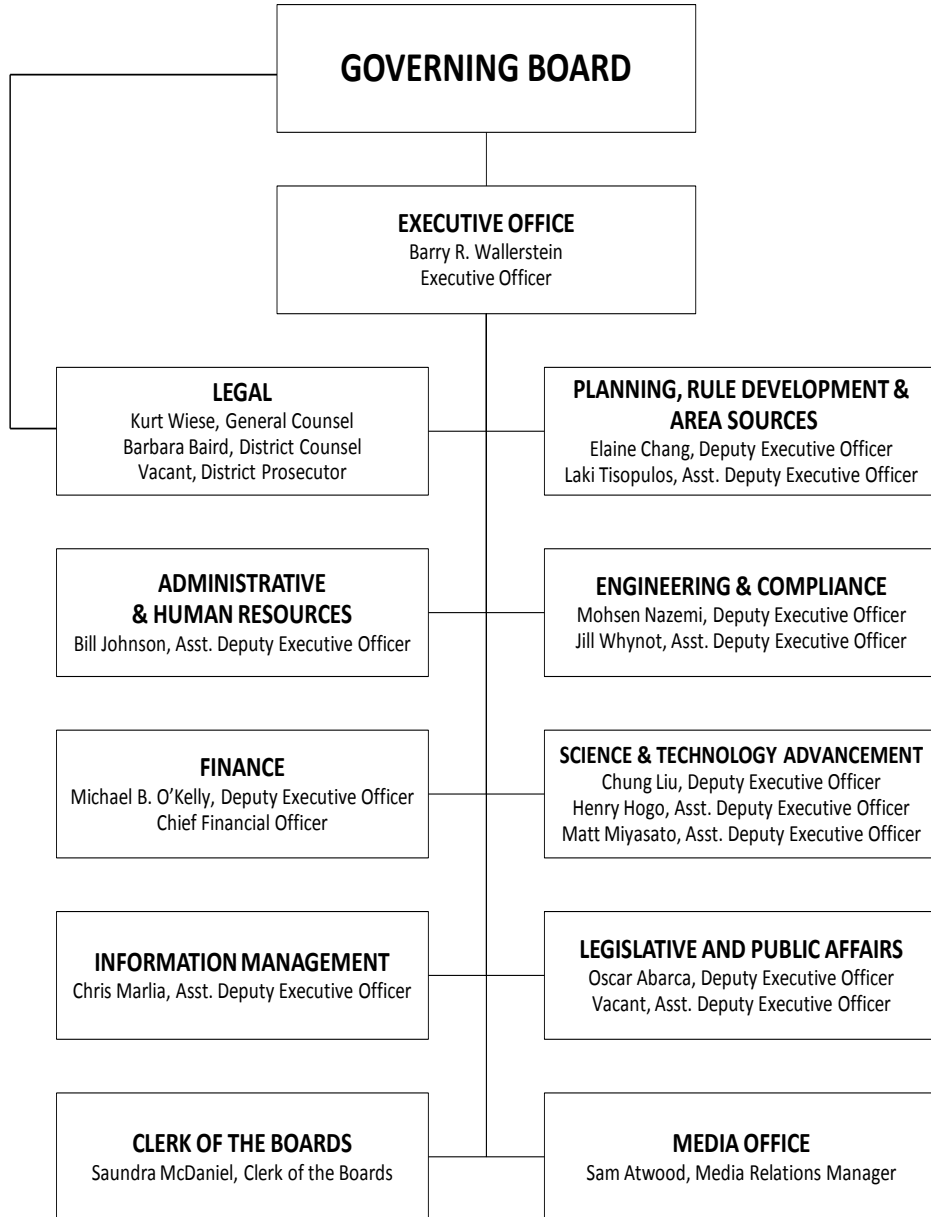
The AQMD faces a number of challenges in the on-coming years, including higher operating costs due to the market losses incurred by our retirement system, streamlining operations while meeting program commitments, and an uncertain business environment. The following chart, outlining AQMD’s financial projection over the next 5 years, shows our commitment to meeting these challenges while protecting the health of the residents within the AQMD boundaries and remaining sensitive to business.

FY 11-12 Estimate and 5 Year Projection

(\$ in millions)	FY 11-12 Estimate	FY 12-13 Proposed	FY 13-14 Projected	FY 14-15 Projected	FY 15-16 Projected	FY 16-17 Projected
<u>STAFFING:</u>		798	785	770	755	755
<u>Expenditures:</u>						
Program Costs	<u>\$132.8</u>	<u>\$133.4</u>	<u>\$134.2</u>	<u>\$133.7</u>	<u>\$128.1</u>	<u>\$127.3</u>
<u>Revenues*:</u>						
Revenues	\$126.2	\$127.4	\$126.9	\$127.8	\$129.5	\$131.4
Use of Fund Balance	<u>\$6.6</u>	<u>\$6.0</u>	<u>\$7.3</u>	<u>\$5.9</u>	<u>-\$1.4</u>	<u>-\$4.1</u>
Total Revenue	<u>\$132.8</u>	<u>\$133.4</u>	<u>\$134.2</u>	<u>\$133.7</u>	<u>\$128.1</u>	<u>\$127.3</u>
UNRESERVED FUND						
BALANCE (Year-End)	\$37.0	\$31.0	\$23.7	\$17.8	\$19.2	\$23.3
% of REVENUE	29%	24%	19%	14%	15%	18%

* Includes projected CPI fee increase of 2.4% for FY 2012-13; 1.8% for FY 2013-14; 2.1% for FY 2014-15 and 2.2% for FY 2015-16 and FY 2016-17.

South Coast Air Quality Management District, California Organizational Chart



SUMMARY OF FISCAL YEAR 2012-13 DRAFT BUDGET

	<u>FY 2011-12 Adopted¹</u>	<u>FY 2011-12 Amended²</u>	<u>FY 2011-12 Estimate³</u>	<u>FY 2012-13 Proposed⁴</u>
<u>FINANCING SOURCES</u>				
Revenue	\$124,294,459	\$126,092,910	\$123,360,662	\$127,399,250
Transfers In From Other Funds	0	2,826,886	2,826,886	0
Use of Designations	3,066,681	3,273,975	3,866,681	2,899,586
Use of Undesignated Fund Balance	4,405,039	5,354,391	2,732,820	3,147,364
Total Financing Sources	<u>\$131,766,179</u>	<u>\$137,548,162</u>	<u>\$132,787,049</u>	<u>\$133,446,200</u>

OPERATING BUDGET

Salaries & Employee Benefits	\$103,938,975	\$104,025,842	\$101,490,949	\$104,533,326
Services & Supplies	26,610,104	30,640,820	28,414,600	25,837,874
Capital Outlays	1,217,100	2,881,500	2,881,500	3,075,000
Total Operating Budget	<u>\$131,766,179</u>	<u>\$137,548,162</u>	<u>\$132,787,049</u>	<u>\$133,446,200</u>

FUND BALANCES

	<u>PROJECTED JUNE 30, 2012</u>	<u>PROJECTED FY 2012-2013</u>
Reserves and Designations		
Reserve for Encumbrances	\$ 7,084,000	\$ 7,117,000
Reserve for Inventory of Supplies	80,000	80,000
Designated for Permit Streamlining	500,000	288,385
Designated for Equipment Replacement	296,516	296,516
Designated for Facilities Refurbishing	494,239	494,239
Designated for Litigation/Enforcement	1,600,000	1,600,000
Designated for Self-Insurance	2,000,000	2,000,000
Designated for Retirement Actuarial Increases	6,500,434	3,812,463
Designated for Unemployment Claims	80,000	80,000
Designated for Enhanced Compliance Activities	883,018	883,018
Designated for Budget Stabilization	8,000,000	8,000,000
Designated for Other Post Employment Benefit (OPEB) Obligations	2,952,496	2,952,496
Designated for Information Systems Improvements	0	800,000
Total Reserves and Designations	<u>\$ 30,470,703</u>	<u>\$ 28,404,117</u>
Undesignated Fund Balance	\$ 13,685,169	\$ 9,737,805

¹ Includes \$3,066,681 use of prior-year revenue from Designations for Equipment Replacement, Permit Streamlining, Enhanced Compliance Activities, Retirement Actuarial Increases and \$4,405,039 in prior-year revenues.

² The FY 2011-12 Amended Budget includes mid-year changes through March 2012.

³ Includes estimated encumbrances of \$5,298,000 which will be applicable to the fiscal year ending June 30, 2012.

⁴ Includes \$2,899,586 use of prior-year revenue from Designations for Permit Streamlining, Retirement Actuarial Increases and \$3,147,364 in prior-year revenues.

ANALYSIS OF PROJECTED JUNE 30, 2012 FUND BALANCE

Fund Balances (June 30, 2011)		
Reserves		\$ 8,978,944
Designated		17,763,384
Undesignated		<u>25,858,045</u>
Total Fund Balances, June 30, 2011:		\$ 52,600,373
Add Fiscal Year 2011-12:		
Revenues	\$126,187,548	
Expenditures	<u>127,489,049</u> ¹	\$ (1,301,501)
Sub-Total:		\$ 51,298,872
Deduct:		
Decrease of Encumbrances Open on July 1, 2011:		\$ (7,143,000)
Total Projected Fund Balances, June 30, 2011:		\$ 44,155,872
Fund Balances (Projected) at June 30, 2012:		
Reserve for Encumbrances		\$ 7,084,000
Reserve for Inventory of Supplies		80,000
Designated for Permit Streamlining		500,000
Designated for Equipment Replacement		296,516
Designated for Facility Refurbishing		494,239
Designated for Litigation/Enforcement		1,600,000
Designated for Self-Insurance		2,000,000
Designated for Retirement Actuarial Increases		6,500,434
Designated for Unemployment Claims		80,000
Designated for Enhanced Compliance Activities		883,018
Designated for Budget Stabilization		8,000,000
Designated for Other Post Employment Benefit (OPEB) Obligations		2,952,496
Undesignated		<u>13,685,169</u>
Total Projected Fund Balances, June 30, 2012:		\$ <u>44,155,872</u>

Note: This analysis summarizes the estimated amount of funds that will be carried into FY 2012-13.

¹ Expenditures do not include estimated \$5,298,000 encumbrances for the Fiscal Year ended June 30, 2012.

SCHEDULE OF AVAILABLE FINANCING AND

PROPOSED FISCAL YEAR 2012-13 RESERVES AND DESIGNATIONS

Fund Balances	\$ 44,155,872
Annual Operating Emission Fees	20,401,917
Annual Operating Permit Renewal Fees/Annual Assessments	44,240,697
Area Sources	2,200,576
Permit Processing Fees	16,746,850
California Air Resources Board Subvention	3,900,000
EPA Grant/Other Federal Revenue	5,678,786
Interest	561,406
Leases	124,071
Source Test/Laboratory Analysis	657,365
Hearing Board	215,654
Penalties/Settlements	4,900,000
Mobile Sources/Clean Fuels	23,740,194
Subscriptions	7,632
Transportation Programs	921,600
Toxic "Hot Spots"	1,515,446
Miscellaneous	<u>1,587,055</u>
Total Funds	\$ 171,555,121
Less Proposed Fiscal Year 2012-13 Reserves and Designations:	
Reserve for Encumbrances	\$ 7,117,000
Reserve for Inventory of Supplies	80,000
Designated for Permit Streamlining	288,385
Designated for Equipment Replacement	296,516
Designated for Facility Refurbishing	494,239
Designated for Litigation/Enforcement	1,600,000
Designated for Self-Insurance	2,000,000
Designated for Retirement Actuarial Increases	3,812,463
Designated for Unemployment Claims	80,000
Designated for Enhanced Compliance Activities	883,018
Designated for Budget Stabilization	8,000,000
Designated for Other Post Employment Benefit (OPEB) Obligations	2,952,496
Designated for Information Systems Improvements	<u>800,000</u>
Total Proposed Reserves and Designations:	<u>\$ 28,404,117</u>
Available Financing:	<u><u>\$ 143,151,004</u></u>

ANALYSIS OF PROJECTED JUNE 30, 2013 FUND BALANCE

Projected for Fund Balances, June 30, 2012:

Reserves	\$ 7,164,000
Designated	23,306,703
Undesignated	<u>13,685,169</u>
Total Estimated Fund Balances, June 30, 2012:	\$ 44,155,872

Add Fiscal Year 2012-13:

Excess Fiscal Year 2012-13 Revenues Over Expenditures:

Revenues	\$127,399,250	
Expenditures	<u>127,746,200</u> ¹	(\$346,950)
Sub-Total:		\$ 43,808,922

Deduct:

Decrease of Encumbrances Open on July 1, 2012	<u>\$ 5,667,000</u>
Total Projected Fund Balance, June 30, 2013:	\$ 38,141,922

Fund Balances (Projected) FY 2012-13:

Reserve for Encumbrances	\$ 7,117,000
Reserve for Inventory of Supplies	80,000
Designated for Permit Streamlining	288,385
Designated for Equipment Replacement	296,516
Designated for Facilities Refurbishing	494,239
Designated for Litigation/Enforcement	1,600,000
Designated for Self-Insurance	2,000,000
Designated for Retirement Actuarial Increases	3,812,463
Designated for Unemployment Claims	80,000
Designated for Enhanced Compliance Activities	883,018
Designated for Budget Stabilization	8,000,000
Designated for Other Post Employment Benefit (OPEB) Obligations	2,952,496
Designated for Information Systems Improvements	800,000
Undesignated	<u>9,737,805</u>
Total Projected Fund Balances, June 30, 2013:	<u><u>\$ 38,141,922</u></u>

¹ Expenditures do not include \$5,700,000 estimated encumbrances attributable to the Fiscal Year ending June 30, 2012.

REVENUE COMPARISON

<u>REVENUE ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
ANNUAL OPERATING EMISSIONS FEES	\$19,233,721	\$19,233,721	\$19,653,855	\$20,401,917
ANNUAL OPERATING PERMIT RENEWAL/ ANNUAL ASSESSMENTS	42,408,835	42,408,835	41,640,875	43,446,195
PORTABLE EQUIPMENT REGISTRATION PROGRAM (PERP)	789,942	789,942	789,942	794,502
AREA SOURCES	2,149,373	2,149,373	2,149,373	2,200,576
PERMIT PROCESSING FEES	16,105,832	16,105,832	15,953,049	16,746,850
STATE SUBVENTION/GRANTS	3,900,000	3,900,000	3,900,000	3,900,000
EPA GRANT/OTHER FEDERAL REVENUE	6,920,353	8,718,804	6,725,562	5,678,786
INTEREST	784,003	784,003	524,683	561,406
LEASE INCOME	225,642	225,642	225,642	124,071
SOURCE TEST/ANALYSIS FEES	600,000	600,000	641,958	657,365
HEARING BOARD FEES	309,777	309,777	233,684	215,654
PENALTIES/SETTLEMENTS	4,900,000	4,900,000	4,900,000	4,900,000
MOBILE SOURCES/CLEAN FUELS	22,261,451	22,261,451	22,515,719	23,740,194
SUBSCRIPTIONS	9,822	9,822	9,822	7,632
TRANSPORTATION PROGRAMS	882,180	882,180	882,180	921,600
MISCELLANEOUS	933,239	933,239	1,263,463	1,587,055
TOXICS "HOT SPOTS"	1,880,289	1,880,289	1,350,856	1,515,446
TRANSFERS IN	0	2,826,886	2,826,886	0
USE OF FUND BALANCE(PRIOR YEAR REVENUE)	<u>7,471,720</u> ¹	<u>8,628,365</u> ²	<u>6,599,500</u> ²	<u>6,046,950</u> ³
TOTAL REVENUE	<u>\$131,766,179</u>	<u>\$137,548,162</u>	<u>\$132,787,048</u>	<u>\$133,446,200</u>

¹ Includes use of prior year revenue (Designated for Permit Streamlining, Equipment Replacement, Retirement Actuarial Increases, and Enhanced Compliance Activities) and Undesignated Fund Balance from prior year revenues.

² Includes use of prior year revenue (Designated for Permit Streamlining, Enhanced Compliance Activities, Equipment Replacement, Retirement Actuarial Increases, Facilities Refurbishing and Litigation and Enforcement) and Undesignated Fund Balance from prior year revenues.

³ Includes use of prior year revenue (Designated for Permit Streamlining and Retirement Actuarial Increases). Also includes an appropriation from the undesignated fund balance from prior-year revenues.

REVENUE ACCOUNTS DESCRIPTIONS AND ASSUMPTIONS

Annual Operating Permit Renewal/Annual Assessments

The Lewis-Presley Clean Air Act requires the AQMD to have an annual permit renewal program. The AQMD initiated this program in February 1977. This program requires that all active permits be renewed on an annual basis upon payment of annual renewal fees. The annual renewal rates are established in AQMD Rule 301. Along with annual operating emissions fees, annual operating permit renewal fees are intended to recover the costs of programs such as AQMD's compliance program, planning, rule making, monitoring, testing, source education, civil litigation cases, and stationary and area source research projects.

FY 2012-13 Proposed Budget: A 2.4% CPI increase is included.

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 AQMD field staff are collected by CARB at the time of registration and passed through to AQMD on an annual basis. Fees for inspection of all other PERP-registered equipment are billed at an hourly rate determined by AQMD Rule 301 and collected by AQMD at the time the inspection is conducted.

FY 2012-13 Proposed Budget: The revenue projection is based on the anticipated number of inspections for FY 2012-13.

Annual Operating Emissions Fees

This program was initiated in January 1978. 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 (from both permitted and unpermitted equipment) of any of the following contaminants also pay fees based on the tons of emissions that are four tons and greater: organic gases, specific organics, nitrogen oxides, sulfur oxides, carbon monoxide, and particulate matter. Facilities emitting four tons-per-year or more pay for emissions from permitted equipment as well as emissions from area sources 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.

On January 1, 1994 the REgional CLean Air Incentives Market (RECLAIM) began. RECLAIM, a market incentive air pollution reduction program for nitrogen oxides (NO_x) and sulfur oxides (SO_x), provides greater certainty in meeting public health standards while allowing industry to seek the most cost-effective solution to reduce their emissions. Major stationary sources with NO_x and SO_x emissions generally greater than four tons per year are a part of RECLAIM. These facilities receive an emissions cap for RECLAIM pollutants and receive a specified annual rate of reduction. The emissions cap less the accumulated annual rates of reduction is expressed as RECLAIM Trading Credits (RTCs); an RTC is a limited authorization to emit a RECLAIM pollutant at a facility. Each RTC has a denomination of one pound and a term of one year. A RECLAIM facility pays an emissions-based fee on RTCs used. The holder of unused RTCs may transfer or sell them to another party to be used within the specified term of the RTC. The RECLAIM allocations rule, Rule 2002, was amended in 2005, and beginning with compliance year 2007, NO_x RECLAIM were reduced each

year through 2011 after which NO_x allocations will remain at the same level as 2011. Rule 2002 was again amended in 2010 resulting in further SO_x RECLAIM allocations reductions starting in compliance year 2013 and each year through 2019 after which SO_x allocations will remain at the same level as 2019.

Along with annual operating permit renewal fees, emissions fees are intended to recover the costs of AQMD's compliance, planning, rule making, monitoring, testing, source education, civil litigation cases, and stationary and area source research projects.

FY 2012-13 Proposed Budget: A 2.4% CPI increase is included.

Mobile Sources

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

AB2766:

Section 9250.17 of the Vehicle Code gives the Department of Motor Vehicles (DMV) authority to collect and forward to the AQMD four dollars for every vehicle registered in AQMD's jurisdictional boundaries. Thirty percent of the money (\$1.20 per vehicle) collected is recognized in AQMD'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.

The remaining monies are deposited in the Air Quality Improvement Fund and the Mobile Sources Air Pollution Reduction Fund to reduce air pollution from motor vehicles.

Clean Fuels:

Section 9250.11 of the Vehicle Code gives the DMV authority to collect and forward to AQMD 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 section 40448.5. One dollar is collected by the DMV for every vehicle registered in AQMD's jurisdictional boundaries, forwarded to AQMD, and deposited in a revenue account in the Clean Fuels Program Fund.

Clean fuels fees from stationary sources are recorded in a separate revenue account within the Clean Fuels Program 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.

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

Carl Moyer Program:

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:

Revenue posted to the General Fund reflects the reimbursement from the Mobile Source Air Pollution Reduction Fund for the cost of staff support provided to the MSRC in administering a mobile source program.

FY 2012-13 Proposed Budget: Revenue projections are based on vehicle registration data from the DMV, recent revenue received, and anticipated reimbursable staff costs to implement the Clean Fuels, Carl Moyer, and Prop 1B programs.

Permit Processing Fees

Permits are the vehicles the AQMD uses to ensure that equipment in AQMD's jurisdictional boundaries are in compliance with AQMD Rules and Regulations. Permit processing fees support the permit processing program and the fee rate schedule for the different equipment categories 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 and issuance of the permit. 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. The permit processing fees also cover the administration cost to process Change of Operator applications, applications for Emission Reduction Credits, and Administrative Changes to permits.

FY 2012-13 Proposed Budget: A 2.4% CPI increase is included.

Environmental Protection Agency (EPA) Grant/Other Federal Revenue

AQMD receives funding EPA Section 103 and 105 grants to help support the AQMD in its administration of active air quality control and monitoring programs where the AQMD 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.

FY 2012-13 Proposed Budget: The revenue projection is based on funding levels from current federal grants.

California Air Resources Board Subvention

The State appropriates monies each year to subvene to local air quality districts to support an active air quality program.

FY 2012-13 Proposed Budget: In Fiscal Year 2002-03 the State reduced AQMD's subvention to \$4 million, a cut of approximately \$2 million from the Fiscal Year 2001-02 level. The current amount of \$3.9 million is included in Fiscal Year 2012-13.

Penalties/Settlements

The revenue from this source is derived from cash settlements for violations of permit conditions, AQMD Rules, or state law.

FY 2012-13 Proposed Budget: It is anticipated that strong reliance on non-cash supplemental environmental projects settlements will continue and revenue in this category will be approximately \$4.9 million.

Area Sources/Architectural Coatings

Emissions fees from architectural coatings revenue covers architectural coatings fair share of emissions supported programs. Quantity-based fees on architectural coatings are also assessed. Rule 314 covers emission-based fees and quantity-based fees. Beginning in FY 2008-09, annual assessments of architectural coatings, based on quantity (gallons) distributed or sold for use in AQMD's jurisdiction, are included in revenue projections; this revenue allows AQMD to recover the costs of staff working on compliance, laboratory support, architectural coatings emissions data, rule development, and architectural coatings revenue collection.

FY 2012-13 Proposed Budget: A 2.4% CPI increase is included.

Toxic "Hot Spots"

Health and Safety Code Section 44380 requires the AQMD to assess and collect fees from facilities that emit toxic compounds. Fees collected are used to recover state and AQMD 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 2012-13 Proposed Budget: The revenue projection is based on reimbursement from the Air Toxics Fund to the General Fund for staff and other costs relating to the Toxic "Hot Spots" program.

Transportation Programs

In accordance with the federal and state Clean Air Act requirements, AQMD Rule 2202 provides employers with a menu of options to reduce mobile source emissions generated from employee commutes or to implement alternative mobile source emission reduction programs to offset the mobile source emissions generated from the employee commutes, and options to meet a worksite-specific emission reduction target for the subsequent year. Employers with 250 or more employees at a worksite are subject to the Rule 2202 and are required to submit an annual registration. The revenue from this category is used to recover a portion of the costs associated with filing, processing, reviewing, and auditing the registrations.

FY 2012-13 Proposed Budget: A 2.4% CPI increase is included.

Interest

Revenue from this source is the result of investing the AQMD's cash balances. However, interest attributable to special revenue funds, such as the Clean Fuels Program Fund, remains with those funds.

FY 2012-13 Proposed Budget: Interest rates continue to decline. An interest rate of 1.1 percent is included in the proposed budget.

Other

The revenue here is derived from several sources, including revenue attributable to prior years, professional services the AQMD renders to other agencies, witness fees, jury duty fees, the sale of photocopies and data, source education class fees, Public Records Act requests, and other miscellaneous sources. The revenue from Public Records Act requests partially recovers the costs associated with photocopying, printing, handling, and mailing the data to the requestor. Other revenue also includes:

- o Lease income from leasing a portion of AQMD's Headquarters facility.
- o Penalties/Settlements revenue from cash settlements for violations of permit conditions, AQMD rules or state law.
- o Reimbursement from special revenue funds.

Hearing Board

The revenue from this source results from 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.

FY 2012-13 Proposed Budget: A 2.4% CPI increase is included.

Source Test/Analysis Fees

Revenue in this category includes fees for source tests, test protocol reviews, continuous emissions monitoring systems (CEMS) evaluations and certifications, and laboratory sample analyses. This revenue is associated with testing of sources within AQMD's jurisdiction. The revenue recovers a portion of the costs of performing certain compliance tests and analyses.

FY 2012-13 Proposed Budget: A 2.4% CPI increase is included.

Leases

Revenue in this category is a result of leasing a portion of AQMD's Headquarters facility.

FY 2012-13 Proposed Budget: Included are lease payments AQMD expects to receive based on the terms of negotiated leases. The City of Diamond Bar moved out during FY 2011-12, but will continue to utilize the auditorium for monthly meetings under a facility use contract.

Subscriptions

The AQMD receives money from operating a subscription service for new proposed rules and amended rules and from the sales of AQMD Rules and Regulations and air quality information brochures. The revenue collected recovers a portion of the costs associated with providing this service.

FY 2012-13 Proposed Budget: The revenue projection is based on expected subscription services activity. This revenue recovers a portion of the costs associated with providing this service.

**AIR QUALITY MANAGEMENT DISTRICT
LINE ITEM EXPENDITURE**

MAJOR OBJECT/ACCOUNT	FY 2010-11 ACTUALS	FY 2011-12 ADOPTED BUDGET	FY 2011-12 AMENDED BUDGET	FY 2011-12 ESTIMATE*	FY 2012-13 PROPOSED
SALARY & EMPLOYEE BENEFITS					
SALARY	\$ 71,779,135	\$ 69,914,213	\$ 70,001,081	\$ 70,789,438	\$ 70,929,799
EMPLOYEE BENEFITS	27,994,247	34,024,762	34,024,761	30,701,510	33,603,527
TOTAL	<u>\$ 99,773,382</u>	<u>\$ 103,938,975</u>	<u>\$ 104,025,842</u>	<u>\$ 101,490,949</u>	<u>\$ 104,533,326</u>
SERVICES & SUPPLIES					
67250 INSURANCE	\$ 1,039,020	\$ 1,147,400	\$ 1,147,474	\$ 1,096,411	\$ 1,097,400
67300 RENTS & LEASES EQUIPMENT	334,468	272,635	364,715	324,307	142,180
67350 RENTS & LEASES STRUCTURE	254,780	279,500	309,800	279,743	284,000
67400 HOUSEHOLD	606,666	692,529	692,529	644,039	711,387
67450 PROF. & SPECIAL SERVICES	11,714,715	4,672,272	7,615,939	7,677,459	4,432,853
67460 TEMPORARY AGENCY SVCS.	769,454	798,022	1,063,822	656,365	806,920
67500 PUBLIC NOTICE & ADV.	530,802	431,400	442,640	341,193	428,700
67550 DEMURRAGE	68,162	46,550	76,150	63,235	46,550
67600 MAINTENANCE OF EQUIPMENT	627,576	567,472	790,897	632,447	529,790
67650 BUILDING MAINTENANCE	554,515	846,602	770,602	519,144	827,479
67700 AUTO MILEAGE	102,451	68,179	163,993	152,080	64,137
67750 AUTO SERVICE	260,982	312,047	312,047	278,757	312,047
67800 TRAVEL	343,618	311,023	339,623	293,274	318,403
67850 UTILITIES	1,495,435	1,718,490	1,561,360	1,474,735	1,591,881
67900 COMMUNICATIONS	598,958	628,436	662,516	609,823	623,436
67950 INTEREST EXPENSE	2,595,602	2,150,638	2,150,638	2,150,638	2,872,971
68000 CLOTHING	25,429	30,100	35,225	26,709	30,550
68050 LABORATORY SUPPLIES	424,533	287,400	575,256	497,394	280,000
68060 POSTAGE	350,989	447,011	427,511	292,304	420,537
68100 OFFICE EXPENSE	903,294	945,617	997,592	848,662	1,046,085
68200 OFFICE FURNITURE	56,775	85,350	95,300	21,190	59,000
68250 SUBSCRIPTION & BOOKS	117,236	144,952	144,952	117,689	137,742
68300 SMALL TOOLS, INSTRUMENTS, EQUIP	56,937	62,900	144,900	111,981	63,160
68350 FILM	-	100	100	-	100
68400 GAS & OIL	308,109	492,000	492,000	273,301	372,000
69500 TRAINING/CONF/TUITION/BOARD EX.	629,602	734,592	733,842	647,034	656,492
69550 MEMBERSHIPS	124,971	76,515	151,565	150,503	73,375
69600 TAXES	21,120	102,400	102,600	29,042	39,000
69650 AWARDS	62,916	58,397	58,397	52,431	77,742
69700 MISCELLANEOUS EXPENSES	122,406	154,575	171,835	107,710	144,950
69750 PRIOR YEAR EXPENSE	0	0	0	0	0
69800 UNCOLLECTIBLE A/R	891,794	0	0	0	0
89100 PRINCIPAL REPAYMENT	8,035,000	8,045,000	8,045,000	8,045,000	7,347,007
TOTAL	<u>\$ 34,028,312</u>	<u>\$ 26,610,104</u>	<u>\$ 30,640,820</u>	<u>\$ 28,414,600</u>	<u>\$ 25,837,874</u>
77000 CAPITAL OUTLAYS	\$ 1,198,178	\$ 1,217,100	\$ 2,481,500	\$ 2,481,500	\$ 3,075,000
79050 BUILDING REMODELING	0	0	400,000	400,000	0
TOTAL EXPENDITURES	<u>\$ 134,999,872</u>	<u>\$ 131,766,179</u>	<u>\$ 137,548,162</u>	<u>\$ 132,787,049</u>	<u>\$ 133,446,200</u>

* Estimate based on July 2011 through February 2012 actual expenditures.

SALARIES & EMPLOYEE BENEFITS

Acct. #	Account Description	FY 2011-12 Adopted Budget	FY 2011-12 Amended Budget	FY 2011-12 Estimate	FY 2012-13 Proposed	Increase/ (Decrease) ^(a)
51000-55000	Salaries & Employee Benefits	\$103,938,975	\$104,025,842	\$101,490,949	\$104,533,326	\$507,484

These accounts include Salaries, Overtime, Insurance and Retirement Benefits. The increase from the FY 2011-12 Amended Budget is mainly due to an increase in retirement contribution rates. To help offset the cost increases, 19 vacant positions were deleted from the FY 2012-13 Proposed Budget. The FY 2012-13 Budget Proposal does not include overtime amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.

AQMD Personnel Summary – Authorized/Funded Positions

Positions	Mid-Year Adjustments		Positions	FY 2012-13 Request		Positions
July 1, 2011	Adds	Deletes	June 30, 2012	Adds	Deletes	June 30, 2012
817	0	0	817	2	(21)	798

Fiscal Year 2012-13 Requested Personnel Actions

Office	Position	Add	Delete	Total
Finance	Purchasing Assistant		(1)	(1)
Finance	Office Assistant		(1)	(1)
Administrative & Human Resources	Human Resources Technician		(1)	(1)
Information Management	Facility Services Specialist		(1)	(1)
Information Management	Technical Information Center Librarian		(1)	(1)
Planning, Rule Development & Area Sources	Air Quality Specialist		(3)	(3)
Legislative & Public Affairs	Community Relations Manager	1		1
Legislative & Public Affairs	Graphic Arts Illustrator	1		1
Legislative & Public Affairs	Staff Assistant		(2)	(2)
Legislative & Public Affairs	Office Assistant		(1)	(1)
Science & Technology Advancement	Air Quality Instrument Specialist II		(1)	(1)
Science & Technology Advancement	Air Quality Instrument Specialist I		(1)	(1)
Science & Technology Advancement	Senior Air Quality Engineer		(1)	(1)
Engineering & Compliance	Supervising Air Quality Inspector		(3)	(3)
Engineering & Compliance	Air Quality Inspector II		(1)	(1)
Engineering & Compliance	Air Quality Engineer II		(2)	(2)
Engineering & Compliance	Senior Office Assistant		(1)	(1)
Total		2	(21)	(19)

^(a) FY 2012-13 Proposed Budget vs. FY 2011-12 Amended Budget.

**AIR QUALITY MANAGEMENT DISTRICT
SERVICES AND SUPPLIES**

ACCOUNT	FY 2011-12 ADOPTED BUDGET	FY 2011-12 AMENDED BUDGET	FY 2011-12 ESTIMATE*	FY 2012-13 PROPOSED
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 1,147,400	\$ 1,147,474	\$ 1,096,411	\$ 1,097,400
67300 RENTS & LEASES EQUIPMENT	272,635	364,715	324,307	142,180
67350 RENTS & LEASES STRUCTURE	279,500	309,800	279,743	284,000
67400 HOUSEHOLD	692,529	692,529	644,039	711,387
67450 PROF. & SPECIAL SERVICES	4,672,272	7,615,939	7,677,459	4,432,853
67460 TEMPORARY AGENCY SVCS.	798,022	1,063,822	656,365	806,920
67500 PUBLIC NOTICE & ADV.	431,400	442,640	341,193	428,700
67550 DEMURRAGE	46,550	76,150	63,235	46,550
67600 MAINTENANCE OF EQUIPMENT	567,472	790,897	632,447	529,790
67650 BUILDING MAINTENANCE	846,602	770,602	519,144	827,479
67700 AUTO MILEAGE	68,179	163,993	152,080	64,137
67750 AUTO SERVICE	312,047	312,047	278,757	312,047
67800 TRAVEL	311,023	339,623	293,274	318,403
67850 UTILITIES	1,718,490	1,561,360	1,474,735	1,591,881
67900 COMMUNICATIONS	628,436	662,516	609,823	623,436
67950 INTEREST EXPENSE	2,150,638	2,150,638	2,150,638	2,872,971
68000 CLOTHING	30,100	35,225	26,709	30,550
68050 LABORATORY SUPPLIES	287,400	575,256	497,394	280,000
68060 POSTAGE	447,011	427,511	292,304	420,537
68100 OFFICE EXPENSE	945,617	997,592	848,662	1,046,085
68200 OFFICE FURNITURE	85,350	95,300	21,190	59,000
68250 SUBSCRIPTION & BOOKS	144,952	144,952	117,689	137,742
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	62,900	144,900	111,981	63,160
68350 FILM	100	100	0	100
68400 GAS & OIL	492,000	492,000	273,301	372,000
69500 TRAINING/CONF/TUITION/BOARD EX.	734,592	733,842	647,034	656,492
69550 MEMBERSHIPS	76,515	151,565	150,503	73,375
69600 TAXES	102,400	102,600	29,042	39,000
69650 AWARDS	58,397	58,397	52,431	77,742
69700 MISCELLANEOUS EXPENSES	154,575	171,835	107,710	144,950
69750 PRIOR YEAR EXPENSE	0	0	0	0
69800 UNCOLLECTIBLE A/R	0	0	0	0
89100 PRINCIPAL REPAYMENT	<u>8,045,000</u>	<u>8,045,000</u>	<u>8,045,000</u>	<u>7,347,007</u>
TOTAL	<u>\$ 26,610,104</u>	<u>\$ 30,640,820</u>	<u>\$ 28,414,600</u>	<u>\$ 25,837,874</u>

* Estimate based on July 2011 through February 2012 actual expenditures.

SERVICES & SUPPLIES

Acct. #	Account Description	FY 2011-12 Adopted Budget	FY 2011-12 Amended Budget	FY 2011-12 Estimate	FY 2012-13 Proposed	Increase/ (Decrease)^(a)
67250	INSURANCE	\$1,147,400	\$1,147,474	\$1,096,411	\$1,097,400	(\$50,074)
<p>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 AQMD 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 AQMD's insurance deductibles, and liability claim payments.</p>						
67300	RENTS & LEASES EQUIPMENT	\$ 272,635	\$364,715	\$324,307	\$142,180	(\$222,535)
<p>This account is for lease agreements and/or rental of office equipment such as pagers for emergency response inspectors, laboratory and atmospheric measurement equipment for special projects, audio visual equipment for outside meetings, printing equipment and photocopiers. The decrease from the FY 2011-12 Amended Budget reflects budget reductions.</p>						
67350	RENTS & LEASES STRUCTURE	\$279,500	\$309,800	\$279,743	\$284,000	(\$25,800)
<p>This account is for expenditures associated with structures and lot leases, and off-site storage rentals: Long Beach/Sacramento field offices \$ 122,000 Conference, and meeting rooms \$10,600 Air monitoring sites/Wind Station Leases \$151,400 Free and low-cost public facilities are used whenever possible for public workshops and informational meetings. The decrease from the FY 2011-12 Amended Budget reflects anticipated needs. The FY 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.</p>						
67400	HOUSEHOLD	\$692,529	\$692,529	\$644,039	\$711,387	\$18,858
<p>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. The increase from the FY 2011-12 Amended Budget is due to a cost increase in the janitorial services contract.</p>						
67450	PROFESSIONAL & SPECIAL SERVICES	\$4,672,272	\$7,615,939	\$7,677,459	\$4,432,853	(\$3,183,086)
<p>This account is used to pay for services rendered to the AQMD by other agencies and consultants. The decrease from the FY 2011-12 Amended Budget is due to budget reductions. The detail of the FY 2012-13 Professional & Special Services request is located on pages 39-44. The FY 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.</p>						

^(a) FY 2012-13 Proposed Budget vs. FY 2011-12 Amended Budget.

Acct. #	Account Description	FY 2011-12 Adopted Budget	FY 2011-12 Amended Budget	FY 2011-12 Estimate	FY 2012-13 Proposed	Increase/ (Decrease) ^(a)
67460	TEMPORARY AGENCY SERVICES	\$798,022	\$1,063,822	\$656,365	\$806,920	(\$256,902)
<p>Funds budgeted in this account are used for specialized temporary services that supplement staff in support of AQMD programs. Amounts are budgeted as a contingency for long-term absences and retirements/resignations. Also, budgeted in this account is the student internship program offered through the Cal Poly Pomona Foundation that provides college students with the opportunity to gain experience in the workplace. The decrease from the FY 2011-12 Amended Budget reflects anticipated budget needs. The FY 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.</p>						
67500	PUBLIC NOTICE & ADVERTISING	\$431,400	\$442,640	\$341,193	\$428,700	(\$13,940)
<p>This account is used for legally required publications such as Requests for Proposals, Requests for Quotations, personnel recruitment, outreach, and advertisement of AQMD Governing Board and Hearing Board meetings, and public notification of AQMD rulemaking activities. The decrease from the FY 2011-12 Amended Budget reflects budget reductions in outreach advertising and Notice of Exemption (NOE) costs.</p>						
67550	DEMURRAGE	\$46,550	\$76,150	\$63,235	\$46,550	(\$29,600)
<p>This account is used to pay for various freight and cylinder charges as well as workspace reconfigurations and personnel moves. The decrease from the FY 2011-12 Amended Budget reflects anticipated budget needs. The FY 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.</p>						
67600	MAINTENANCE OF EQUIPMENT	\$567,472	\$790,897	\$632,447	\$529,790	(\$261,107)
<p>This account is used to pay for maintenance costs of AQMD equipment. Amounts are budgeted for the following: mainframe computer hardware, phone switch, air monitoring equipment, print shop equipment, copiers, and audio visual equipment. The decrease from the FY 2011-12 Amended Budget reflects expected budget needs. The FY 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.</p>						
67650	BUILDING MAINTENANCE	\$846,602	\$770,602	\$519,144	\$827,479	\$56,877
<p>This account reflects expenditures for maintaining AQMD offices and air monitoring stations. Included in the requests are the following: a contingency amount for unplanned repairs; Gateway Association Dues; elevator maintenance; and energy management and compressor services. The increase from the FY 2011-12 Amended Budget reflects anticipated budget needs. The FY 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.</p>						

^(a) FY 2012-13 Proposed Budget vs. FY 2011-12 Amended Budget.

Acct. #	Account Description	FY 2011-12 Adopted Budget	FY 2011-12 Amended Budget	FY 2011-12 Estimate	FY 2012-13 Proposed	Increase/ (Decrease) ^(a)
67700	AUTO MILEAGE	\$68,179	\$163,993	\$152,080	\$64,137	(\$99,856)
<p>This account is used to reimburse employees for the cost of using personal vehicles while on AQMD 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 car on AQMD-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 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.</p>						
67750	AUTO SERVICE	\$312,047	\$312,047	\$278,757	\$312,047	\$0
<p>This account is used for the maintenance, towing, and repair of AQMD fleet vehicles. The FY 2012-13 Request reflects anticipated needs to maintain fleet vehicles.</p>						
67800	TRAVEL	\$311,023	\$339,623	\$293,274	\$318,403	(\$21,220)
<p>This account is for business travel, including lodging and meals paid pursuant to the Administrative Code. The amount requested is mainly needed 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 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.</p>						
67850	UTILITIES	\$1,718,490	\$1,561,360	\$1,474,735	\$1,591,881	\$30,521
<p>This account is used to pay utility costs at the AQMD's headquarters building, the South Bay field office, and air monitoring stations. The increase from the FY 2011-12 Amended Budget reflects increases in gas, water, and electricity costs for these sites.</p>						
67900	COMMUNICATIONS	\$628,436	\$662,516	\$609,823	\$623,436	(\$39,080)
<p>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 decrease from the FY 2011-12 Amended Budget reflects the anticipated level of expenditures for FY 2012-13. The FY 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.</p>						
67950	INTEREST EXPENSE	\$2,150,638	\$2,150,638	\$2,150,638	2,872,971	\$722,333
<p>This account is for the interest due on the 1995 and 2004 Pension Obligation Bonds and the installment sale revenue bonds for the Diamond Bar location. The FY Proposed Budget reflects scheduled payments for FY 2012-13.</p>						

^(a) FY 2012-13 Proposed Budget vs. FY 2011-12 Amended Budget.

Acct. #	Account Description	FY 2011-12 Adopted Budget	FY 2011-12 Amended Budget	FY 2011-12 Estimate	FY 2012-13 Proposed	Increase/ (Decrease) ^(a)
68000	CLOTHING	\$30,100	\$35,225	\$26,709	\$30,550	(\$4,675)
This account is for the purchase of safety equipment and protective clothing used by source testing, laboratory, compliance, and stockroom personnel. The decrease from the FY 2011-12 Amended Budget reflects the anticipated level of expenditures for FY 2012-13.						
68050	LABORATORY SUPPLIES	\$287,400	\$575,256	\$497,394	\$280,000	(\$295,256)
This account is used to purchase various laboratory supplies such as chemicals, calibration gases and glassware for laboratory services. The FY 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						
68060	POSTAGE	\$447,011	\$427,511	\$292,304	\$420,537	(\$6,974)
This account covers the cost of AQMD mailings such as 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 2012-13 Request reflects the anticipated level of expenditures for FY 2012-13.						
68100	OFFICE EXPENSE	\$945,617	\$997,592	\$848,662	\$1,046,085	\$48,493
This account is used for the purchase of office supplies, computer hardware and software under \$5,000, photocopier supplies, print shop and artist supplies, stationery and forms. The FY 2012-13 Requested Budget reflects anticipated needs. The FY 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						
68200	OFFICE FURNITURE	\$85,350	\$95,300	\$21,190	\$59,000	(\$36,300)
This account is for office furniture under \$5,000. The decrease from the FY 2011-12 Amended Budget reflects budget reductions.						
68250	SUBSCRIPTION & BOOKS	\$144,952	\$144,952	\$117,689	\$137,742	(\$7,210)
This account is used to purchase reference materials, magazine subscriptions, books, and on-line database legal research services. The decrease from the FY 2011-12 Amended Budget reflects the anticipated level of expenditures for FY 2012-13.						
68300	SMALL TOOLS, INSTRUMENTS, EQUIPMENT	\$62,900	\$144,900	\$111,981	\$63,160	(\$81,740)
This account covers the purchase of small tools and equipment utilized at the air monitoring stations, the laboratory, and in the maintenance of the headquarters building. The FY 2012-13 Budget Proposal does not include amounts for federally funded grant programs. An expenditure appropriation will occur mid-year when the grants are awarded.						

(a) FY 2012-13 Proposed Budget vs. FY 2011-12 Amended Budget.

Acct. #	Account Description	FY 2011-12 Adopted Budget	FY 2011-12 Amended Budget	FY 2011-12 Estimate	FY 2012-13 Proposed	Increase/ (Decrease) ^(a)
68350	FILM	\$100	\$100	\$0	\$100	\$0
This account covers the purchase of film for use in rule compliance court cases, the laboratory for microscopy, and by other organizational units for publications and presentations. The FY 2012-13 Requested Budget reflects anticipated needs.						
68400	GAS & OIL	\$492,000	\$492,000	\$273,301	\$372,000	(\$120,000)
This account is for the purchase of gasoline, oil, and alternative fuels for the AQMD fleet. The FY 2012-13 Requested Budget reflects anticipated needs.						
69500	TRAINING/CONF/ TUITION/BOARD EXP	\$734,592	\$733,842	\$647,034	\$656,492	(\$77,350)
This account is used for tuition reimbursement, registration, training, purchasing services through Los Angeles County, certain costs associated with the AQMD's Governing and Hearing Boards and AQMD advisory groups, training-related travel expenditures, and per diems for AQMD advisory groups. The decrease from the FY 2011-12 Amended Budget is due to budget reductions.						
69550	MEMBERSHIPS	\$76,515	\$151,565	\$150,503	\$73,375	(\$78,190)
This account provides for AQMD 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 2011-12 Amended Budget is due to budget reductions.						
69600	TAXES	\$102,400	\$102,600	\$29,042	\$39,000	(\$63,600)
This account is for unsecured property and use taxes, fuel, and sales taxes. The decrease from the FY 2011-12 Amended Budget reflects the anticipated taxes for FY 2012-13.						
69650	AWARDS	\$58,397	\$58,397	\$52,431	\$77,742	\$19,345
This account includes for employee suggestion awards, employee service awards for continuous service, employee recognition programs, and plaques/awards the AQMD may present to individuals/businesses/ community groups for outstanding contributions towards air quality goals. The increase from the FY 2011-12 Amended Budget reflects the anticipated level of expenditures for FY 2012-13.						
69700	MISCELLANEOUS EXPENSES	\$154,575	\$171,835	\$107,710	\$144,950	(\$26,885)
This account is for unsecured property and use taxes, fuel, and sales taxes. The decrease from the FY 2011-12 Amended Budget reflects the anticipated taxes for FY 2012-13.						

^(a) FY 2012-13 Proposed Budget vs. FY 2011-12 Amended Budget.

Acct. #	Account Description	FY 2011-12 Adopted Budget	FY 2011-12 Amended Budget	FY 2011-12 Estimate	FY 2012-13 Proposed	Increase/ (Decrease)^(a)
69750	PRIOR YEAR EXPENSE	\$0	\$0	\$0	\$0	\$0
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	\$0	\$0	\$0	\$0	\$0
No amount is budgeted for this account due to the nature of the account.						
89100	PRINCIPAL REPAYMENT	\$8,045,000	\$8,045,000	\$8,045,000	\$7,347,007	(\$697,993)
This account is for the principal due on pension obligation bonds and the installment sale revenue bonds for the AQMD Diamond Bar headquarters. The FY 2012-13 Proposed Budget reflects scheduled principal payments.						

^(a) FY 2012-13 Proposed Budget vs. FY 2011-12 Amended Budget.

Proposed Fiscal Year 2012-13 Professional & Special Services Detail by Office			
Office	Program	Contract Description	Amount
District General	Dist. General Overhead	AHR - Arbitration/Hearing Officer	\$9,400
District General	Dist. General Overhead	AHR - Benefits Administrator	13,000
District General	Dist. General Overhead	AHR - Employee Assistance Program	13,995
District General	Dist. General Overhead	AHR - Employee Relations Litigation	175,000
District General	Dist. General Overhead	AHR - Modular Furniture Maintenance, Setup, and Associated Moving Services	15,000
District General	Dist. General Overhead	AHR - Security Alarm Monitoring	1,534
District General	Dist. General Overhead	AHR - Security Guard Services	450,000
District General	Dist. General Overhead	FIN - Annual Admin Fees to The Bank of New York for the Guaranteed Investment Contracts for 1995 & 2004 POBs	1,500
District General	Dist. General Overhead	FIN - Custodial Fees to The Bank of New York for 1995 & 2004 Pension Obligation Bonds (POBs)	800
District General	Dist. General Overhead	FIN - Health Reimbursement Arrangement Plan Admin	5,000
District General	Dist. General Overhead	IM - Oracle SW Support	30,400
District General	Dist. General Overhead	IM - PeopleSoft Maintenance	208,400
Sub-total District General			\$924,029
Governing Board	Operational Support	Board Member Assistant/Consultants	\$444,483
Sub-total Governing Board			\$444,483
Executive Office	Develop Programs	Professional & Special Services	\$50,000
Sub-total Executive Office			\$50,000
Finance	Operational Support	AB 2766 Audit of DMV Fee Recipients	\$8,800
Finance	Operational Support	Financial Audit	40,000
Finance	Operational Support	Bank Service Charges (include Armored car & mail delivery) / Los Angeles County Treasurer Office	80,000
Finance	Operational Support	LA County Treasurer Office - PGP Maintenance	1,500
Finance	Operational Support	Financial Consultant for Treasury Management	19,500
Finance	Ensure Compliance	Bank Services Fund 15, Hot Spots Lockbox	15,000
Sub-total Finance			\$164,800
Legal	Operational Support	Specialized Legal Services	\$60,000
Legal	Ensure Compliance	Experts/Court Reporters/Attorney Services	25,000
Legal	Ensure Compliance	Litigation Counsel	164,500
Sub-total Legal			\$249,500
Administrative & Human Resources	Operational Support	Architectural, Engineering and Surveyor Consultants	\$3,250
Administrative & Human Resources	Operational Support	NEOGOV Subscription License	8,000

Proposed Fiscal Year 2012-13 Professional & Special Services Detail by Office (cont.)			
Office	Program	Contract Description	Amount
Administrative & Human Resources	Operational Support	Test Development	15,000
Administrative & Human Resources	Operational Support	In-house Training Classes	500
Administrative & Human Resources	Operational Support	Locksmith	2,000
Administrative & Human Resources	Customer Service & Business Assistance	Outside Printing	5,000
Administrative & Human Resources	Customer Service & Business Assistance	Outside Binding	6,000
Administrative & Human Resources	Operational Support	Occupational Health Services	10,000
Administrative & Human Resources	Operational Support	Office Ergonomics Evaluations and Training	10,000
Administrative & Human Resources	Operational Support	Insurance Broker of Record	55,000
Administrative & Human Resources	Operational Support	Medical Services Provider	13,000
Administrative & Human Resources	Operational Support	Third-Party Claims Administrator for workers compensation	45,000
Sub-total Administrative & Human Resources			\$172,750
Clerk of the Boards	Ensure Compliance	Outside Legal Contract	\$15,000
Clerk of the Boards	Ensure Compliance	Court Reporting, Audiovisual, and/or Security Services (2 meetings @ \$2,000/meeting)	4,000
Clerk of the Boards	Ensure Compliance	Professional Interpreter Services (8 meetings @ \$800/mtg)	6,400
Sub-total Clerk of the Boards			\$25,400
Media Office	Policy Support	Photographic & Video Services	\$6,600
Media Office	Policy Support	Graphics, Printing & Outreach Materials	4,000
Media Office	Policy Support	News Release Services	4,000
Media Office	Policy Support	Radio/Television Monitoring	5,000
Sub-total Media Office			\$19,600
Information Management	Operational Support	Ingres/OpenIngres Additional Licensing	\$44,000
Information Management	Operational Support	Backup Software	22,000
Information Management	Operational Support	NT Software Support – Proactive	62,000
Information Management	Operational Support	Kronos Time Keeper	2,000
Information Management	Operational Support	Backup Utility Maintenance	6,250

Proposed Fiscal Year 2012-13 Professional & Special Services Detail by Office (cont.)			
Office	Program	Contract Description	Amount
Information Management	Operational Support	Secure Server Digital ID Services	1,000
Information Management	Operational Support	Microsoft Developer Network Premium Renewal	4,000
Information Management	Operational Support	Off-site Storage Nightly Computer Backup	24,000
Information Management	Operational Support	Secure Service Digital ID DEC Internet Server	850
Information Management	Operational Support	Ingres/OpenIngres Advanced Success Pack	125,000
Information Management	Operational Support	Swiftview Software Support	850
Information Management	Operational Support	Computer-Based Training Software Support	1,500
Information Management	Operational Support	Action Works Metro System Software Support	30,000
Information Management	Operational Support	Software Support for On-Line Catalog	1,950
Information Management	Operational Support	Software Support for EOS.Web Enterprise	6,000
Information Management	Operational Support	Network Backbone Support	15,000
Information Management	Operational Support	ScaleOut StateServer Maintenance	2,500
Information Management	Operational Support	Microsoft Virtual Earth Maintenance/Support	7,500
Information Management	Operational Support	Faxcom FaxServer Support	12,500
Information Management	Operational Support	Telephone Switchview Software Support	9,500
Information Management	Operational Support	Video teleconferencing Maintenance & Support	11,500
Information Management	Operational Support	Proxy Reporting Support	3,250
Information Management	Operational Support	Email Reporting	3,800
Information Management	Operational Support	Microsoft Technical Software Support (Server Applications)	15,000
Information Management	Operational Support	Terminal Emulation (Reflection) Maintenance/Support	1,175
Information Management	Operational Support	Network Analyzer (Sniffer) Maintenance/Support	4,500
Information Management	Operational Support	Internet Filtering (SmartFilter) Maintenance/Support	15,000

Proposed Fiscal Year 2012-13 Professional & Special Services Detail by Office (cont.)			
Office	Program	Contract Description	Amount
Information Management	Operational Support	Email Recovery Software (PowerControls) Maintenance/Support	1,550
Information Management	Operational Support	Anti-Spam (MailShield) Maintenance/Support	11,500
Information Management	Operational Support	Virus Scan Support	14,250
Information Management	Operational Support	Microsoft Developer Network CD - Application Development	11,000
Information Management	Operational Support	Off-site Document Destruction Services	10,000
Information Management	Operational Support	Imaging Software Support	125,000
Information Management	Operational Support	Off Site Storage Services	15,000
Information Management	Operational Support	PowerBuilder Software Support	24,000
Information Management	Operational Support	Silk Test, Silk Central Test Manager, and Silk Performer Maintenance and Support	16,500
Information Management	Operational Support	PVCS Software Support	4,500
Information Management	Operational Support	Visual Expert Software Support	6,000
Information Management	Operational Support	Crystal Reports Software Support	17,000
Information Management	Operational Support	ERwin ERX & BPwin SW Support	24,000
Information Management	Operational Support	Dundas Chart Software Support	650
Information Management	Operational Support	AIS (Address Information System) Five Digit subscription	1,000
Information Management	Operational Support	Installshield Software Support	3,600
Sub-total Information Management			\$718,175
Planning, Rules, & Area Sources	Develop Programs	SIP, AQMP and Rule Printing	\$20,000
Planning, Rules, & Area Sources	Develop Programs	CEQA for AQMD Projects	20,000
Planning, Rules, & Area Sources	Ensure Compliance	Technology Assessment Studies	42,000
Planning, Rules, & Area Sources	Develop Programs	California Emissions Estimator Model (CalEEMod) Detailed Design Document (DDD) Development	5,000
Planning, Rules, & Area Sources	Develop Programs	Warehouse Truck Study	40,000

Proposed Fiscal Year 2012-13 Professional & Special Services Detail by Office (cont.)			
Office	Program	Contract Description	Amount
Planning, Rules, & Area Sources	Ensure Compliance	AER Printing	5,000
Planning, Rules, & Area Sources	Monitoring Air Quality	Contracted Communication Services	5,000
Planning, Rules, & Area Sources	Monitoring Air Quality	GIS & AQMP Technical Support	26,000
Planning, Rules, & Area Sources	Monitoring Air Quality	Weather Data Services Communications	7,500
Planning, Rules, & Area Sources	Monitoring Air Quality	Maintain Wind Stations and Analyze Data	60,000
Planning, Rules, & Area Sources	Monitoring Air Quality	Meteorological Data Services	7,500
Planning, Rules, & Area Sources	Develop Rules	PM and Ozone Model Consulting	50,000
Planning, Rules, & Area Sources	Timely Review of Permits	Dispersion Modeling Support	20,000
Planning, Rules, & Area Sources	Develop Programs	Check Before You Burn Programming Support	25,000
Planning, Rules, & Area Sources	Develop Rules	Polymer Research and Technology Transfer of Coatings	40,000
Planning, Rules, & Area Sources	Develop Rules	Coating Application Techniques	30,000
Planning, Rules, & Area Sources	Develop Programs	STMPR Member Sole Source Contracts	30,000
Planning, Rules, & Area Sources	Develop Programs	Sponsorship of Economic Conferences (UCLA & California State University, Long Beach)	2,500
Planning, Rules, & Area Sources	Develop Programs	REMI Renewal	51,000
Planning, Rules, & Area Sources	Develop Programs	Dun & Bradstreet Data	30,000
Planning, Rules, & Area Sources	Develop Programs	AQMP Socioeconomic Data Management	10,000
Planning, Rules, & Area Sources	Develop Programs	Update to Health Benefit Assessment for 2012 AQMP	30,000
Planning, Rules, & Area Sources	Develop Programs	Rule 2202 Computer System Maintenance	15,000
Sub-total Planning, Rules & Area Sources			\$571,500
Legislative & Public Affairs	Customer Service & Business Assistance	Cal Poly Pomona Foundation Co op Program	\$38,000

Fiscal Year 2012-13 Professional & Special Services Detail (cont.)			
Office	Program	Contract Description	Amount
Legislative & Public Affairs	Policy Support	Legislative Advocacy -- Washington DC	225,500
Legislative & Public Affairs	Policy Support	Legislative Computer Services	10,000
Legislative & Public Affairs	Policy Support	Legislative Advocacy – Sacramento	365,000
Legislative & Public Affairs	Customer Service & Business Assistance	Community Outreach	160,000
Legislative & Public Affairs	Policy Support	After-hours Call Center Service	3,500
Legislative & Public Affairs	Policy Support	Graphics & Printing	33,616
Legislative & Public Affairs	Policy Support	Photographic and Video Services	50,000
Legislative & Public Affairs	Customer Service & Business Assistance	Promotion Marketing of Smart Phone Tools	50,000
Legislative & Public Affairs	Customer Service & Business Assistance	Multi-Lingual Translation -- Public Participation	20,000
Sub-total Legislative & Public Affairs			\$955,616
Science & Tech. Advancement	Advance Clean Air Technology	Clean Air Awards	\$ 10,000
Science & Tech. Advancement	Ensure Compliance	Source Testing Services	20,000
Science & Tech. Advancement	Ensure Compliance	Student Co-op Program	22,000
Science & Tech. Advancement	Ensure Compliance	Laboratory Analytical Services	10,000
Science & Tech. Advancement	Ensure Compliance	Technical Support for Air Monitoring and Community Complaint Resolution	50,000
Sub-total Science & Technology Advancement			\$112,000
Engineering & Compliance	Operational Support	Workspace Reconfiguration	\$5,000
Engineering & Compliance	Timely Review of Permits	Student Interns: Permit Processing and Compliance Support	20,000
Sub-total Engineering & Compliance			\$25,000
Total Professional & Special Services Request			\$4,432,853

CAPITAL OUTLAYS AND BUILDING REMODELING

Acct. #	Account Description	FY 2011-12 Adopted Budget	FY 2011-12 Amended Budget	FY 2011-12 Estimate	FY 2012-13 Proposed	Increase/ (Decrease)^(a)
77000	CAPITAL OUTLAYS	\$1,217,100	\$2,481,500	\$2,481,500	\$3,075,000	\$593,500

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 increase from the FY 2011-12 Amended Budget reflects anticipated needs. The FY 2012-13 Budget Proposal 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/organizational unit of the approved Capital Outlays for FY 2012-13.

Fiscal Year 2012-13 Capital Outlays Detail				
Office	Category	Description	Program	Amount
District General		Unbudgeted Capital Outlay	Dist. General Overhead	\$50,000
District General	Replacement	2 - Cooling Towers	Dist. General Overhead	500,000
District General	Replacement	10-Fleet Vehicles	Dist. General Overhead	285,000
District General	Replacement	Phone Switch/Voice Network Upgrade	Dist. General Overhead	163,000
District General	New	System Support and Programming (CLASS/PeopleSoft)	Dist. General Overhead	50,000
District General	Replacement	Auditorium Projector Replacement	Dist. General Overhead	45,000
District General	Replacement	Black Steel Piping	Dist. General Overhead	840,000
District General	Replacement	Leibert Air Conditioning Units-Computer Room	Dist. General Overhead	150,000
District General	Replacement	Air Handler Mechanical Components	Dist. General Overhead	100,000
Sub-total District General				\$2,183,000
Legal	New	NOV Ad Hoc Reporting Module and Business Process Modeling	Ensure Compliance	\$35,000
Sub-total Legal				\$35,000
Information Management	New	PeopleSoft Migration/Upgrade (including servers)	Operational Support	\$245,000
Information Management	New	Website Redesign and Content Management System Implementation (including servers)	Operational Support	210,000
Sub-total Information Management				\$455,000
Planning, Rules & Area Sources	New	Support Web-based Annual Emissions Reporting	Ensure Compliance	\$100,000
Planning, Rules & Area Sources	New	REMI Enhancements	Develop Programs	10,000

^(a) FY 2012-13 Proposed Budget vs. FY 2011-12 Amended Budget.

Fiscal Year 2012-13 Capital Outlays Detail (cont.)				
Office	Category	Description	Program	Amount
Planning, Rules & Area Sources	Replacement	Four-Wheel Drive Truck Dedicated to the Open Burn Program	Ensure Compliance	45,000
Sub-total Planning, Rules & Area Sources				\$155,000
Science & Tech. Advancement	Replacement	2-Hydrogen Generators	Ensure Compliance	\$17,000
Science & Tech. Advancement	Replacement	Inductively Coupled Plasma/Mass Spectrometer	Monitoring Air Quality	150,000
Sub-total Science & Technology Advancement				\$167,000
Engineering & Compliance	New	RECLAIM Trading System Updates	Ensure Compliance	\$20,000
Engineering & Compliance	New	PAATS/Title V Tracking Updates	Timely Review of Permits	15,000
Engineering & Compliance	New	Permit Process System (PPS) Updates	Timely Review of Permits	10,000
Engineering & Compliance	New	CLASS Compliance System Updates	Timely Review of Permits	15,000
Engineering & Compliance	New	NSR Updates	Timely Review of Permits	20,000
Sub-total Engineering & Compliance				\$80,000
Total Capital Outlays Request				\$3,075,000

Acct. #	Account Description	FY 2011-12 Adopted Budget	FY 2011-12 Amended Budget	FY 2011-12 Estimate	FY 2012-13 Proposed	Increase/ (Decrease) ^(a)
79050	BUILDING REMODELING	\$0	\$400,000	\$400,000	\$0	(\$400,000)
<p>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 FY 2012-13.</p>						

^(a) FY 2012-13 Proposed Budget vs. FY 2011-12 Amended Budget.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

GOALS/OBJECTIVES FOR FY 2012-2013

MISSION STATEMENT

“The South Coast AQMD 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, public agencies and businesses.”

GOALS

- 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 AQMD staff.
- IV. Operate a “Clean and Green” program to promote and support sustainable practice strategies.

PRIORITY PROJECTS

District programs have many important objectives, but AQMD wishes to highlight the following three priority projects for 2012 which are particularly important to achieving the District’s mission and goals:

1. Continue demonstration/deployment of a zero-emission cargo container movement system.
2. Develop modified or new permitting programs to meet the region’s evolving air quality and economic needs, including incentivizing the use of new, lower emitting technologies, manufacture of such clean technologies within the region, addressing availability issues associated with emission offsets for new or modified sources, and reducing administrative burdens while providing equivalent or better protection of public health.
3. Initiate an overhaul of AQMD’s information technology systems, including the use of state-of-the-art software, hardware, and communications systems to improve overall agency effectiveness and efficiency.

PROGRAM OBJECTIVES

I. ENSURE EXPEDITIOUS PROGRESS TOWARD MEETING CLEAN AIR STANDARDS AND PROTECTING PUBLIC HEALTH

- A. Develop a comprehensive program to achieve emission reductions to meet federal and state clean air standards by:
- 1) implementing the Air Quality Management Plan (AQMP) that seeks equitable and expeditious reduction of emissions from all sources to meet clean air targets and protect public health,
 - 2) protecting the region's economy by working with stakeholders to develop means of complying with federal air quality attainment requirements in ways that (a) promote local clean technology businesses, (b) minimize compliance burdens by seeking coordinated federal, state and local energy, climate and transportation programs that provide air quality co-benefits, and (c) avoid potential federal sanctions for failure to meet federal air quality requirements,
 - 3) improving data and understanding of toxic emissions, through MATES IV and other study results, current peer reviewed literature, and other controls and their associated public health benefits, and reducing emissions of toxic air contaminants, and implementing the Clean Communities Plan adopted in 2010 which takes a community-based approach to addressing cumulative impacts, nuisance issues, and exposure to air toxic emissions,
 - 4) seeking legislative amendments to provide the necessary authority and funding to implement measures in the AQMP,
 - 5) providing input to state and federal regulatory activities to seek the greatest emission reductions as early as possible, while being sensitive to the economy,
 - 6) assisting the federal, multi-state, state and local governments in implementing federal and state greenhouse gas reporting, SB 375 and AB 32, assisting state and local governments with AB 118, and continuing in other efforts to implement AQMD policies to reduce global warming gases,
 - 7) seeking a fair share of more than \$1 billion in air quality improvement funds, and ensuring inclusion of air quality considerations for the \$2 billion Proposition 1B Transportation Corridor Infrastructure Funds, to achieve emissions reductions for this region,
 - 8) seeking policy considerations and funding for transportation plans and infrastructure projects that will support attainment of long-term air quality needs by enabling and utilizing the cleanest technologies,

- 9) seeking additional emissions reductions for this region by ensuring inclusion of air quality considerations in policy, and in allocation of federal transportation funds through the Surface Transportation Reauthorization legislation, including the Congestion Management & Air Quality program, sponsoring legislation to require maximum feasible controls for ships and locomotives,
- 10) working closely with SCAG and local governments to provide input to SCAG's Sustainable Communities Strategy (SCS) and the Regional Transportation Plan (RTP) in a manner consistent with air quality objectives,
- 11) implementing the Board-approved climate change policy and Air Quality-related Energy Policy thereby maximizing synergies with programs to reduce greenhouse gases, toxics and smog-forming emissions,
- 12) seeking greater support for local authority and decision-making in the implementation of local, state and federal programs which impact air quality or climate change, and
- 13) working jointly with public and private partners to effectuate the design, development and deployment of clean, renewable energy to supply the greater electricity needs of Southern California, as needed to meet the national, health-based, clean air standards.

B. Ensure compliance through a program that includes:

- 1) Monitoring for the presence/identification and/or quantification of air pollutants in the ambient air, including any new U.S. EPA requirements for near-freeway monitoring of NO₂, and stationary source-oriented monitoring for lead,
- 2) Maintaining an inventory, monitoring and testing air pollutant emissions from stationary sources,
- 3) processing permit applications for stationary sources in a manner to:
 - a) prioritize processing of permit applications for installation and implementation of air pollution control measures to reduce emissions,
 - b) expeditiously issue all equipment-based and facility permits and permit renewals for equipment and facilities complying with all applicable air quality rules and regulations,
 - c) ensure all applicable requirements for public notification and public comments are met prior to permit issuance,
 - d) impose enforceable conditions on permits to ensure continued compliance and compliance with all air-quality related environmental and public health rules and regulations, and
 - e) streamline application processing and expeditiously approve or deny (as appropriate) permits, plans and emission reduction credits to improve efficiency and customer service at AQMD.

- 4) using community-based and/or industry-specific deployment of field personnel for:
 - a) equipment and facility inspections, timely compliance determinations and prompt remediation of non-compliance, and
 - b) prompt resolution of community air quality complaints.
 - 5) training field personnel to ensure consistent and fair field enforcement practices and good customer service,
 - 6) implementing programs to inform the public and regulated sources of air quality and regulatory compliance requirements,
 - 7) assisting regulated sources in identifying and meeting their air quality permitting and compliance needs,
 - 8) implementing programs to better inform local government, agencies and schools regarding compatible land uses, and
 - 9) using civil penalties and criminal referrals strategically to incentivize compliance and to deter non-compliance.
- C. Work with stakeholders to develop and implement programs to enable construction and modification of stationary sources in areas where the supply of emission offsets is limited, consistent with AQMD's clean air objectives.
- D. Work with the United States Congress, California Legislature, U.S. Environmental Protection Agency (EPA), California Air Resources Board (CARB), and other federal, state, regional and local agencies and authorities to obtain a proportionate fair share of funding for essential programs to reduce emissions.
- E. Work with all stakeholders and decision-makers to protect, sustain and augment state and federal funding as well as local implementation and local control, for air quality programs administered by AQMD for public health protection.
- F. Continue partnering with utilities, faith communities, and educational groups and institutions to embrace and involve all stakeholders as partners in reducing air pollution by developing and implementing programs that are technologically advanced, more energy efficient and less dependent on polluting fuels, cost-effective, and sensitive to business, environmental, and community interests. Stakeholders include, but are not limited to, local, regional, state and federal governments, small business owners/operators, other members of the regulated community, school representatives, environmental and community leaders, students, and residents.
- G. Promote programs to reduce mobile source emissions and to reduce the exposure to mobile source emissions by:

- 1) reducing emissions from on-road and off-road vehicles,
- 2) supporting the increased use of clean-fuel, and other near zero- and zero-emission vehicles, engines, and technologies,
- 3) assisting employers, local governments, including Clean Cities, and the private sector in reducing mobile source emissions,
- 4) providing guidance and technical assistance to local governments to ensure AB 2766 funds are utilized for cost-effective and quantifiable mobile emission reduction programs,
- 5) working with EPA, CARB, and other federal, state, regional and local agencies and authorities to encourage and support efforts to reduce emissions from primarily federal and state sources, such as ships, trains, planes, and off-road engines. Seek/support legislative amendments necessary to reduce emissions from marine vessels and locomotives, as required by the AQMP to attain clean air standards.
- 6) seeking to obtain additional legal authority over mobile sources, when necessary, to reduce emission control burdens that will otherwise be placed on stationary sources or as necessary to attain federal and/or state standards,
- 7) developing indirect source programs as authorized by law to reduce mobile source emissions,
- 8) partnering with state and federal agencies in developing expeditious, efficient and valid engine and vehicle certification and retrofit verification processes and regulations to maximize criteria, toxic and GHG pollutant emission reduction benefits,
- 9) achieving maximum emission reductions and cost-leveraging through state programs, such as CARB's Carl Moyer Program, Proposition 1B, and AQIP, and California Energy Commission's (CEC's) AB 118 and PIER,
- 10) achieving maximum emission reductions and cost-leveraging through federal programs, especially Department of Energy (DOE) Clean Cities, DOE American Recovery and Reinvestment Act and EPA Diesel Emission Reduction Act Programs, and
- 11) working with agencies, schools, and decision makers to site sensitive activities/populations away from freeways, highways, and corridors to minimize exposure to mobile source emissions.

H. Facilitate development of new air quality-enhancing technologies by:

- 1) encouraging public/private partnerships to develop new and innovative technologies,

- 2) reducing financial, bureaucratic, regulatory and technological barriers that limit the use of clean fuels and new lower-emitting technologies,
 - 3) promoting development of clean renewable and clean and efficient alternative electrical energy generation technologies,
 - 4) supporting projects to reduce emissions from surface coatings and solvents,
 - 5) working with all stakeholders to accomplish advanced technology goals, such as use of hydrogen fuel, fuel cells, plug-in hybrids, and reviewing existing regulatory requirements to minimize barriers to the development and commercialization of new lower-emitting and more efficient technologies, and
 - 6) conducting demonstration projects in reducing emissions from off-road mobile sources, including construction and railroad-related equipment.
- I. Continue to implement the Chairman’s Clean Port Initiative, including taking the following actions:
- 1) adopting AQMD port backstop rules,
 - 2) implementing enhanced port / community air monitoring program,
 - 3) arranging and participating in port conferences and other actions to coordinate control actions with Asian ports,
 - 4) monitoring and assisting with implementation of San Pedro Bay Ports Clean Air Action Plan,
 - 5) monitoring and commenting on CEQA / NEPA documents for port projects,
 - 6) working with the Ports, CARB and others to incentivize the replacement of older trucks and port equipment with newer, cleaner and alternative fueled technologies, and
 - 7) deploying high-performance air pollution filtration systems in classrooms at port community schools.
- J. Further develop, demonstrate, incentivize, and promote electric vehicles and plug-in electric vehicles, by
- 1) hosting public workshops on streamlining and supporting electric vehicle charging infrastructure,
 - 2) securing federal, state and local incentives for end-users to purchase and lease electric vehicles and plug-in electric vehicles and offset charging infrastructure costs,

- 3) supporting City and Neighborhood electric vehicles for municipalities, counties and other organizations where the technology has the ability to displace conventional vehicle trips,
 - 4) continuing support for public infrastructure rollout,
 - 5) maintaining efforts to develop and demonstrate medium and heavy-duty plug-in electric vehicles, and
 - 6) continue collaboration with the SoCalEV Coalition to engage regional support for electric vehicles and plug-in electric vehicles, infrastructure and policies.
- K. Continue to enhance public health protection by offering additional health services to impacted communities using primarily penalties, settlement funds and supplemental environmental projects.
- L. Secure maximum levels of funding and promote the priority use of air quality criteria in allocating State bond fund resources for emission reduction projects in Southern California.

II. ENHANCE PUBLIC EDUCATION AND ENSURE EQUITABLE TREATMENT FOR ALL COMMUNITIES

- A. Continue to implement AQMD's Environmental Justice policies and programs, and other initiatives directed at equitable treatment for all communities and sensitive populations through:
- 1) individual endeavors and a series of town hall meetings throughout AQMD's four-county region and mobile Board meetings in impacted areas and evaluate additional mechanisms to increase public participation to receive input from the public about air quality related community issues,
 - 2) actively seeking to increase the public's participation in, and understanding of, policies under development, including increased translation of materials into multiple languages, and meetings in areas where community members can more easily participate,
 - 3) working with community groups to build partnerships on air quality issues, and addressing community-level and resident concerns and issues,
 - 4) distributing incentive funding in a manner that emphasizes communities most impacted by air pollution and low income and minority communities,
 - 5) hosting quarterly meetings of the AQMD Environmental Justice Advisory Group,

- 6) actively providing comments on feasible methods and technologies to mitigate significant air quality impacts for new CEQA and NEPA projects in environmental justice areas, and
 - 7) continuing to implement Board-adopted Environmental Justice initiatives and work plan commitments, including Clean Communities Plan.
- B. Continue to enhance AQMD's website as a two-way communication tool with up-to-date data, technical information, air quality-related guidance and advice, and educational videos and literature for communities' and business' interests. Implement a web-based communication tool, including database management, for electronic outreach and education. Utilize social media for ongoing up-to-date air quality information and outreach.
 - C. Continue to promote and expand the AQMD's School Air Quality Flag program as one of the tools for protecting children's health, as well as educating students about air quality.
 - D. Continue proactive media relations activities to increase media and public awareness of AQMD's programs and policies that support community/business efforts that create awareness and educate the public and businesses about the harmful impacts of air pollution from mobile sources and other forms of emissions on public health, animals, wildlife, and the environment as a whole.
 - E. Enhance green job workforce via the education/training element of Chairman's Helping Hand Initiative.
 - F. Host five High School Conferences that will provide area students with information on air quality and healthy living.
 - G. Conduct ethnic Community Outreach through Chinese-American, Korean-American, Latino-American, African-American, Japanese-American events and social media to improve community awareness of AQMD.

III. OPERATE EFFICIENTLY AND IN A MANNER SENSITIVE TO PUBLIC AGENCIES, BUSINESSES, THE PUBLIC AND AQMD STAFF

- A. Administer an efficient and cost-effective organization to expeditiously clean the air while being sensitive to the operational needs of the public agencies and businesses operating in AQMD by seeking innovative partnerships and programs to ensure compliance and to minimize compliance costs.
- B. Develop a sound budget, reduce fee complexity, adjust fee schedules to recover AQMD's costs, as appropriate, and target agency resources to air quality-related environmental and economic priorities.

- C. Continue to investigate and implement technology and other means to streamline all agency functions to enhance efficiency, while maintaining effective and responsive programs that meet public, business and AQMD needs.
 - D. Administer effective human resources and development programs that ensure an open and fair recruitment and selection system and, in accordance with existing law, continue AQMD's equal employment opportunity efforts to ensure diverse applicant pools in recruitments for open positions.
 - E. Regularly review the skills, management, and deployment of current staff and take steps to enhance customer service and continually seek ways to increase efficiency and productivity, and continuously integrate employee safety training programs to protect AQMD's human assets.
 - F. Continue AQMD's procurement processes to ensure that minority-, woman-, and disabled veteran-owned enterprises are fairly represented in accordance with existing law.
 - G. Develop and implement a workforce recruitment and retention plan.
 - H. Develop and implement a succession planning model, including mentoring by senior employees, in order to retain talent and ensure a transfer of technical expertise between staff.
 - I. Enhance local, state and federal agency coordination and develop data transfer/submittal protocol to ensure that the latest inventories be used for National Air Toxics Assessment purposes.
- IV. OPERATE A "CLEAN AND GREEN" PROGRAM TO PROMOTE AND SUPPORT SUSTAINABLE OPERATIONAL STRATEGIES
- A. Continue to explore strategies for recognizing and implementing technologies and policies which reduce criteria pollutants, toxics, greenhouse gases and petroleum dependence, such as promoting incentives for plug-in hybrid electric, electric and natural gas vehicles, at the local, regional, state and federal levels.
 - B. Refine goals and metrics to monitor progress toward sustainable internal operations. Continue a task force of internal staff to develop recommendations for "re-greening" the AQMD headquarters building and its satellite office, and implement the AQMD Green Policy.
 - C. Partner and collaborate with other local, regional, state and federal organizations to determine and implement "best green practices" to exemplify and showcase clean and green sustainable operations.

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 AQMD'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 AQMD rules for existing major and small stationary sources.

- (A) Verify compliance with AQMD 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 AQMD 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 AQMD.
- (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.
- (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 AQMD 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 AQMD'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 Community Scale Air Toxics, National Air Toxics Trends (NATTS), Port Air Quality/I-710 Monitoring, and TraPac Air Filter Program.

PROGRAM CATEGORIES

OPERATIONAL SUPPORT

Provide operational support to facilitate overall air quality improvement programs.

- (A) Provide services that enable AQMD offices to function properly. Services include facility administration, human resources and financial services.
- (B) Provide information management services in support of all AQMD 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 AQMD.
- (B) Respond to Congressional and Senatorial inquiries regarding AQMD programs, policies or initiatives.
- (C) Assist AQMD consultants in identifying potential funding sources and securing funding for AQMD programs.

PROGRAM CATEGORIES

- (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 AQMD revenue goes to offset the operational support costs of the AQMD.

- 1a Allocatable AQMD – District-wide administrative and support services (e.g., Human Resources, Payroll, Information Management).
- 1b Allocatable – Organizational Unit – Administrative activities specific to a given division/office.

II. ANNUAL OPERATING EMISSIONS FEES

III. PERMIT PROCESSING FEES

IV. ANNUAL OPERATING PERMIT RENEWAL FEES

V. ENVIRONMENTAL PROTECTION AGENCY GRANT/OTHER FEDERAL REVENUE

VI. SOURCE TEST/SAMPLE ANALYSIS FEES

VII. HEARING BOARD FEES

VIII. CLEAN FUELS FEES FROM MOBILE SOURCES

IX. MOBILE SOURCES

X. AIR TOXICS "HOT SPOTS" FEES

XI. TRANSPORTATION PROGRAMS

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

XIV. SUBSCRIPTIONS

XV. CALIFORNIA AIR RESOURCES BOARD SUBVENTION

XVI. CLEAN FUELS FEES FROM STATIONARY SOURCE

XVII. OTHER REVENUE

XVIII. AREA SOURCES

XIX. PORTABLE EQUIPMENT REGISTRATION PROGRAM (PERP)

For a description of these revenue categories, please refer to their corresponding revenue account in the FUND BALANCE & REVENUES tab.

WORK PROGRAM OVERVIEW

The Fiscal Year 2012-13 Work Program was developed from individual work plans and output justifications submitted by each office and are based on their best information or estimates for each of their activities. The work plans are tied to the FY 2012-13 Budget and the work plans 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 can be found at the end of the Work Program section of this document.

The costs used in the Work Program are based on average expenditures for salaries and benefits, services and supplies, and capital outlays. An overhead cost has been applied to each line (output) in the Work Program based on the number of Full Time Equivalent (FTE) staff positions for that output. When office program activities/outputs are defined in the Supporting Documentation with specific expenditures for capital outlays or services and supplies, those specific expenditures are applied to that output and are not included in averages used for other outputs.

A spreadsheet format is used to present the Work Program. The following is a brief description of each spreadsheet column:

The **#** column numbers each line in the workplan in numerical order.

The **PROGRAM CODE** column lists each program code shown on the Program/Output Justification forms in the Supporting Documentation, creating a cross-reference to the details about that line (output).

The **OBJ** column identifies which of the four program objectives (defined in the Goals & Objectives) applies to that output.

The **GROUP** column, which appears on the workplan by category, identifies the organizational unit expected to perform the work.

The **PROGRAM CATEGORY** column, which appears on the workplan by organizational unit, identifies which of the nine program categories applies to that output.

The **PROGRAM** column identifies the program associated with the work.

The **ACTIVITIES/OUTPUTS** column provides a brief description of the work.

The **FTEs CURRENT** column identifies the number of Full Time Equivalent (FTE) staff positions in the FY 11-12 Adopted Budget associated with performing that work. The **FTEs (+/-)** column represents FY 11-12 mid-year changes and any changes (+/-) proposed for the next fiscal year. An FTE position represents one person-year.

The **COST CURRENT** column identifies the costs in the FY 11-12 Adopted Budget associated with that work. The **COST (+/-)** column represents FY 11-12 mid-year changes and any changes (+/-) proposed for the next fiscal year.

The **REVENUE CATEGORIES** column identifies the revenue that supports the work.

FY 2012-13 WORK PROGRAM BY CATEGORY

ADVANCE CLEAN AIR TECHNOLOGY

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE	
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-	CATEGORIES	
1	08	001	I	LEG	AB2766/Mob Src/Legal Advice	AB2766 Leg Adv: Trans/Mob Source	0.05		\$ 9,159	\$ 599	IX
2	04	003	III	FIN	AB2766/MSRC	MSRC Program Administration	0.35		45,517	2,085	IX
3	08	003	I	LEG	AB2766/MSRC	Legal Advice: MSRC Prog Admin	0.15		27,477	1,798	IX
4	44	003	I	STA	AB2766/MSRC	Mob Src Review Comm Prog Admin	1.00		152,374	5,531	IX
5	44	004	I	STA	AB2766/MSRC/Contract Admin	AB2766 Admin Discretionary Prog	3.00		457,123	16,593	IX
6	44	048	I	STA	Admin/Prog Mgmt/Tech Advance	Overall TA Program Mgmt/Coord	2.75	(1.20)	419,029	(174,276)	VIII
7	44	066	I	STA	AQIP Marine SCR DPF	AQIP Marine SCR DPF/Admin/Impl	0.00	0.15	-	23,686	IX
8	44	012	I	STA	AQMP/Control Tech Assessment	Tech Supp: Quantify Cost Effec	0.10		15,237	553	VIII
9	04	130	III	FIN	Clean Fuels/Contract Admin	Clean Fuels Contract Admin/Monitor	0.15		19,507	893	VIII
10	44	130	I	STA	Clean Fuels/Contract Admin	Admin/Project Supp for TA Cont	3.40		518,072	18,805	VIII,XVI
11	08	131	I	LEG	Clean Fuels/Legal Advice	Legal Advice: Clean Fuels	0.05		9,159	599	VIII
12	44	132	I	STA	Clean Fuels/Mobile Sources	Dev/Impl Mobile Src Proj/Demo	5.30		807,583	29,314	VIII
13	44	134	I	STA	Clean Fuels/Stationary Combust	Dev/Demo Clean Combustion Tech	0.70		106,662	3,872	XVI
14	44	135	I	STA	Clean Fuels/Stationary Energy	Dev/Demo Alt Clean Energy	0.70		106,662	3,872	XVI
15	44	136	I	STA	Clean Fuels/Tech Transfer	Disseminate Low Emiss CF Tech	1.45		230,943	8,020	VIII
16	44	190	I	STA	Diesel Projects EPA	Diesel Projects EPA/Admin/Impl	0.00		-	-	V
17	44	361	I	STA	HD Trucks DOE ARRA	DOE HD Trucks Admin (ARRA)	2.00		304,748	11,062	V
18	44	423	I	STA	LNG Corridor DOE	DOE LNG Corridor Admin (ARRA)	0.00		-	-	V
19	44	424	I	STA	LNG Trucks CEC	LNG Trucks Admin CEC	1.00		152,374	5,531	V
20	44	457	I	STA	Mob Src/C Moyer Adm/Outreach	Carl Moyer: Impl/Admin Grant	5.65	(0.50)	860,914	(47,703)	IX
21	44	459	I	STA	Mob Src/C Moyer/Impl/Prg Dev	Moyer/Implem/Program Dev	4.80	(2.00)	731,396	(289,262)	IX
22	08	457	I	LEG	Mob Src/C Moyer/Leg Advice	Moyer/Implem/Program Dev	0.20		36,636	2,397	IX
23	44	453	I	STA	Mob Src: Emiss Inven Method	Rvw CARB/US EPA emissions inven methodology	1.50		228,561	8,296	VIII,IX
24	04	457	III	FIN	Mobile Source/Moyer Adm	Carl Moyer: Contract/Fin Admin	1.00		130,050	5,956	IX
25	03	455	I	EO	Mobile Sources	Dev/Impl Mobile Source Strategies	0.10		20,584	2,956	IX
26	16	457	I	AHR	MS/Carl Moyer Admin	C Moyer/Contractor Compliance	1.00		172,678	1,270	IX
27	44	497	I	STA	Plug-in Hybrid EV DOE ARRA	DOE Plug-in Hybrid EV Admin (ARRA)	0.75		114,281	4,148	V
28	04	542	I	FIN	Prop 1B:Goods Movement	Contracts/Finance Admin	0.50		65,025	2,978	IX
29	44	542	I	STA	Prop 1B:Goods Movement	Prop 1B:Goods Movement	3.25	2.70	495,216	444,319	IX
30	50	542	I	EAC	Prop 1B:Goods Movement	Prop 1B: Gds Mvmnt/Inspect	0.30		43,850	1,540	IX
31	04	544	I	FIN	Prop 1B:Low Emiss Sch Bus	Grants/Finance Admin	0.10		13,005	596	IX
32	44	544	II	STA	Prop 1B:Low Emiss Sch Bus	Prop 1B:Low Emiss Sch Bus	0.20	1.80	30,475	285,335	IX
33	44	677	I	STA	School Bus/Lower Emission Prog	School Bus Program Oversight	1.10	(0.90)	167,612	(136,031)	VIII
34	44	718	II	STA	St Emissions Mitigation Prog	St Emissions Mitigation Prog	0.00		-	-	II
35	26	738	I	PRA	Target Air Shed EPA	Targeted Air Shed Admin/Impl	0.00	0.50	-	82,496	V
36	44	738	I	STA	Target Air Shed EPA	Targeted Air Shed Admin/Impl	0.00	0.15	-	23,686	V
37	44	740	I	STA	Tech Adv/Commercialization	Assess CFS/Adv Tech Potential	0.75	(0.50)	114,281	(74,804)	VIII
38	44	741	I	STA	Tech Adv/Non-Combustion	Dev/Demo Non-Combustion Tech	0.35	(0.25)	53,331	(37,540)	XVI
39	44	816	I	STA	Transportation Research	Transport Research/Adv Systems	0.50		76,187	2,765	VIII
40	44	460	I	STA	VIP Admin	VIP Admin/Outreach/Impl	0.00	0.80	-	126,324	VIII
41	44	860	I	STA	Zero Emission Vehicle Program	ZEV: Oversee Prog Admin	0.00		-	-	VIII

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FISCAL YEAR 2012-13 CATEGORY TOTAL	44.20	0.75	\$ 6,735,710	\$ 368,259
		44.95		\$7,103,969

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.

FY 2012-13 WORK PROGRAM BY CATEGORY

ENSURE COMPLIANCE WITH CLEAN AIR RULES

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE	
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-	CATEGORIES	
1	44	015	I	STA	Acid Rain Program	Acid Rain CEMS Eval/Cert	0.50		\$ 76,187	\$ 2,765	V
2	26	042	I	PRA	Admin/Office Mgmt/Compliance	Admin: Compl w AQMD Rules	0.25		39,804	1,443	Ib
3	26	046	I	PRA	Admin/Office Mgmt/Compliance	Admin: Compl of Existing Source	0.00		-	-	Ib
4	44	042	I	STA	Admin/Office Mgmt/Compliance	Compliance: Assign/Manage/Supp	0.37		56,378	2,046	Ib
5	26	215	I	PRA	Annual Emission Reporting	Annl Des/Impl/Emiss Monitor Sys	4.75	(0.75)	861,284	(96,319)	II
6	08	072	I	LEG	Arch Ctgs - End User	Case Dispo/Rvw, Track, Prep NOVs	0.05		9,159	599	XVIII
7	26	072	I	PRA	Arch Ctgs - End User	Compliance/Rpts/Rule Implementation	1.00		159,218	5,774	XVIII
8	44	072	I	STA	Arch Ctgs - End User	Sample Analysis/Rpts	1.00		152,374	5,531	XVIII
9	50	072	I	EAC	Arch Ctgs - End User	Compliance/Rpts/RuleImpmenta	0.10		14,617	513	XVIII
10	08	073	I	LEG	Arch Ctgs - Other	Case Dispo/Rvw, Track, Prep NOVs	0.05	0.25	9,159	49,391	XVIII
11	26	073	I	PRA	Arch Ctgs - Other	Compliance/Rpts/Rule Implementation	1.00		159,218	5,774	XVIII
12	44	073	I	STA	Arch Ctgs - Other	Sample Analysis/Rpts	2.00		304,748	11,062	XVIII
13	50	073	I	EAC	Arch Ctgs - Other	Compliance/Rpts/Rule Implementation	4.50		657,748	23,102	XVIII
14	26	076	I	PRA	Area Sources/Compliance	Area Source Compliance	3.50		607,262	57,208	III,V,IX,XV
15	16	080	III	AHR	Auto Services	Vehicle/Radio Repair & Maint	3.00		518,034	3,809	Ia
16	35	111	I	LPA	Call Center/CUT SMOG	Smoking Vehicle Complaints	8.00		1,187,684	92,297	IX
17	50	070	I	EAC	CARB PERP Program	CARB Audits/Statewide Equip Reg	7.00		1,023,164	35,937	XIX
18	08	115	I	LEG	Case Disposition	Trial/Dispo-Civil Case/Injunct	8.50		1,557,049	101,859	II,IV,V,VII,XV
19	44	105	I	STA	CEMS Certification	CEMS Review/Approval	6.15		937,101	34,015	II,III,VI
20	50	155	I	EAC	Compliance Guidelines	Procedures/Memos/Manuals	0.50		73,083	2,567	II
21	50	158	I	EAC	Compliance Testing	R461/Combustion Equip Testing	1.00		171,766	(20,466)	II
22	50	152	III	EAC	Compliance/IM Related Activiti	Assist IM: Design/Review/Test	0.50		73,083	2,567	II
23	08	154	I	LEG	Compliance/NOV Administration	Review/Track/Prep NOVs/MSAs	2.00		366,364	23,967	IV
24	50	157	I	EAC	Compliance/Special Projects	Prog Audits/Data Req/Board Supp	5.00		730,831	25,669	IV
25	26	165	I	PRA	Conformity	Monitor Transp. Conformity	0.45		71,648	2,598	V,IX
26	08	185	I	LEG	Database Management	Support IM/Dev Tracking System	0.25		80,796	2,996	IV
27	44	175	I	STA	DB/Computerization	Develop Systems/Database	0.44		67,045	2,434	II,IV,VI
28	08	726	I	LEG	District Prosecutor Support	Assist Enforcement Matters	0.05		9,159	599	IV
29	26	357	IV	PRA	GHG Reptg Sys EPA	GHG Reptg Sys EPA Admin/Impl	0.00	0.10	-	16,499	V
30	50	365	I	EAC	Hearing Bd/Variances	Variances/Orders of Abatement	1.50		219,249	7,701	VII
31	17	364	I	CB	Hearing Board/Abatement Orders	Attnd/Recrd/Monitr Mtgs	0.20	(0.10)	38,389	(18,608)	IV
32	08	366	I	LEG	Hearing Board/Legal	Hear/Disp-Varian/Appeal/Rev	3.50		641,138	41,942	IV,V,XV
33	17	365	I	CB	Hearing Board/Variances/Appeal	Attend/Record/Monitor HB Mtgs	3.15	0.25	631,723	66,221	V,VII
34	50	375	I	EAC	Inspections	Compliance/Inspection/Follow-up	83.20	(4.00)	12,181,130	(198,169)	IV,V,XV
35	50	377	I	EAC	Inspections/RECLAIM Audits	Audit/Compliance Assurance	23.80		3,478,756	122,184	II
36	08	380	I	LEG	Interagency Coordination	Coordinate with Other Agencies	0.50	(0.35)	91,591	(62,316)	II
37	08	402	III	LEG	Legal Advice/AQMD Programs	Legal Support/Rep on Legal Matter	0.50	(0.25)	91,591	(42,800)	Ia
38	08	403	III	LEG	Legal Rep/Liability Defense	Prep/Hearing/Disposition	2.00	1.00	571,864	203,133	Ia,II
39	44	450	I	STA	Microscopic Analysis	Asbestos/PM/Metals Analysis	3.00		457,123	16,593	VI
40	08	465	I	LEG	Mutual Settlement	Mutual Settlement Program	2.50	0.10	457,955	49,475	IV,V
41	44	500	I	STA	PM2.5 Program	Est/Operate/Maint PM2.5 Network	4.80		731,396	26,549	V
42	50	538	I	EAC	Port Comm AQ Enforcement	Port Comm AQ Enforcement	0.50		73,083	2,567	IX
43	50	550	I	EAC	Public Complaints/Breakdowns	Compltresp/Invflwup/Resolutn	10.00		1,461,662	51,338	II,IV,V,XV
44	50	605	III	EAC	RECLAIM/Admin Support	Admin/Policy/Guidelines	10.00		1,511,662	21,338	II,III,IV,XV

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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.

FY 2012-13 WORK PROGRAM BY CATEGORY

ENSURE COMPLIANCE WITH CLEAN AIR RULES (Continued)

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE	
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-	CATEGORIES	
45	26	620	I	PRA	Refinery Pilot Project	Refinery Pilot Project	0.25		\$ 39,804	\$ 1,443	II
46	26	645	I	PRA	Rule 1610 Plan Verification	Rule 1610 Plan Verification	0.50		79,609	2,887	IX
47	50	678	I	EAC	School Siting	Identify Haz. Emission Sources near Schools	1.00		146,166	5,134	II
48	44	700	I	STA	Source Testing/Compliance	Conduct ST/Prov Data/Compl	2.25		362,842	12,445	VI
49	26	716	I	PRA	Spec Monitoring/R403	Rule 403 Compliance Monitoring	0.00	0.25	-	41,248	III,IX,XV
50	44	716	I	STA	Special Monitoring/Rule 403	Rule 403 Compliance Monitoring	2.20		385,223	12,168	II,III,IX,XV
51	44	704	I	STA	ST/Sample Analysis/Compliance	Analyze ST Samples/Compliance	4.00		609,497	22,124	VI
52	50	751	I	EAC	Title III Inspections	Title III Comp/Insp/Follow Up	0.50		73,083	2,567	IV
53	08	770	I	LEG	Title V	Leg Advice: Title V Prog/Perm Dev	0.05		9,159	599	II,IV
54	50	771	I	EAC	Title V Inspections	Title V Compl/Inspect/Follow Up	11.00		1,607,828	56,472	II,IV
55	04	791	III	FIN	Toxics/AB2588	AB2588 Toxics HS Fee Collection	0.15		34,507	893	X
56	08	791	I	LEG	Toxics/AB2588	AB2588 Legal Advice: Plan & Impl	0.05		9,159	599	X
57	26	794	I	PRA	Toxics/AB2588	AB2588 Core, Tracking, IWS	7.25	(0.25)	1,154,328	611	X
58	27	791	III	IM	Toxics/AB2588	AB2588 Database Software Supp	0.50		139,529	4,445	X
59	44	794	I	STA	Toxics/AB2588	Eval Protocols/Methods/ST	1.25		190,468	6,914	X
60	26	790	I	PRA	Toxics/AB2588 Plans/Reports	AB2588 Rev Rpt/Risk Assmt Plan	0.50		79,609	2,887	X
61	44	795	I	STA	Toxics/Engineering	R1401 Toxics/HRA Prot/Rpt Eval	0.00		-	-	XVII
62	50	850	I	EAC	VEE Trains	Smoking Trains-Compl/Inspec/FU	0.50		73,083	2,567	XV
63	44	707	I	STA	VOC Sample Analysis/Compliance	VOC Analysis & Rptg/Compliance	7.00		1,098,620	55,717	IV,XV

	250.01	(3.75)	\$ 38,704,790	\$ 915,102
FISCAL YEAR 2012-13 CATEGORY TOTAL		246.26		\$ 39,619,893

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.

FY 2012-13 WORK PROGRAM BY CATEGORY

CUSTOMER SERVICE AND BUSINESS ASSISTANCE

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE CATEGORIES	
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-		
1	26	007	I	PRA	AB2766/Mobile Source	AB2766 Prov Tech Asst to Cities	0.95		\$ 151,257	\$ 5,485	IX
2	26	216	I	PRA	AER Public Assistance	AER Design/Impl/Monitor Emiss	0.25	(0.10)	39,804	(15,056)	II
3	04	170	I	FIN	Billing Services	Answer/Resp/Resolv Prob & Inq	9.00	(1.00)	1,170,447	(74,399)	II,III,IV
4	35	126	II	LPA	Clean Air Connections	Coord of region-wide community group	1.00		148,460	11,537	II,IX
5	50	200	I	EAC	Economic Dev/Bus Retention	Perm Proc/Public Participation	0.10		14,617	513	III
6	35	205	II	LPA	Environmental Education	Curriculum Dev/Project Coord	0.25		37,115	2,884	II,IX,XV
7	04	260	III	FIN	Fee Review	Cmte Mtg/Fee-Related Complaint	0.10		13,005	596	II,III,XV
8	35	260	III	LPA	Fee Review	Cmte Mtg/Fee-Related Complaint	0.50		74,230	5,769	II,III,IV,XV
9	50	260	III	EAC	Fee Review	Fee Review Committee	0.10	0.35	14,617	53,468	II,III,IV
10	35	390	I	LPA	Intergov/Geographic Deployment	Dev/Impl Local Govt Outreach	7.50	2.00	1,223,454	334,523	II,IX
11	03	390	I	EO	Intergovernmental	Policy Development	0.02	0.03	4,117	7,653	Ia,IX
12	08	404	I	LEG	Legal Rep/Legislation	Draft Legis/AQMD Position/Mtgs	0.10		18,318	1,198	II,IX,XV
13	50	425	I	EAC	Lobby Permit Services	Supp Perm Proc/Customer Svc	1.00		146,166	5,134	III
14	03	490	I	EO	Outreach	Publ Awareness Clean Air Prog	1.00		205,837	29,558	Ia
15	35	491	I	LPA	Outreach/Business	Chambers/Business Meetings	1.00		148,460	11,537	II,IV
16	35	496	I	LPA	Outreach/Visiting Dignitary	Tours/Briefings-Dignitary	0.25		37,115	2,884	Ia
17	16	540	III	AHR	Print Shop	Printing/Collating/Binding	4.00		701,712	5,079	Ia
18	03	492	I	EO	Public Education	Pub Events/Conf/Rideshare Fair	0.05	(0.05)	10,292	(10,292)	Ia,IX
19	35	492	I	LPA	Public Education/Public Events	Pub Events/Conf/Rideshare Fair	1.00		258,379	121,618	II,V,IX,XV
20	35	555	I	LPA	Public Information Center	Inform public of unhealthy air	1.00		192,460	(2,463)	II,V,IX
21	35	560	I	LPA	Public Notification	Public notif of rules/hearings	0.50		84,230	15,769	II,IV,IX
22	03	565	III	EO	Public Records Act	Comply w/ Public Req for Info	0.03	0.02	6,175	5,595	XVII
23	04	565	I	FIN	Public Records Act	Comply w/ Public Rec Requests	0.02		2,601	119	XVII
24	08	565	III	LEG	Public Records Act	Comply w/ Public Rec Requests	0.50		91,591	5,992	XVII
25	16	565	III	AHR	Public Records Act	Comply w/ Public Rec Requests	0.20		34,536	254	XVII
26	17	565	III	CB	Public Records Act	Comply w/ Public Rec Requests	0.04	(0.02)	7,678	(3,722)	XVII
27	26	565	III	PRA	Public Records Act	Comply w/ Public Rec Requests	0.05		7,961	289	XVII
28	27	565	III	IM	Public Records Act	Comply w/ Public Req for Info	3.75		629,468	33,339	XVII
29	35	565	III	LPA	Public Records Act	Comply w/ Public Req for Info	0.10		14,846	1,154	XVII
30	44	565	III	STA	Public Records Act	Comply w/ Public Req for Info	0.17		25,904	940	XVII
31	50	565	III	EAC	Public Records Act	Comply w/ Public Req for Info	0.50		73,083	2,567	XVII
32	26	833	II	PRA	Rule 2202 ETC Training	Rule 2202 ETC Training	1.30		206,983	7,506	XI
33	35	679	III	LPA	Small Business/Financial Asst	Small Business/Financial Assistance	2.00	(1.00)	296,921	(136,923)	III
34	08	681	III	LEG	Small Business/Legal Advice	Legal Advice: SB/Fee Review	0.05		9,159	599	II,III
35	35	680	I	LPA	Small Business/Permit Streamln	Asst sm bus to comply/AQMD req	3.95		586,419	45,572	II,III,IV,V
36	50	690	I	EAC	Source Education	Prov Tech Asst To Industries	2.80		409,265	14,375	III,V,XV
37	44	701	I	STA	Source Testing/Customer Svc	Conduct ST/Prov Data/Cust Svc	0.10		15,237	553	VI
38	35	710	I	LPA	Speakers Bureau	Coordinate/conduct speeches	0.10		14,846	1,154	Ia
39	16	720	I	AHR	Subscription Services	Rule & Gov Board Materials	1.70		293,553	2,159	XIV
40	35	791	I	LPA	Toxics/AB2588	Outreach/AB 2588 Air Toxics	0.01		1,485	115	X
41	44	709	I	STA	VOC Sample Analysis/SBA/Other	VOC Analysis & Reptg/Cust Svc	0.50		76,187	2,765	VI

		47.54	0.23	\$ 7,497,992	\$ 497,397
FISCAL YEAR 2012-13 CATEGORY TOTAL			47.77		\$ 7,995,388

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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.

FY 2012-13 WORK PROGRAM BY CATEGORY

DEVELOP PROGRAMS TO ACHIEVE CLEAN AIR

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE CATEGORIES	
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-		
1	26	002	I	PRA	AB2766/Mobile Source	AB2766 Mobile Source Outreach	0.70		\$ 111,452	\$ 4,042	IX
2	03	028	I	EO	Admin/AQMD Policy	Dev/Coord Goals/Policies/Overs	2.00		461,675	59,115	Ia
3	26	038	I	PRA	Admin/Office Management	Coordinate Off/Admin Activities	0.50		79,609	2,887	Ib
4	44	039	I	STA	Admin/Office Mgt/Tech Adv	Admin Support/Coordination	0.77		117,328	4,259	VIII
5	26	049	I	PRA	Admin/Prog Mgmt/AQMP	Admin: AQMP Development	0.75		119,413	4,330	Ib
6	26	057	I	PRA	Admin/Transportation Prog Mgmt	Admin: Transportation Programs	0.70		111,452	4,042	Ib
7	26	061	I	PRA	Air Quality Evaluation	Air Quality Evaluation	1.00		159,218	5,774	IX
8	44	069	I	STA	AQIP Evaluation	AQIP Contract Admin/Evaluation	0.80	(0.15)	121,899	(19,261)	IX
9	26	068	II	PRA	AQMD Projects	Prepare Environmental Assessments	5.10		932,010	(70,555)	II,IV,IX
10	03	010	I	EO	AQMP	Develop/Implement AQMP	0.03	0.02	6,175	5,595	II,IX
11	08	010	I	LEG	AQMP	AQMP Revision/CEQA Review	0.05		9,159	599	II,IX
12	26	010	I	PRA	AQMP	AQMP Special Studies	0.00	1.00	20,000	164,991	V,IX,XV
13	26	218	I	PRA	AQMP/Emissions Inventory	Dev Emiss Inv: Forecasts/RFPs	2.00	0.25	318,435	52,795	II,IX
14	26	071	I	PRA	Arch Ctgs - Admin	Rdev/Aud/DB/TA/AQMD/Rpts/AER	1.00		159,218	5,774	XVIII
15	26	102	II	PRA	CEQA Document Projects	Review/Prepare CEQA Comments	3.40		541,340	19,630	II,IX
16	26	104	I	PRA	CEQA Policy Development	ID/Develop/Impl CEQA Policy	1.10		175,139	51,351	IV,IX
17	26	103	II	PRA	CEQA Special Projects	Contracted by Lead Agency	1.40	(1.00)	222,905	(156,908)	XVII
18	26	128	I	PRA	Cln Communities Pln	Cln Communities Plan Admn/Impl	0.00	1.50	-	247,487	II,IX
19	26	600	I	PRA	Credit Generation Programs	Dev RFP/AQMP Ctrl Strats/Inter	1.00	0.25	159,218	47,021	II,V,IX
20	26	219	I	PRA	Emissions Field Audit	Emissions Field Audit	2.00		318,435	11,547	II
21	26	217	I	PRA	Emissions Inventory Studies	Dev Emiss DB/Dev/Update Emiss	3.00	1.00	477,653	182,312	II,V,IX,XV
22	44	396	I	STA	Lawnmower Exchange	Lawn Mower Admin/Impl/Outreach	0.30		45,712	1,659	XVII
23	26	397	II	PRA	Lead Agency Projects	Prep Envrmt Assmts/Perm Proj	1.30		206,983	7,506	III
24	44	451	I	STA	Mob Src/CARB/EPA Monitoring	CARB/US EPA Mob Src Fuel Policies	1.50		228,561	8,296	IX
25	44	452	I	STA	Mob Src/CEC/US DOE Monitoring	CEC/US DOE Mob Src rulemaking proposals	1.00		152,374	5,531	IX,XVII
26	44	458	I	STA	Mobile Source Strategies	Implement Fleet Rules	1.00		152,374	5,531	VIII
27	44	448	I	STA	Mobile Src Strategies-Off Road	CARB Off-Road Mob Src ctrl strategy for SIP	1.00		152,374	5,531	XVII
28	26	463	I	PRA	Mold Project EPA	Mold Project EPA/Admin Impl	0.00	0.10	-	16,499	V
29	26	503	I	PRA	PM Strategies	PM10 Plan/Analyze/Strategy Dev	5.50	(1.50)	875,697	(190,732)	II,V,XV
30	26	221	I	PRA	PR2301 ISR Rule Implementation	Mitigate dev growth	1.75		278,631	10,104	II,IX
31	26	745	I	PRA	Rideshare	Dist Rideshare/Telecommute Prog	0.50		79,609	2,887	IX
32	26	834	I	PRA	Rule 2202 Implement	Rule 2202 Proc/Sub Plans/Tech Eval	3.50		557,262	20,208	XI
33	26	836	I	PRA	Rule 2202 Support	R2202 Supt/CmptrMaint/WebSubmt	2.50		413,044	14,434	V,XI
34	26	685	I	PRA	Socio-Economic	Apply econ models/Socio-econ	3.50	(0.25)	850,762	(151,040)	II,IV
35	44	702	I	STA	ST Methods Development	Eval ST Methods/Validate	0.95		144,756	5,254	II
36	44	705	I	STA	ST Sample Analysis/Air Program	Analyze ST Samples/Air Prgms	0.25		38,094	1,383	II
37	26	816	I	PRA	Transportation Regional Progs	Dev AQMP Meas/Coord w/Reg Agn	0.50		79,609	2,887	V,IX

	52.35	1.22	\$ 8,877,573	\$ 392,764
FISCAL YEAR 2012-13 CATEGORY TOTAL		53.57		\$ 9,270,338

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FY 2012-13 WORK PROGRAM BY CATEGORY

DEVELOP RULES TO ACHIEVE CLEAN AIR

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-	CATEGORIES
1	44	043	I	STA	Admin/Office Mgmt/Rules	0.15		\$ 22,856	\$ 830	Ib
2	26	050	I	PRA	Admin/Rule Dev/PRA	1.00		159,218	5,774	Ib
3	26	077	I	PRA	Area Sources/Compliance	4.00		636,870	23,095	II,IX
4	03	385	I	EO	Credit Generation Programs	0.02		4,117	591	II
5	26	385	I	PRA	Criteria Pollutants/Mob Srcs	2.00	(1.00)	318,435	(153,444)	IV,IX
6	26	362	II	PRA	Health Effects	1.80		286,592	10,393	II,III,IX
7	44	449	I	STA	Mob Src/AQMD Rulemaking	2.00		304,748	11,062	VIII,IX
8	44	456	I	STA	MS & AQMP Control Strategies	0.30		45,712	1,659	VIII
9	26	655	I	PRA	NSR/Adm Rulemaking	4.00	0.50	636,870	105,590	II,IV,V,XV
10	26	460	I	PRA	Regional Modeling	4.75	0.50	831,284	84,920	II,V,IX
11	50	650	I	EAC	Rulemaking	0.50		73,083	2,567	II,XV
12	44	653	I	STA	Rulemaking/BACT	2.85	(0.85)	434,267	(118,456)	II
13	26	654	I	PRA	Rulemaking/NOX	1.00		159,218	5,774	II,IV,XV
14	08	661	I	LEG	Rulemaking/RECLAIM	0.05	0.05	9,159	10,357	II
15	26	661	I	PRA	Rulemaking/RECLAIM	2.00		318,435	11,547	II
16	44	657	I	STA	Rulemaking/Support PRA	0.05		7,619	277	II
17	50	657	I	EAC	Rulemaking/Support PRA	0.50		73,083	2,567	II,XV
18	26	659	I	PRA	Rulemaking/Toxics	5.70	(1.50)	907,540	(214,577)	II,XV
19	26	656	I	PRA	Rulemaking/VOC	10.00	(2.60)	1,722,176	(431,241)	II,IV,XV
20	03	650	I	EO	Rules	0.03	0.01	6,175	3,241	II,IX
21	08	651	I	LEG	Rules/Legal Advice	1.00	(0.25)	183,182	(36,808)	II
22	44	706	I	STA	ST Sample Analysis/Air Program	0.25		38,094	1,383	II
23	50	752	I	EAC	Title III Rulemaking	0.25		36,542	1,283	II,V,XV
24	50	773	I	EAC	Title V & NSR Rulemaking-Supp	0.25		36,542	1,283	II
25	44	708	I	STA	VOC Sample Analysis/Rules	0.25		38,094	1,383	II,XV

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44.70	(5.14)	\$ 7,289,910	\$ (668,951)
FISCAL YEAR 2012-13 CATEGORY TOTAL		39.56	\$ 6,620,958

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FY 2012-13 WORK PROGRAM BY CATEGORY

MONITORING AIR QUALITY

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE CATEGORIES
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-	
1	44	038	I	STA Admin/Office Mgmt/Monitoring	Overall Program Mgmt/Coord	0.90		\$ 137,137	\$ 4,978	Ib
2	44	046	I	STA Admin/Program Management	STA Program Administration	2.00		316,748	11,062	Ib
3	26	081	I	PRA Air Filtration EPA	Air Filtration EPA/Admn/Impl	0.00	0.10	-	16,499	V
4	44	081	I	STA Air Filtration EPA	Air Filtration EPA/Admn/Impl	0.00	0.25	-	39,476	V
5	26	082	I	PRA Air Filtration Other	Air Filtration Oth/Admn/Impl	0.00	0.50	-	82,496	XVII
6	44	082	I	STA Air Filtration Other	Air Filtration Other/Admn/Impl	0.00	0.50	-	78,953	XVII
7	44	065	I	STA Air Quality Data Management	AM Audit/Validation/Reporting	1.00		152,374	5,531	II,V,IX
8	44	063	I	STA Ambient Air Analysis	Analyze Criteria/Tox/Pollutants	12.91	(1.00)	1,967,151	63,499	II,V,IX
9	44	067	II	STA Ambient Lead Monitoring	Lead Monitoring/Analysis/Reporting	0.50		76,187	2,765	II
10	44	064	I	STA Ambient Network	Air Monitoring/Toxics Network	17.50	(1.00)	2,864,149	(151,114)	II,V,IX
11	26	151	II	PRA Community Scale AirToxicsStudy	EPA-funded airports air monit	0.00	0.50	-	82,496	XVII
12	44	151	I	STA Community Scale AirToxicsStudy	EPA-funded airports air monit	0.00	1.00	-	157,905	XVII
13	50	210	I	EAC Emergency Response	Emerg Tech Asst to Public Saf	0.25		36,542	1,283	II,XV
14	44	249	I	STA EPA Air Toxics Study	EPA Air Toxics Study	0.00		-	-	V
15	44	439	I	STA MATES IV	MATES IV	0.00	0.50	-	78,953	VIII
16	26	445	I	PRA Meteorology	ModelDev/Data Analysis/Forecast	2.00	(0.10)	413,435	6,048	II,V,IX
17	44	468	I	STA NATTS(Natl Air Tox Trends Sta)	NATTS (Natl Air Tox Trends)	1.50		228,561	8,296	V
18	44	469	I	STA Near Roadway Mon	Near Roadway Monitoring	0.00	1.50	-	236,858	IX
19	26	530	I	PRA Photochemical Assessment	Photochemical Assessment	0.25		39,804	1,443	II,V
20	44	530	I	STA Photochemical Assessment	Photochemical Assess & Monitor	3.00		457,123	16,593	V,IX
21	44	505	I	STA PM Sampling Program (EPA)	PM Sampling Program - Addition	10.60		1,615,167	58,628	V
22	44	507	I	STA PM Sampling Spec	PM Sampling Special Events	0.00	0.10	-	15,791	V
23	44	501	I	STA PM2.5 Program	Analyze PM2.5 Samples	6.00		914,245	33,186	V
24	26	538	I	PRA Port AQ/I-710 Monitoring	Monitor AQ in Port Communities	0.00	0.50	-	82,496	IX,XVII
25	44	538	I	STA Port AQ/I-710 Monitoring	Port AQ Monitoring	3.40	(1.60)	518,072	(233,843)	IX,XVII
26	44	585	I	STA Quality Assurance	Quality Assurance Branch	5.00	(2.00)	761,871	(288,156)	II,IX
27	44	715	I	STA Spec Monitoring/Emerg Response	Emergency Response	0.50		76,187	2,765	II
28	26	789	I	PRA Toxic Inventory Development	Toxic Emission Inventory Study	1.00		159,218	5,774	X
29	26	821	II	PRA TraPac Air Filt Prg	Admin/Tech Suppt/Reptg/Monitor	0.00	0.25	-	41,248	XVII
30	44	821	II	STA TraPac Air Filt Prg	Admin/Tech Suppt/Reptg/Monitor	1.00		152,374	5,531	XVII

FISCAL YEAR 2012-13 CATEGORY TOTAL				
69.31	0.00	\$ 10,886,346	\$ 467,440	
	69.31		\$11,353,786	

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FY 2012-13 WORK PROGRAM BY CATEGORY

OPERATIONAL SUPPORT

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE CATEGORIES	
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-		
1	04	002	III	FIN	AB2766/Mobile Source	Prog Admin: Monitor/Dist/Audit	0.10		\$ 13,005	\$ 9,396	IX
2	04	020	III	FIN	Admin/AQMD Budget	Analyze/Prepare/Impl/Track WP	2.50		325,124	14,891	Ia
3	04	023	III	FIN	Admin/AQMD Capital Assets	FA Rep/Reconcile/Inv/Acct	0.70		115,035	4,169	Ia
4	04	021	III	FIN	Admin/AQMD Contracts	Contract Admin/Monitor/Process	3.20		416,159	19,060	Ia
5	17	024	III	CB	Admin/AQMD/GB/HB Mgmt	Admin Governing/Hearing Brds	1.25		239,930	7,329	Ia,VII
6	08	025	III	LEG	Admin/AQMD-Legal Research	Legal Research/Staff/Exec Mgmt	1.25	0.25	228,978	63,771	Ia
7	04	045	III	FIN	Admin/Office Budget	Office Budget/Prep/Impl/Track	0.05		6,502	298	Ib
8	03	038	III	EO	Admin/Office Management	Budget/Program Management	1.05	(0.05)	216,129	19,266	Ib
9	04	038	III	FIN	Admin/Office Management	Fin Mgmt/Oversee Activities	3.10		403,154	18,465	Ib
10	08	038	III	LEG	Admin/Office Management	Attorney Timekeeping/Perf Eval	4.00	(0.50)	736,729	(49,649)	Ib
11	16	038	III	AHR	Admin/Office Management	Reports/Proj/Budget/Contracts	2.05		358,190	2,603	Ib
12	50	038	I	EAC	Admin/Office Management	Dev/Coord Goals/Policies/Overs	4.00		584,665	20,535	Ib
13	50	047	I	EAC	Admin/Operations Support	Budget/Contracts/Reports/Projects	5.00		735,831	25,669	Ib
14	35	046	III	LPA	Admin/Prog Mgmt	Admin Office/Units/SuppCoord Staff	5.02	(2.00)	745,272	(262,079)	Ib
15	44	052	I	STA	Admin/Prog Mgmt/Mob Src	Admin: Mobile Source	1.80		274,274	9,956	Ib
16	27	215	I	IM	Annual Emission Reporting	System Enhancements for GHG	0.50		83,929	4,445	II,XVII
17	16	026	III	AHR	AQMD Mail	Posting/Mailing/Delivery	2.30		397,160	2,921	Ia
18	04	071	I	FIN	Arch Ctgs - Admin	Cost Analysis/Payments	0.04		5,202	238	XVIII
19	08	071	I	LEG	Arch Ctgs - Admin	Rule Dev/TA/Reinterpretations	0.05	0.25	9,159	49,391	XVIII
20	27	071	I	IM	Arch Ctgs - Admin	Database Dev/Maintenance	0.25		41,965	2,223	XVIII
21	44	071	I	STA	Arch Ctgs - Admin	Report Review	0.00		-	-	XVIII
22	50	071	I	EAC	Arch Ctgs - Admin	Report Review	0.10		14,617	513	XVIII
23	04	085	III	FIN	Building Corporation	Building Corp Acct/Fin Reports	0.02		2,601	119	Ia
24	16	090	III	AHR	Building Maintenance	Repairs & Preventative Maint	7.00		1,211,997	8,889	Ia
25	16	092	III	AHR	Business Services	Building Services Admin/Contracts	2.40		414,427	3,048	Ia
26	04	631	III	FIN	Cash Mgmt/Refunds	Research/Doc/Prep/Proc Refunds	0.30		39,015	1,787	III,IV,XI
27	04	630	III	FIN	Cash Mgmt/Revenue Receiving	Receive/Post Pymts/Reconcile	5.25		682,761	31,271	II,III,IV,XI
28	08	102	II	LEG	CEQA Document Projects	CEQA Review	0.15	0.85	27,477	167,688	II,III,IX
29	16	226	III	AHR	Classification & Pay	Class & Salary Studies	0.30		51,803	381	Ia
30	27	160	III	IM	Computer Operations	Oper/Manage Host Computer Sys	5.25		1,183,555	36,225	Ia
31	27	184	III	IM	Database Information Support	Ad Hoc Reports/Bulk Data Update	1.00		187,858	8,891	Ia
32	27	185	III	IM	Database Management	Dev/Maintain Central Database	2.25		377,681	20,004	Ia
33	16	225	III	AHR	Employee Benefits	Benefits Analysis/Orient/Records	1.40		241,749	1,778	Ia
34	04	233	III	FIN	Employee Relations	Assist HR/Interpret Salary Res	0.10		13,005	596	Ia
35	16	233	III	AHR	Employee Relations	Meet/Confer/Labor-Mgmt/Grievance	2.70		466,231	3,429	Ia
36	08	227	III	LEG	Employee/Employment Law	Legal Advice: Employment Law	0.75		137,387	8,988	Ia
37	16	060	III	AHR	Equal Employment Opportunity	Program Dev/Monitor/Reporting	0.10		17,268	127	Ia
38	16	255	III	AHR	Facilities Services	Phones/Space/Keys/Audio-Visual	1.00		174,678	1,270	Ia
39	04	265	III	FIN	Financial Mgmt/Accounting	Record Accts Rec & Pay/Rpts	6.20		850,908	32,329	Ia
40	04	266	III	FIN	Financial Mgmt/Fin Analysis	Fin/AQMD Stat Analysis & Audit	0.80		104,040	4,765	Ia
41	04	267	III	FIN	Financial Mgmt/Treasury Mgmt	Treas Mgt Anlyz/Trk/Proj/Invst	0.90		219,045	4,361	Ia
42	04	268	III	FIN	Financial Systems	CLASS/Rev/Acct/PR/Sys Analyze	0.10		13,005	596	Ia
43	02	275	II	GB	Governing Board	Rep of Dist Meet/Conf/Testimony	0.00		1,264,321	-	Ia
44	17	275	III	CB	Governing Board	Attend/Record/Monitor Meetings	1.30	(0.10)	249,527	(12,159)	Ia
45	04	355	III	FIN	Grants Management	Grant Anlyz/Eval/Negot/Acc/Rpt	1.00		130,050	5,956	V,XV
46	35	350	III	LPA	Graphic Arts	Graphic Arts	2.00		342,921	(22,926)	Ia
47	27	370	III	IM	Information Technology Svcs	Enhance Oper Effic/Productivity	2.75		493,960	24,449	Ia
48	08	401	III	LEG	Legal Advice/AQMD Programs	General Advice: Contracts	3.00	(1.00)	609,547	(159,215)	Ia
49	27	420	III	IM	Library	General Library Svcs/Archives	1.25	(1.00)	232,773	(180,235)	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.

FY 2012-13 WORK PROGRAM BY CATEGORY

OPERATIONAL SUPPORT (Continued)

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE	
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-	CATEGORIES	
50	04	447	I	FIN	Mobile Sources/Accounting	Record Acct Rec & Pay/Special Funds	0.65		\$ 84,532	\$ 3,872	IX
51	27	470	III	IM	Network Operations/Telecomm	Operate/Maintain/Implem AQMD	10.25	(1.00)	2,011,790	(194,421)	Ia
52	27	480	III	IM	New System Development	Dev sys for special oper needs	3.00		566,574	30,868	II,IV
53	27	481	III	IM	New System Development	Dev sys in supp of Dist-wide	1.75		324,552	15,558	Ia,III
54	04	493	III	FIN	Outreach/SB/MB/DVBE	Outreach/Incr SB/DVBE Partic	0.05		6,502	298	Ia
55	04	510	III	FIN	Payroll	Ded/Ret Rpts/PR/St & Fed Rpts	3.60		483,079	26,543	Ia
56	16	232	III	AHR	Position Control	Track Positions/Workforce Analys	0.40		69,071	508	Ia
57	04	570	III	FIN	Purchasing	Purch/Track Svcs & Supplies	3.50	(1.00)	455,174	(115,159)	Ia
58	04	571	III	FIN	Purchasing/Receiving	Receive/Record AQMD Purchases	1.20		156,060	7,148	Ia
59	04	572	III	FIN	Purchasing-Receiving/Stockroom	Track/Monitor AQMD Supplies	1.00		130,050	5,956	Ia
60	27	615	III	IM	Records Information Mgmt Plan	Plan/Impl/Dir/Records Mgmt plan	1.25		247,823	11,113	Ia
61	27	038	III	IM	Records Services	Overall Direction/Coord of IM	2.00		335,716	17,781	Ia
62	27	616	III	IM	Records Services	Records/Documents processing	3.75		769,468	23,843	Ia,III,IV
63	16	228	III	AHR	Recruitment & Selection	Recruit Candidates for AQMD	4.25	(1.00)	758,182	(168,551)	Ia
64	16	640	III	AHR	Risk Management	Liabl/Property/Wk Comp/SelfIns	1.00		305,678	1,270	Ia
65	27	736	III	IM	Systems Implementation	Fin/HR PeopleSoft Systems Impl	1.50		396,787	113,336	Ia
66	27	735	III	IM	Systems Maintenance	Maintain Existing Software Prog	4.50		1,166,111	(21,343)	II,III,IV
67	04	805	III	FIN	Training	Continuing Education/Training	0.20		26,010	1,191	Ib
68	26	805	III	PRA	Training	Training	0.05		7,961	289	Ib
69	50	805	III	EAC	Training	Dist/Org Unit Training	6.00		876,997	30,803	Ib
70	04	825	III	FIN	Union Negotiations	Official Labor/Mgmt Negotiate	0.02		2,601	119	Ia
71	08	825	III	LEG	Union Negotiations	Legal Adv: Union Negotiations	0.05		9,159	599	Ia
72	26	825	III	PRA	Union Negotiations	Official Labor/Mgmt Negotiate	0.01		1,592	58	Ia
73	35	825	III	LPA	Union Negotiations	Official Labor/Mgmt Negotiate	0.01		1,485	115	Ia
74	44	825	III	STA	Union Negotiations	Labor/Mgmt Negotiations	0.05		7,619	277	Ia
75	50	825	III	EAC	Union Negotiations	Official Labor/Mgmt Negotiate	0.10		14,617	513	Ia
76	04	826	III	FIN	Union Steward Activities	Rep Employees in Grievance Act	0.01		1,300	60	Ia
77	08	826	III	LEG	Union Steward Activities	Rep Employees in Grievance Act	0.05		9,159	599	Ia
78	26	826	III	PRA	Union Steward Activities	Rep Employees in Grievance Act	0.01		1,592	58	Ia
79	35	826	III	LPA	Union Steward Activities	Union Steward Activities	0.01		1,485	115	Ia
80	50	826	III	EAC	Union Steward Activities	Rep Employees in Grievance Act	0.10		14,617	513	Ia
81	03	855	II	EO	Web Tasks	Create/edit/review web content	0.50	(0.47)	102,919	(95,857)	Ia
83	04	855	II	FIN	Web Tasks	Create/edit/review web content	0.02		2,601	119	Ia
84	17	855	II	CB	Web Tasks	Create/edit/review web content	0.06	(0.03)	11,517	(5,582)	Ia
85	20	855	II	MO	Web Tasks	Create/edit/review web content	0.00	0.04	0	6,637	Ia
86	26	855	II	PRA	Web Tasks	Create/edit/review web content	0.10		15,922	577	Ia
87	27	855	II	IM	Web Tasks	Create/edit/review web content	3.25		557,539	238,894	Ia
88	35	855	II	LPA	Web Tasks	Create/edit/review web content	0.40		59,384	4,615	Ia
89	44	855	II	STA	Web Tasks	Create/edit/review web content	0.00		-	-	Ia
90	50	855	II	EAC	Web Tasks	Creation/Update of Web Content	0.50		73,083	2,567	Ia

	142.78	(6.76)	\$ 25,764,520	\$ (98,006)
FISCAL YEAR 2012-13 CATEGORY TOTAL		136.02		\$ 25,666,515

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.

FY 2012-13 WORK PROGRAM BY CATEGORY

TIMELY REVIEW OF PERMITS

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE CATEGORIES	
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-		
1	26	040	I	PRA	Admin/Office Mgmt/AQ Impl	Admin/Modeling/New Legis/Sm Sr	0.42		\$ 66,871	\$ 2,425	Ib
2	26	044	I	PRA	Admin/Office Mgmt/Permit & Fee	Admin: Resolve Perm/Fee Issues	0.10		15,922	577	Ib
3	26	120	I	PRA	Certification/Registration Pro	Certification/Registration Prog	1.80		286,592	10,393	III
4	50	253	I	EAC	ERC Appl Processing	Process ERC Applications	3.50		511,582	17,968	III
5	50	367	I	EAC	Hearing Board/Appeals	Appeals: Permits & Denials	0.50		73,083	2,567	III
6	50	476	I	EAC	NSR Data Clean Up	Edit/Update NSR Data	0.50		73,083	2,567	II
7	50	475	I	EAC	NSR Implementation	Implement NSR/Allocate ERCs	2.50		410,416	(17,166)	II,V,XV
8	50	521	III	EAC	Perm Proc/Expedited Permit	Proc Expedited Permits (301OT)	0.50		73,083	2,567	III
9	50	728	I	EAC	Perm Proc/IM Programming	Assist IM: Design/Review/Test	2.00		292,332	10,268	II,III,IV
10	50	156	I	EAC	Perm Proc/Info to Compliance	Prov Permit Info to Compliance	3.00		438,499	15,401	III,IV,XV
11	50	515	I	EAC	Perm Proc/Non TV/Non RECLAIM	PP: Non TitIV/TitIII/RECLAIM	37.05	18.25	5,550,559	2,921,331	III,XV
12	50	520	I	EAC	Perm Proc/Pre-Appl Mtg Outreac	Pre-App Mtgs/Genl Prescreening	4.00		584,665	20,535	III
13	50	519	I	EAC	Perm Proc/Title III (Non TV)	Process Title III Permits	1.00		146,166	5,134	III
14	26	461	I	PRA	Permit & CEQA Modeling Review	Review Model Permit/Risk Assmt	1.25	0.25	219,022	48,465	III
15	08	516	I	LEG	Permit Processing/Legal	Legal Advice: Permit Processing	0.10	0.15	18,318	30,473	III
16	44	725	I	STA	Permit Processing/Support EAC	Assist EAC w/ Permit Process	0.05		7,619	277	III
17	50	517	I	EAC	Permit Services	Facility Data-Create/Edit	32.85	(20.35)	4,801,560	(2,910,310)	III,XV
18	27	523	III	IM	Permit Streamlining	Permit Streamlining	0.25		41,965	2,223	III
19	50	523	I	EAC	Permit Streamlining	Permit Streamlining	4.00	(0.25)	584,665	(17,290)	III
20	35	514	III	LPA	Permit: Expired Permit Program	Assist w Permit Reinstatement	0.30		44,538	3,461	IV
21	44	545	I	STA	Protocols/Reports/Plans	Eval Test Protocols/Cust Svc	0.10		15,237	553	III,IV
22	44	546	I	STA	Protocols/Reports/Plans	Eval Test Protocols/Compliance	6.15		937,101	34,015	IV,VI
23	50	607	I	EAC	RECLAIM & Title V	Process RECLAIM & TV Permits	0.00	12.65	-	1,913,945	III
24	50	518	I	EAC	RECLAIM Non-Title V	Process RECLAIM Only Permits	22.90	(18.40)	3,347,206	(2,666,356)	III,IV,XV
25	26	643	I	PRA	Rule 222 Filing Program	Rule 222 Filing Program	0.20		77,844	1,155	IV
26	50	680	III	EAC	Small Business Assistance	Asst sm bus w/ Permit Process	0.50		73,083	2,567	III
27	27	770	III	IM	Title V	Dev/Maintain Title V Program	1.00		167,858	8,891	III
28	50	775	I	EAC	Title V - Admin	Title V Administration	1.00		146,166	5,134	III
29	08	772	I	LEG	Title V Permits	Leg Advice: New Source Title V Permit	0.05		9,159	599	III
30	50	774	I	EAC	TV/Non-RECLAIM	Process Title V Only Permits	13.25	4.75	1,936,702	786,698	III

	140.82	(2.95)	\$ 20,950,897	\$ 239,067
FISCAL YEAR 2012-13 CATEGORY TOTAL		137.87		\$ 21,189,964

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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.

FY 2012-13 WORK PROGRAM BY CATEGORY

POLICY SUPPORT

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE	
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-	CATEGORIES	
1	44	041	I	STA	Admin/Office Mgmt/Policy Supp	Overall Policy Supp/Mgmt/Coord	0.49		\$ 74,663	\$ 2,710	Ib
2	26	048	IV	PRA	Admin/Prog Mgmt/Policy	Admin: GB/Committee Support	1.00		159,218	5,774	Ib
3	26	277	I	PRA	Advisory Group/AQMP	Governing Board AQMP Advisory Group	0.05		7,961	289	II,IX
4	35	280	I	LPA	Advisory Group/Ethnic Comm	GB Ethnic Comm Advisory Group	0.40		59,384	4,615	II,IX
5	03	276	III	EO	Advisory Group/Governing Board	Governing Board Advisory Group	0.05		10,292	1,478	Ia
6	26	276	I	PRA	Advisory Group/Home Rule	Governing Board Advisory Group	0.30		47,765	1,732	Ia
7	26	278	I	PRA	Advisory Group/Sci,Tech,Model	Scientific/Tech/Model Peer Rev	0.05		7,961	289	II,IX
8	35	281	I	LPA	Advisory Group/Small Business	SBA Advisory Group Staff Support	0.50		74,230	5,769	IV,IX
9	44	276	I	STA	Advisory Group/Technology Adva	Tech Adv Advisory Group Supp	0.10		15,237	553	VIII
10	03	078	II	EO	Asthma & Outdoor AQ Consortium	Asthma & Outdoor AQ Consortium	0.01		2,058	296	Ia
11	26	078	II	PRA	Asthma & Outdoor AQ Consortium	Asthma & Outdoor AQ Consortium	0.10		15,922	577	II,IV
12	50	276	I	EAC	Board Committees	Admin/Stationary Source Committees	0.25		36,542	1,283	Ia
13	26	083	II	PRA	Brain Tumor & Air Poll Fdn	Brain Tumor & Air Poll Foundation Support	0.10		15,922	577	II,IV
14	03	083	II	EO	Brain Tumor & Air Poll Foundat	Brain Tumor & Air Poll Foundation Support	0.03		6,175	887	Ia
15	04	083	II	FIN	Brain Tumor & Air Poll Foundat	Brain Tumor & Air Poll Foundation Support	0.02		2,601	119	Ia
16	44	095	I	STA	CA Natural Gas Veh Partnership	CA Natural Gas Veh Partnership	0.05		7,619	277	VIII
17	50	148	I	EAC	Climate Change	GHG/Climate Change Support	0.50		73,083	2,567	II,IX
18	26	240	II	PRA	EJ-AQ Guidance Document	AQ Guidance Document	0.15		23,883	866	II,IX
19	35	240	II	LPA	Environmental Justice	Impl Board's EJ Pgrms/Policies	2.00		296,921	23,074	II,IV
20	44	240	II	STA	Environmental Justice	Implement Environmental Justice	1.95	(1.50)	297,130	(226,072)	II,IX
21	35	345	II	LPA	Goods Mvmt&Financial Incentive	Goods Movement & Financial Incentives Progr	1.00		148,460	11,537	IX
22	03	275	I	EO	Governing Board	Board/Committee Support	1.60		329,340	47,292	Ia
23	08	275	III	LEG	Governing Board	Legal Advice:Attend Board/Cmte Mtgs	1.50	(0.50)	274,773	(79,608)	Ia
24	35	283	I	LPA	Governing Board Policy	Brd sup/Respond to GB req	0.55		81,653	6,345	Ia
25	03	381	I	EO	Interagency Liaison	Local/State/Fed Coord/Interact	0.70	(0.30)	144,086	(49,928)	Ia,IX
26	35	381	III	LPA	Interagency Liaison	Interact Gov Agns/Promote AQMD	0.15		22,269	1,731	Ia,XV
27	03	410	I	EO	Legislation	Testimony/Mtgs:New/Current Leg	0.10	0.40	20,584	97,114	Ia,IX
28	44	410	I	STA	Legislation	Support Pollution Reduction thru Legislatio	0.50		76,187	2,765	IX
29	35	414	I	LPA	Legislation State	Lobbying/Analyses/Tracking/Out	0.80		493,768	9,230	Ia,IX
30	35	413	I	LPA	Legislation/Exec Office Suppor	Coord Legis w/ EO, EC, Mgmt	0.25		37,115	2,884	Ia
31	35	412	I	LPA	Legislation/Federal	Lobbying/Analyses/Tracking/Out	0.25		228,615	36,884	Ia
32	03	416	I	EO	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.08	(0.03)	16,467	(4,697)	Ia
33	08	416	I	LEG	Legislative Activities	Lobbying: Supp/Promote/Influence legis/Adm	0.10	(0.05)	18,318	(8,560)	Ia
34	26	416	I	PRA	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.10		15,922	577	Ia
35	35	416	I	LPA	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.50		74,230	5,769	Ia
36	50	416	I	EAC	Legislative Activities	Legislative Activities	0.25		36,542	1,283	Ia
37	44	454	I	STA	Mob Src:Greenhs Gas Reduc Meas	Provide comments on mob src portion of AB32	1.50		228,561	8,296	XVII
38	35	494	I	LPA	Outreach/Collateral Developmen	Edits,Brds,Talk shows,Commercl	0.60		176,192	6,922	Ia

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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.

FY 2012-13 WORK PROGRAM BY CATEGORY

POLICY SUPPORT (Continued)

#	PROGRAM		GROUP	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		COST		REVENUE	
	CODE	OBJ				CURRENT	+/-	CURRENT	+/-	CATEGORIES	
39	03	494	I	EO	Outreach/Media	Edits,Brds,Talk shows,Commercl	2.50	(2.50)	714,193	(714,193)	Ia,IX
40	20	494	II	MO	Outreach/Media	Edits,Brds,Talk shows,Commercl	0.00	2.96	0	510,739	Ia,IX
41	26	148	IV	PRA	PM Enhanced Monitoring	GHG/Climate Change Policy Development	3.00	(1.00)	477,653	(147,670)	XVII
42	03	717	III	EO	Student Interns	Gov Board/Student Intern Program	0.10	(0.08)	20,584	(15,876)	Ia
43	08	717	II	LEG	Student Interns	Gov Board/Student Intern Program	0.25		45,796	2,996	Ia
44	16	717	II	AHR	Student Interns	Gov Board/Student Intern Program	0.20		34,536	254	Ia
45	26	717	II	PRA	Student Interns	Gov Bd/Student Intern Program	0.01		1,592	58	Ia
46	35	717	II	LPA	Student Interns	Gov Board/Student Intern Program	0.10		14,846	1,154	Ia
47	08	805	III	LEG	Training	Continuing Education/Training	0.50		91,591	5,992	Ib

	25.29	(2.60)	\$ 5,058,441	\$ (433,051)
FISCAL YEAR 2012-13 CATEGORY TOTAL		22.69		\$ 4,625,389

	817.00	(19.00)	\$ 131,766,179	\$ 1,680,021
FISCAL YEAR 2012-13 TOTAL		798.00		\$ 133,446,200

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

Admin/AQMD Capital Assets (Asset Management) – tracking of acquisitions, disposals/retirements and reconciliation of capital assets to 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 unit, 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 – provides public assistance in implementing AQMD's AER program by conducting workshops, resolving fee-related issues, and providing phone service to respond to questions.

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

Air Monitoring (Ambient Air Analysis, Ambient Network, Audit, Data Reporting, Special Monitoring) - monitoring the ambient air in the AQMD's jurisdiction. This includes operating the AQMD'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.

WORK PROGRAM GLOSSARY

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 AQMD’s air monitoring network and localized monitoring at landfill sites as well as conducting specialized monitoring in response to public nuisance situations. AQMD monitoring stations also collect samples which are analyzed by AQMD’s laboratory. Also see Special Monitoring.

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, NO_x, 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.

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

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

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

Architectural Coatings (Admin, End User, Other) – Rule 314 requiring architectural coatings manufacturers which distribute or sell their manufactured architectural coatings into or within the AQMD for use in the AQMD 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 AQMD.

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

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 AQMD's fleet of automobiles, trucks, and vans as well as providing messenger services when needed.

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

WORK PROGRAM GLOSSARY

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

Brain Tumor and 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 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 AQMD's Diamond Bar headquarters facility.

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

Business Services – overseeing operation of the Facilities Services, Automotive Services, Print Shop and Mail/Subscriptions Services; negotiating and administering Diamond Bar facility 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 AQMD headquarters and the public.

CARB PERP (Portable Equipment Registration Program) Program (Compliance Activities) – A CARB-established program 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 AQMD inspectors. This includes preparing both civil and criminal cases and administering AQMD's Mutual Settlement Letter Program.

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

WORK PROGRAM GLOSSARY

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

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

Certification/Registration Program – implementing an alternative, streamlined program for evaluating and certifying individual, standard equipment models submitted by manufacturers and then registering the equipment as they are proposed to be individual users.

Classification and Pay – maintaining the classification plan and conducting job analyses to ensure AQMD 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 AQMD'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 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 MSA, Civil, or Criminal handling.

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

WORK PROGRAM GLOSSARY

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 AQMD’s stationary and mobile source credit markets.

Criteria Pollutants/Mobile Sources – coordinates the implementation of the AQMP and conducts feasibility studies for mobile source categories; develops 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 AQMD’s enterprise databases.

Database Management - developing and supporting the data architecture framework, data modeling, database services, and the ongoing administration of AQMD’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).

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 – Provides outreach to local governments as they update their general plans and make land use decisions. Provide 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 – Process 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.

WORK PROGRAM GLOSSARY

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 AQMD’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 AQMD’s performance appraisal program, Family and Medical Leave Act (FMLA) requests, tuition reimbursement, and outside training requests.

Employee/Employment Law – By coordinating with outside counsel, handles legal issues dealing with employment law.

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

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 accorded 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 badge, access control, and key/lock systems, and workspace planning.

Fee Review – activities relating to conducting Fee Review Committee hearings for businesses that contest AQMD fees.

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

WORK PROGRAM GLOSSARY

Goods Movement and Financial Incentives – a program 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 South Coast Air Quality Management District. 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 AQMD's air pollution program and financial activities relating to grants, including EPA, DOE, CEC, and DHS grants and the CARB Subvention.

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

Green House Gas Reporting - many of the businesses and facilities within AQMD'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; providing information to concerned citizens.

Hearing Board (Variances, Abatement Orders, Appeals, Legal) – supporting operation of the AQMD'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.

Heavy Duty Trucks DOE ARRA – Implement/Administer the Department of Energy (DOE) American Recovery and Reinvestment Act (ARRA) Heavy-Duty Natural Gas Drayage Truck Replacement Program.

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.

WORK PROGRAM GLOSSARY

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 – AQMD permitting and rule development projects where a CEQA document is prepared and the AQMD is the lead agency.

Legal (Advice, District Prosecutor Support, Representation, Legislation, Liability Defense) - providing legal support to AQMD 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 AQMD's programs.

LNG Trucks CEC – Implement/Administer grant agreement with the Clean Energy Commission (CEC) to deploy up to 180 natural gas vehicles used for goods movement operations at the Ports or along the Los Angeles/Inland Empire trade corridor.

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 AQMD’s Diamond Bar headquarters.

MATES IV (Multiple Air Toxics Exposure Study) – 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. A new focus of MATES IV will be the inclusion of measurements of ultrafine particle concentrations.

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

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

Mobile Sources (AQMD 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, and the Mobile Source Air Pollution Reduction Review Committee (MSRC), implementation of Fleet Rules, High Emitter Repair & Scrappage Program, and locomotive remote sensing.

WORK PROGRAM GLOSSARY

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

Near Roadway (NO₂) Monitoring – Federal monitoring requirement that calls for State and Local air monitoring agencies to install near-road NO₂ monitoring stations at locations where peak hourly NO₂ 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 AQMD's PC, voice, data, image, and radio networks; planning, designing, and implementing new network systems or services in response to the AQMD'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 AQMD's programs, goals, permit requirements, and employment opportunities; interacting, providing technical assistance, and acting as liaison between AQMD 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 AQMD's outreach and public opinion on AQMD rules and activities. This also includes responding to media calls for informational background material on AQMD news stories.

Payroll - paying salaries and benefits to AQMD employees, withholding and remitting applicable taxes, and issuance of 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.

WORK PROGRAM GLOSSARY

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

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 7 stations and samples are collected.

Plug-in Hybrid EV DOE ARRA – Implement/administer 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}, PM₁₀, PM_{10-2.5}) – planning and developing rules related to PM_{2.5}, PM₁₀, 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, PM₁₀, 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.

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

Position Control – tracking Board position authorizations and AQMD 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 provides 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 AQMD 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).

WORK PROGRAM GLOSSARY

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 AQMD information materials.

Public Notification – providing timely and adequate notification to the public of AQMD 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 AQMD 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 AQMD 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.

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 AQMD.

Records Services – maintaining AQMD’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 AQMD’s Records Retention Policy.

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

WORK PROGRAM GLOSSARY

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 which would be established 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 AQMD's own Rule 2202 Trip Reduction Plan.

Risk Management - developing and administering the AQMD'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 AQMD.

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

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.

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 AQMD's rules and regulations.

WORK PROGRAM GLOSSARY

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

Speaker's Bureau - training AQMD 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 Responses.

State Emissions Mitigation Program – managing and administering the statewide program to mitigate emissions from peaker power generation units in an effort to alleviate the power crisis in California.

Sample Analyses – analyzing samples submitted by inspectors to determine compliance with AQMD 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 AQMD.

Subscription Services - maintaining the AQMD's rule subscription mailing list and coordinating the mailing of AQMD 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 AQMD'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 AQMD developmental support.

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

WORK PROGRAM GLOSSARY

Title V (Compliance/Legal Advice, Inspections, NSR Legal Advice Permit Streamlining, 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 participate 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 – Implement/Administer 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 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 AQMD 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 AQMD's internet and/or intranet website.

WORK PROGRAM ACRONYMS

ORGANIZATIONAL UNITS

AHR	Administrative & Human Resources
CB	Clerk of the Boards
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 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
ERC	Emission Reduction Credit
MATES	Multiple Air Toxics Exposure Study
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 ≤ 10 microns
ROG	Reactive Organic Gases
SO _x	Oxides of Sulfur
VOC	Volatile Organic Compound

AQMD RULES AND REGULATIONS

Rule 403	Fugitive Dust
Rule 2202	On-Road Motor Vehicle Mitigation Options

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
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
IAC	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
MA	Monitoring & Analysis Activities
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MSERCs	Mobile Source Emission Reduction Credits
MSRC	Mobile Source (Air Pollution Reduction) Review Committee
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NGV	Natural Gas Vehicle
NSPS	NSPS
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	SIP
SCR	Selective Catalytic Reduction
STE	Source Testing Evaluations
SULEV	Super Ultra Low-Emission Vehicle
TA	Technology Advancement Activities
TCM	Transportation Control Measure
ULEV	ULEV
VEE	Visible Emissions Evaluations
VMT	Vehicle Miles Traveled
ZEV	Zero-Emission Vehicle

PROGRAM STATEMENT – GOVERNING BOARD

The Governing Board is made up of thirteen officials who meet monthly to establish policy and approve or reject new or amended rules. The Governing Board appoints the Executive Officer, General Counsel, and members of the Hearing Board.

Governing Board members include one county Board of Supervisor's representative each from Los Angeles, Orange, Riverside, and San Bernardino counties; one cities' representative from Orange, Riverside, and San Bernardino counties; two cities' representatives from Los Angeles County; one 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.

FY 2012-13 WORKPLAN: GOVERNING BOARD

#	CODE	PROGRAM		PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES
		CATEGORY	OBJ			CURRENT	+/-	CURRENT	+/-	
1	02 275	Operational Support	II	Governing Board	Rep of Dist Meet/Conf/Testimony	0.00	0.00	\$ 1,264,321	\$ -	Ia

	0.00	0.00	\$ 1,264,321	\$ -
<i>FISCAL YEAR 2012-13 TOTAL</i>		0.00		\$ 1,264,321

GOVERNING BOARD
LINE ITEM EXPENDITURE

MAJOR OBJECT/ACCOUNT	FY 2011-12 ADOPTED BUDGET	FY 2011-12 AMENDED BUDGET	FY 2011-12 ESTIMATE	FY 2012-13 PROPOSED
SALARY & EMPLOYEE BENEFITS *				
SALARY	\$ 317,442	\$ 317,442	\$ 264,250	\$ 317,442
EMPLOYEE BENEFITS	244,796	244,796	17,166	244,796
TOTAL	\$ 562,238	\$ 562,238	\$ 281,416	\$ 562,238
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 0	\$ 0	\$ 0	\$ 0
67300 RENTS & LEASES EQUIPMENT	0	0	0	0
67350 RENTS & LEASES STRUCTURE	0	0	0	0
67400 HOUSEHOLD	0	0	0	0
67450 PROF. & SPECIAL SERVICES	444,483	416,483	394,125	444,483
67460 TEMPORARY AGENCY SVCS.	0	0	0	0
67500 PUBLIC NOTICE & ADV.	52,000	52,000	46,990	52,000
67550 DEMURRAGE	0	0	0	0
67600 MAINTENANCE OF EQUIPMENT	0	0	0	0
67650 BUILDING MAINTENANCE	0	0	0	0
67700 AUTO MILEAGE	5,900	5,900	5,900	5,900
67750 AUTO SERVICE	0	0	0	0
67800 TRAVEL	64,800	64,800	38,297	64,800
67850 UTILITIES	0	0	0	0
67900 COMMUNICATIONS	8,800	28,800	18,800	8,800
67950 INTEREST EXPENSE	0	0	0	0
68000 CLOTHING	0	0	0	0
68050 LABORATORY SUPPLIES	0	0	0	0
68060 POSTAGE	7,500	7,500	4,447	7,500
68100 OFFICE EXPENSE	340	340	167	340
68200 OFFICE FURNITURE	0	0	0	0
68250 SUBSCRIPTION & BOOKS	960	960	0	960
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	0	0	0	0
68350 FILM	0	0	0	0
68400 GAS & OIL	0	0	0	0
69500 TRAINING/CONF/TUITION/BOARD EX.	112,500	112,500	103,369	112,500
69550 MEMBERSHIPS	150	150	0	150
69600 TAXES	0	0	0	0
69650 AWARDS	0	0	0	0
69700 MISCELLANEOUS EXPENSES	4,650	12,650	12,650	4,650
69750 PRIOR YEAR EXPENSE	0	0	0	0
89100 PRINCIPAL REPAYMENT	0	0	0	0
TOTAL	\$ 702,083	\$ 702,083	\$ 624,745	\$ 702,083
77000 CAPITAL OUTLAYS	\$ 0	\$ 0	\$ 0	\$ 0
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	\$ 1,264,321	\$ 1,264,321	\$ 906,162	\$ 1,264,321
* These expenditures are for Governing Board member assistants and consultants				

PROGRAM STATEMENT – DISTRICT GENERAL

This section reflects those accounts associated with AQMD expenditures. Included here are such items as the principal and interest payments on the AQMD Headquarters building; utilities; insurance; taxes; and building remodeling.

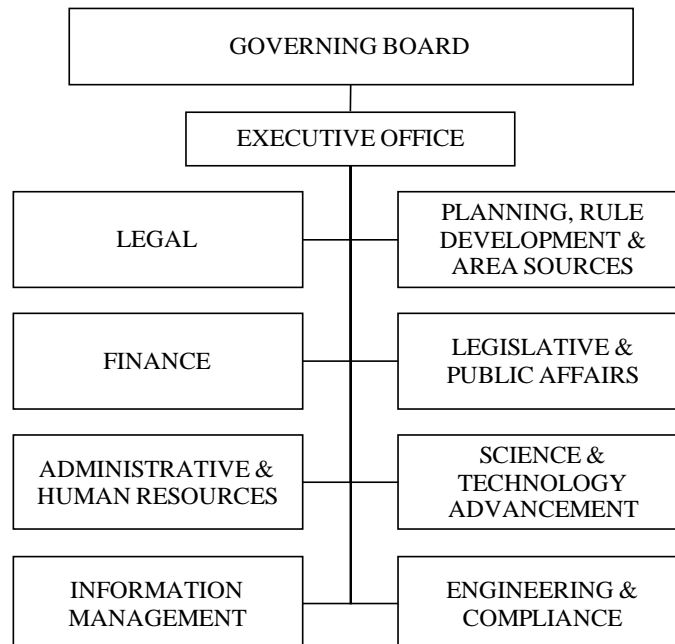
DISTRICT GENERAL
LINE ITEM EXPENDITURE

MAJOR OBJECT/ACCOUNT	FY 2011-12 ADOPTED BUDGET	FY 2011-12 AMENDED BUDGET	FY 2011-12 ESTIMATE	FY 2012-13 PROPOSED
SALARY & EMPLOYEE BENEFITS				
SALARY	\$ 1,584,000	\$ 1,584,000	\$ 0	\$ 1,584,000
EMPLOYEE BENEFITS	120,000	120,000	8,090	120,000
TOTAL	\$ 1,704,000	\$ 1,704,000	\$ 8,090	\$ 1,704,000
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 1,147,400	\$ 1,147,400	\$ 1,096,337	\$ 1,097,400
67300 RENTS & LEASES EQUIPMENT	69,327	69,327	47,901	18,600
67350 RENTS & LEASES STRUCTURE	20,000	20,000	19,824	30,000
67400 HOUSEHOLD	688,474	688,474	643,539	707,332
67450 PROF. & SPECIAL SERVICES	949,029	949,029	949,029	924,029
67460 TEMPORARY AGENCY SVCS.	0	0	0	0
67500 PUBLIC NOTICE & ADV.	0	20,000	20,000	28,000
67550 DEMURRAGE	0	8,600	0	0
67600 MAINTENANCE OF EQUIPMENT	201,400	201,400	129,611	141,400
67650 BUILDING MAINTENANCE	825,602	712,602	467,144	806,479
67700 AUTO MILEAGE	0	0	0	0
67750 AUTO SERVICE	0	0	0	0
67800 TRAVEL	0	0	0	0
67850 UTILITIES	1,718,490	1,561,360	1,474,735	1,591,881
67900 COMMUNICATIONS	126,900	126,900	121,366	116,900
67950 INTEREST EXPENSE	2,150,638	2,150,638	2,150,638	2,872,971
68000 CLOTHING	0	0	0	0
68050 LABORATORY SUPPLIES	0	0	0	0
68060 POSTAGE	28,474	28,474	13,256	20,000
68100 OFFICE EXPENSE	206,160	206,160	196,194	274,100
68200 OFFICE FURNITURE	4,000	4,000	4,000	4,000
68250 SUBSCRIPTION & BOOKS	0	0	0	0
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	0	0	0	0
68350 FILM	0	0	0	0
68400 GAS & OIL	0	0	0	0
69500 TRAINING/CONF/TUITION/BOARD EX.	0	0	0	0
69550 MEMBERSHIPS	0	0	8,600	0
69600 TAXES	94,400	94,400	23,019	31,000
69650 AWARDS	23,997	23,997	18,146	27,342
69700 MISCELLANEOUS EXPENSES	10,900	10,900	7,131	11,275
69750 PRIOR YEAR EXPENSE	0	0	0	0
89100 PRINCIPAL REPAYMENT	8,045,000	8,045,000	8,045,000	7,347,007
TOTAL	\$ 16,310,191	\$ 16,068,661	\$ 15,435,470	\$ 16,049,716
77000 CAPITAL OUTLAYS	\$ 225,000	\$ 150,000	\$ 150,000	\$ 2,183,000
79050 BUILDING REMODELING	0	400,000	400,000	0
TOTAL EXPENDITURES	\$ 18,239,191	\$ 18,322,661	\$ 15,993,559	\$ 19,936,716

PROGRAM STATEMENT AND ORGANIZATIONAL CHART – EXECUTIVE OFFICE

2012-13 Requested Staffing

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



The Executive Office is responsible for the comprehensive management of the AQMD 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 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.

FY 2012-13 WORKPLAN:

EXECUTIVE OFFICE

#	CODE	PROGRAM		PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES
		CATEGORY	OBJ			CURRENT	+/-	CURRENT	+/-	
1	03 010	Develop Programs	I	AQMP	Develop/Implement AQMP	0.03	0.02	\$ 6,175	\$ 5,595	II,IX
2	03 028	Develop Programs	I	Admin/AQMD Policy	Dev/Coord Goals/Policies/Overs	2.00		461,675	59,115	Ia
3	03 038	Operational Support	III	Admin/Office Management	Budget/Program Management	1.05	(0.05)	216,129	19,266	Ib
4	03 078	Policy Support	II	Asthma & Outdoor AQ Consortium	Asthma & Outdoor AQ Consortium	0.01		2,058	296	Ia
5	03 083	Policy Support	II	Brain Tumor & Air Poll Foundat	Brain Tumor & Air Poll Foundation Support	0.03		6,175	887	Ia
6	03 275	Policy Support	I	Governing Board	Board/Committee Support	1.60		329,340	47,292	Ia
7	03 276	Policy Support	III	Advisory Group/Governing Board	Governing Board Advisory Group	0.05		10,292	1,478	Ia
8	03 381	Policy Support	I	Interagency Liaison	Local/State/Fed Coord/Interact	0.70	(0.30)	144,086	(49,928)	Ia,IX
9	03 385	Develop Rules	I	Credit Generation Programs	Dev/Impl Marketable Permit	0.02		4,117	591	II
10	03 390	Customer Service and Business Assistance	I	Intergovernmental	Policy Development	0.02	0.03	4,117	7,653	Ia,IX
11	03 410	Policy Support	I	Legislation	Testimony/Mtgs:New/Current Leg	0.10	0.40	20,584	97,114	Ia,IX
12	03 416	Policy Support	I	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.08	(0.03)	16,467	(4,697)	Ia
13	03 455	Advance Clean Air Technology	I	Mobile Sources	Dev/Impl Mobile Source Strategies	0.10		20,584	2,956	IX
14	03 490	Customer Service and Business Assistance	I	Outreach	Publ Awareness Clean Air Prog	1.00		205,837	29,558	Ia
15	03 492	Customer Service and Business Assistance	I	Public Education	Pub Events/Conf/Rideshare Fair	0.05	(0.05)	10,292	(10,292)	Ia,IX
16	03 494	Policy Support	I	Outreach/Media	Edits,Brds,Talk shows,Commercl	2.50	(2.50)	714,193	(714,193)	Ia,IX
17	03 565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Req for Info	0.03	0.02	6,175	5,595	XVII
18	03 650	Develop Rules	I	Rules	Develop & Implement Rules	0.03	0.01	6,175	3,241	II,IX
19	03 717	Policy Support	III	Student Interns	Gov Board/Student Intern Program	0.10	(0.08)	20,584	(15,876)	Ia
20	03 855	Operational Support	II	Web Tasks	Create/edit/review web content	0.50	(0.47)	102,919	(95,857)	Ia

96

	10.00	(3.00)	\$ 2,307,973	\$ (610,209)
FISCAL YEAR 2012-13 TOTAL		7.00		\$ 1,697,764

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.

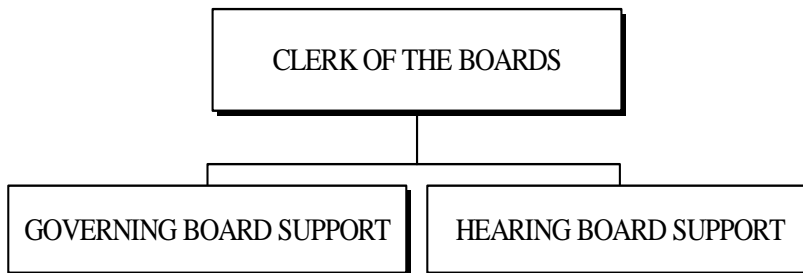
EXECUTIVE OFFICE
LINE ITEM EXPENDITURE

<u>MAJOR OBJECT/ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
SALARY & EMPLOYEE BENEFITS				
SALARY	\$ 1,057,939	\$ 1,057,940	\$ 1,170,292	\$ 843,431
EMPLOYEE BENEFITS	614,158	614,158	605,454	492,250
TOTAL	<u>\$ 1,672,097</u>	<u>\$ 1,672,098</u>	<u>\$ 1,775,746</u>	<u>\$ 1,335,681</u>
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 0	\$ 0	\$ 0	\$ 0
67300 RENTS & LEASES EQUIPMENT	2,000	2,000	0	0
67350 RENTS & LEASES STRUCTURE	0	0	0	0
67400 HOUSEHOLD	0	0	0	0
67450 PROF. & SPECIAL SERVICES	249,600	608,370	556,737	50,000
67460 TEMPORARY AGENCY SVCS.	0	0	0	0
67500 PUBLIC NOTICE & ADV.	10,000	10,000	0	7,500
67550 DEMURRAGE	0	0	0	0
67600 MAINTENANCE OF EQUIPMENT	400	400	180	400
67650 BUILDING MAINTENANCE	0	0	0	0
67700 AUTO MILEAGE	1,000	1,700	1,700	800
67750 AUTO SERVICE	0	0	0	0
67800 TRAVEL	55,000	55,000	40,758	52,000
67850 UTILITIES	0	0	0	0
67900 COMMUNICATIONS	8,000	8,000	8,000	6,500
67950 INTEREST EXPENSE	0	0	0	0
68000 CLOTHING	0	0	0	0
68050 LABORATORY SUPPLIES	0	0	0	0
68060 POSTAGE	9,000	9,000	4,877	7,000
68100 OFFICE EXPENSE	7,480	7,480	2,646	6,000
68200 OFFICE FURNITURE	0	0	0	0
68250 SUBSCRIPTION & BOOKS	6,400	6,400	1,866	5,000
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	0	0	0	0
68350 FILM	0	0	0	0
68400 GAS & OIL	0	0	0	0
69500 TRAINING/CONF/TUITION/BOARD EX.	3,750	3,050	2,578	1,000
69550 MEMBERSHIPS	30,000	30,000	25,640	26,000
69600 TAXES	0	0	0	0
69650 AWARDS	0	0	0	0
69700 MISCELLANEOUS EXPENSES	30,000	30,000	4,602	25,000
69750 PRIOR YEAR EXPENSE	0	0	0	0
89100 PRINCIPAL REPAYMENT	0	0	0	0
TOTAL	<u>\$ 412,630</u>	<u>\$ 771,400</u>	<u>\$ 649,585</u>	<u>\$ 187,200</u>
77000 CAPITAL OUTLAYS	\$ 0	\$ 0	\$ 0	\$ 0
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	<u><u>\$ 2,084,727</u></u>	<u><u>\$ 2,443,498</u></u>	<u><u>\$ 2,425,331</u></u>	<u><u>\$ 1,522,881</u></u>

PROGRAM STATEMENT AND ORGANIZATIONAL CHART – CLERK OF THE BOARDS

2012-13 Requested Staffing

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



The South Coast Air Quality Management District was created by the Lewis Air Quality Act in 1977. The AQMD is governed by a thirteen-member Governing Board that establishes the policy, performs the rulemaking functions, and appoints the five-member Hearing Board.

The Hearing Board plays an important role in the AQMD's efforts to reduce air pollution and achieve air quality standards. The Board has the authority to: (1) grant variances; (2) hear appeals regarding the denial and the issuance of Permits to Operate and Construct (including RECLAIM permits), conditions imposed on Permits to Operate and Construct, the denial and issuance of emission reduction credits, and the approval and denial of pollution control plans, including Rule 2202 - On-Road Motor Vehicle Mitigation Options submittals; (3) revoke or suspend permits; and (4) issue Orders of Abatement. The Board is vested with much discretion to be used in a reasonable manner to balance and protect the interests of the citizens of the South Coast Air Basin, persons subject to the AQMD's rules and regulations, and the AQMD itself.

The Clerk of the Boards coordinates the activities and provides operational support for both the Governing and Hearing Boards. The Clerk prepares the legal notices for hearings and meetings and has such notices published as required. The Clerk assists petitioners and attorneys in the filing of petitions before the Hearing Board and explains the Hearing Board's functions and procedures. The Clerk acts as communication liaison for the Boards with AQMD staff and state and federal agencies.

FY 2012-13 WORKPLAN:

CLERK OF THE BOARDS

#	CODE	PROGRAM CATEGORY	OBJ	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES
						CURRENT	+/-	CURRENT	+/-	
1	17 024	Operational Support	III	Admin/AQMD/GB/HB Mgmt	Admin Governing/Hearing Brds	1.25		\$ 239,930	\$ 7,329	Ia, VII
2	17 275	Operational Support	III	Governing Board	Attend/Record/Monitor Meetings	1.30	(0.10)	249,527	(12,159)	Ia
3	17 364	Ensure Compliance	I	Hearing Board/Abatement Orders	Attnd/Recrd/Monitr Mtgs	0.20	(0.10)	38,389	(18,608)	IV
4	17 365	Ensure Compliance	I	Hearing Board/Variiances/Appeal	Attend/Record/Monitor HB Mtgs	3.15	0.25	631,723	66,221	V, VII
5	17 565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Rec Requests	0.04	(0.02)	7,678	(3,722)	XVII
6	17 855	Operational Support	II	Web Tasks	Create/edit/review web content	0.06	(0.03)	11,517	(5,582)	Ia

	6.00	0.00	\$ 1,178,762	\$ 33,479
FISCAL YEAR 2012-13 TOTAL		6.00		\$ 1,212,241

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.

CLERK OF THE BOARDS

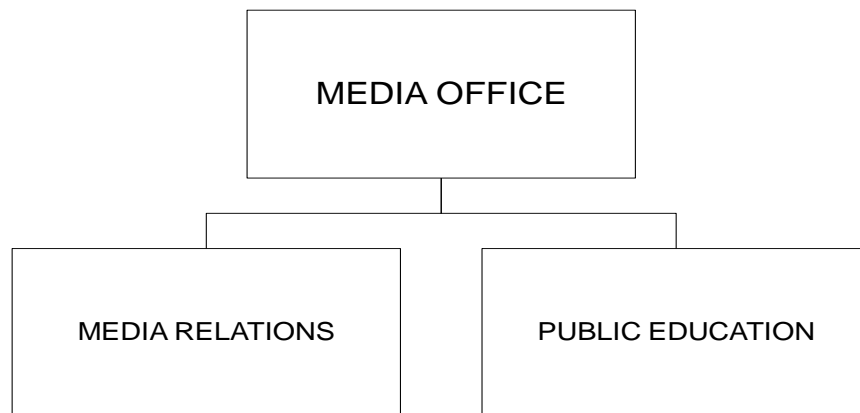
LINE ITEM EXPENDITURE

<u>MAJOR OBJECT/ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
SALARY & EMPLOYEE BENEFITS				
SALARY	\$ 368,814	\$ 368,814	\$ 401,458	\$ 384,506
EMPLOYEE BENEFITS	219,852	219,851	217,658	221,685
TOTAL	\$ 588,665	\$ 588,665	\$ 619,116	\$ 606,191
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 0	\$ 0	\$ 0	\$ 0
67300 RENTS & LEASES EQUIPMENT	0	0	0	0
67350 RENTS & LEASES STRUCTURE	0	0	0	0
67400 HOUSEHOLD	0	0	0	0
67450 PROF. & SPECIAL SERVICES	27,100	27,100	27,100	25,400
67460 TEMPORARY AGENCY SVCS.	0	0	0	0
67500 PUBLIC NOTICE & ADV.	40,000	40,000	32,935	40,000
67550 DEMURRAGE	0	0	0	0
67600 MAINTENANCE OF EQUIPMENT	200	200	0	200
67650 BUILDING MAINTENANCE	0	0	0	0
67700 AUTO MILEAGE	100	100	117	100
67750 AUTO SERVICE	0	0	0	0
67800 TRAVEL	100	100	0	200
67850 UTILITIES	0	0	0	0
67900 COMMUNICATIONS	1,000	1,000	0	500
67950 INTEREST EXPENSE	0	0	0	0
68000 CLOTHING	0	0	0	0
68050 LABORATORY SUPPLIES	0	0	0	0
68060 POSTAGE	1,700	1,700	934	1,200
68100 OFFICE EXPENSE	4,000	4,000	3,336	6,600
68200 OFFICE FURNITURE	0	0	0	0
68250 SUBSCRIPTION & BOOKS	0	0	0	0
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	0	0	0	0
68350 FILM	0	0	0	0
68400 GAS & OIL	0	0	0	0
69500 TRAINING/CONF/TUITION/BOARD EX.	381,450	381,450	383,152	381,450
69550 MEMBERSHIPS	0	0	0	0
69600 TAXES	0	0	0	0
69650 AWARDS	0	0	0	0
69700 MISCELLANEOUS EXPENSES	500	500	37	500
69750 PRIOR YEAR EXPENSE	0	0	0	0
89100 PRINCIPAL REPAYMENT	0	0	0	0
TOTAL	\$ 456,150	\$ 456,150	\$ 447,611	\$ 456,150
77000 CAPITAL OUTLAYS	\$ 0	\$ 0	\$ 0	\$ 0
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	\$ 1,044,815	\$ 1,044,815	\$ 1,066,728	\$ 1,062,341

PROGRAM STATEMENT AND ORGANIZATIONAL CHART – MEDIA OFFICE

2012-13 Requested Staffing

<u>Positions</u>	<u>Title</u>
1	Community Relations Manager
1	Secretary
<u>1</u>	Senior Public Information Specialist
3	Total Requested Positions



The Media Office serves as liaison between AQMD and all local, national and international news media outlets. This includes traditional news media such as newspapers, radio and television as well as Internet and social media. The Media Office coordinates and conducts all media interviews with AQMD. It develops and issues news releases and media advisories on significant AQMD programs. It also conducts numerous media events on special AQMD programs and high-profile issues.

In addition to daily media inquiries, AQMD's Media Office engages in a number of proactive campaigns to raise public awareness of Board initiatives and agency programs. Examples of such campaigns include outreach for the lawn mower, leaf blower and gas log incentive programs; TV partnerships to increase awareness of air quality during smog season and winter Check Before You Burn program; enhanced outreach to ethnic populations; annual State of the Air videos on progress on AQMD efforts; and various other activities as needed to promote AQMD programs.

AQMD's Media Office also may contract with an outside consulting firm that provides media and public relations services on an ongoing basis to assist with proactive campaigns and other AQMD outreach programs.

FY 2012-13 WORKPLAN:

MEDIA OFFICE

#	CODE	PROGRAM		PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES
		CATEGORY	OBJ			CURRENT	+/-	CURRENT	+/-	
1	20 494	Policy Support	II	Outreach/Media	Edits,Brds,Talk shows,Commercl	0.00	2.96	\$ 0	\$ 510,739	Ia,IX
2	20 855	Operational Support	II	Web Tasks	Create/edit/review web content	0.00	0.04	0	6,637	Ia

<i>FISCAL YEAR 2012-13 TOTAL</i>	0.00	3.00	\$ 0	\$ 517,376
		3.00		\$ 517,376

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.

MEDIA OFFICE

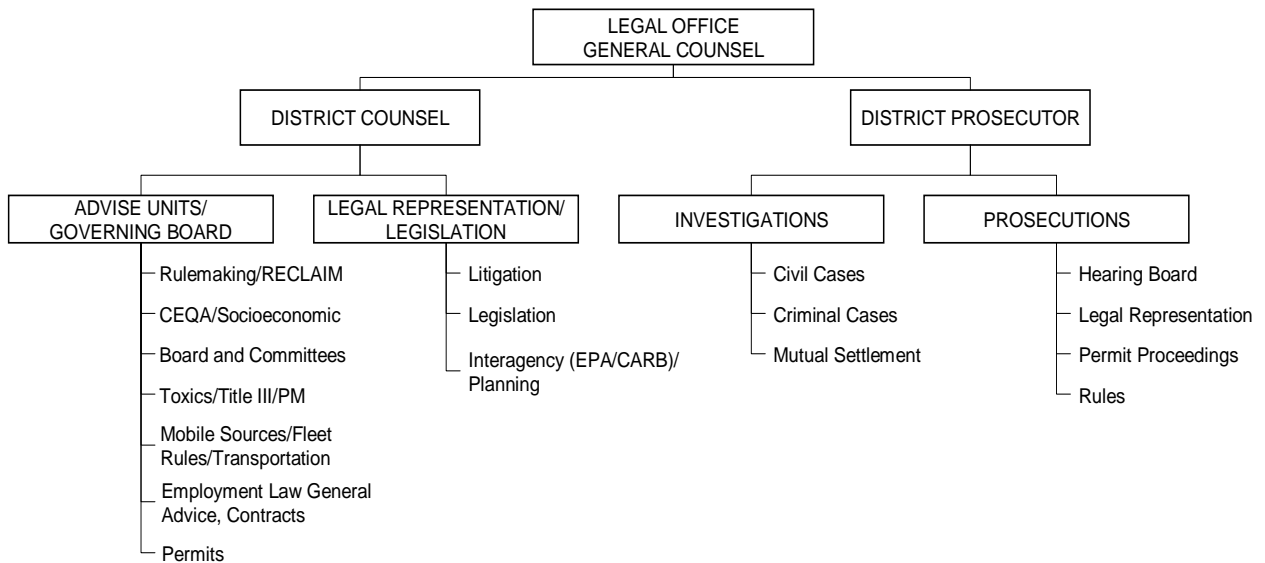
LINE ITEM EXPENDITURE

<u>MAJOR OBJECT/ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
SALARY & EMPLOYEE BENEFITS				
SALARY	\$ 0	\$ 0	\$ 0	\$ 264,811
EMPLOYEE BENEFITS	0	0	0	132,735
TOTAL	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 397,546</u>
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 0	\$ 0	\$ 0	\$ 0
67300 RENTS & LEASES EQUIPMENT	0	0	0	4,500
67350 RENTS & LEASES STRUCTURE	0	0	0	0
67400 HOUSEHOLD	0	0	0	0
67450 PROF. & SPECIAL SERVICES	0	0	0	19,600
67460 TEMPORARY AGENCY SVCS.	0	0	0	0
67500 PUBLIC NOTICE & ADV.	0	0	0	0
67550 DEMURRAGE	0	0	0	0
67600 MAINTENANCE OF EQUIPMENT	0	0	0	0
67650 BUILDING MAINTENANCE	0	0	0	0
67700 AUTO MILEAGE	0	0	0	1,000
67750 AUTO SERVICE	0	0	0	0
67800 TRAVEL	0	0	0	3,000
67850 UTILITIES	0	0	0	0
67900 COMMUNICATIONS	0	0	0	1,000
67950 INTEREST EXPENSE	0	0	0	0
68000 CLOTHING	0	0	0	0
68050 LABORATORY SUPPLIES	0	0	0	0
68060 POSTAGE	0	0	0	2,000
68100 OFFICE EXPENSE	0	0	0	2,480
68200 OFFICE FURNITURE	0	0	0	0
68250 SUBSCRIPTION & BOOKS	0	0	0	2,000
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	0	0	0	0
68350 FILM	0	0	0	0
68400 GAS & OIL	0	0	0	0
69500 TRAINING/CONF.TUITION/BOARD EX.	0	0	0	2,800
69550 MEMBERSHIPS	0	0	0	1,500
69600 TAXES	0	0	0	0
69650 AWARDS	0	0	0	0
69700 MISCELLANEOUS EXPENSES	0	0	0	5,000
69750 PRIOR YEAR EXPENSE	0	0	0	0
69800 UNCOLLECTIBLE A/R	0	0	0	0
89100 PRINCIPAL REPAYMENT	0	0	0	0
TOTAL	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 44,880</u>
77000 CAPITAL OUTLAYS	\$ 0	\$ 0	\$ 0	\$ 0
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	<u><u>\$ 0</u></u>	<u><u>\$ 0</u></u>	<u><u>\$ 0</u></u>	<u><u>\$ 442,426</u></u>

PROGRAM STATEMENT AND ORGANIZATIONAL CHART – LEGAL

2012-13 Requested Staffing

<u>Position</u>	<u>Title</u>
3	Administrative Secretary/Legal
1	District Counsel
1	District Prosecutor
1	General Counsel
1	Investigations Manager
4	Investigator
5	Legal Secretary
1	Office Assistant
1	Paralegal
4	Principal Deputy District Counsel
9	Senior Deputy District Counsel
1	Senior Office Assistant
1	Senior Paralegal
<u>1</u>	Supervising Investigator
34	Total Requested Positions



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

District Counsel attorneys also provide advice on CEQA documents for AQMD permits, and legal issues relative to permitting, including interpreting new source review rules and federal Title V requirements. Staff attorneys provide advice on the issuance of emission reduction credits and legal issues relative to implementation of the RECLAIM program. District Counsel attorneys review and approve every Board letter presented to the Board or a committee, as well as every contract issued by the District to ensure clarity and enforceability. District Counsel attorneys advise and attend meetings of all Board Committees, advisory committees, the MSRC, and numerous staff working groups. Staff attorneys review and comment on proposed legislation, draft legislation and amendments, provide testimony at legislative hearings, and advise AQMD staff regarding enacted legislation, as well as developments in AQMD-related case law. District Counsel attorneys advise the Board and its members on issues relating to conflicts of interest and the Brown Act requirements. District Counsel's Office advises staff on employment matters, serves on the Labor-Management Committee, and participates in labor negotiations. District Counsel staff attends all rule public workshops, CEQA scoping meetings, Title V permit meetings, and Town Hall meetings.

The District Counsel is also responsible for representing the AQMD Board and staff in court proceedings and administrative hearings related to matters arising out of their performance of official duties as AQMD officers and employees. Normally, there are ten to 15 active lawsuits being handled at any given time. These cases include challenges to AQMD rules by either industry or environmental groups, on issues ranging from CEQA to constitutional claims. While outside counsel frequently assists in AQMD litigation, staff attorneys also handle cases in-house and in every case, work closely with outside counsel to minimize costs. Other cases include challenges to permits, employment law and personal injury cases, and cases where AQMD challenges EPA action or inaction, such as the relaxation of new source review rules. District Counsel attorneys also actively participate as intervenors or amici curiae on cases affecting AQMD interests, such as helping defend EPA's approval of the District's conformity budgets, and defending CARB rules. Staff attorneys also handle depositions and subpoenas in cases where AQMD staff is a witness, e.g., inspectors, but AQMD is not a party to the case.

The District Prosecutor's office is responsible for the enforcement and penalty issues of all AQMD rules and regulations.

Staff attorneys represent the AQMD in enforcement litigation involving civil penalties and injunctive relief. If the litigation is resolved through settlement, it may include a monetary amount, "creative measures" in lieu of cash, conditions ensuring future rule compliance, or some combination of these elements. Settlements involving injunctive relief require close scrutiny and may require enforcement through contempt proceedings. If the litigation is stayed by a bankruptcy filing, staff attorneys protect the AQMD's interest by monitoring the bankruptcy

proceedings. If the litigation ends with a court or default judgment against the violator, staff attorneys are responsible for enforcing the judgments.

Staff attorneys represent the Executive Officer in all matters before the AQMD Hearing Board including variances, permits or plan appeals, orders for abatement, and permit revocations. Hearing Board decisions may be reviewed in Superior Court by writ of mandate, and staff attorneys represent the Executive Officer in all such review proceedings.

Staff investigators support civil penalty and Hearing Board litigation. Field investigators review notices of violations, perform case work-up as needed, and provide support to agencies handling criminal referrals. Minor Source Penalty Assessment Program (MSPAP), (formerly known as “MSA”) investigators settle minor violations eligible for the MSA program. Investigators respond to requests for information about the rules and procedures of the AQMD from the general public and perform emergency filings, transportation of documents, and immediate service of process.

Staff attorneys serve as liaison to other AQMD offices, providing legal advice and assistance on all enforcement matters. Staff attorneys also rotate as duty deputies each week. The primary responsibility of the duty deputy is to be available throughout the week at all times during AQMD office hours to respond to public or inter-office legal inquiries. As a matter of policy, the duty deputy gives priority to responding to the needs of elected officials, AQMD officials, and the general public before responding to the requests of private counsel.

In other programs, the District Prosecutor’s Office is responsible for any amendments to Regulation V. Staff attorneys review and comment on pending legislation. The office conducts training on legal topics, provides witness preparation for AQMD staff and participates in numerous public outreach activities, including seminars and other speaking engagements.

FY 2012-13 WORKPLAN:

LEGAL

#	CODE	PROGRAM CATEGORY	OBJ	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES
						CURRENT	+/-	CURRENT	+/-	
1	08 001	Advance Clean Air Technology	I	AB2766/Mob Src/Legal Advice	AB2766 Leg Adv: Trans/Mob Source	0.05		\$ 9,159	\$ 599	IX
2	08 003	Advance Clean Air Technology	I	AB2766/MSRC	Legal Advice: MSRC Prog Admin	0.15		27,477	1,798	IX
3	08 010	Develop Programs	I	AQMP	AQMP Revision/CEQA Review	0.05		9,159	599	II,IX
4	08 025	Operational Support	III	Admin/AQMD-Legal Research	Legal Research/Staff/Exec Mgmt	1.25	0.25	228,978	63,771	Ia
5	08 038	Operational Support	III	Admin/Office Management	Attorney Timekeeping/Perf Eval	4.00	(0.50)	736,729	(49,649)	Ib
6	08 071	Operational Support	I	Arch Ctgs - Admin	Rule Dev/TA/Reinterpretations	0.05	0.25	9,159	49,391	XVIII
7	08 072	Ensure Compliance	I	Arch Ctgs - End User	Case Dispo/Rvw, Track, Prep NOVs	0.05		9,159	599	XVIII
8	08 073	Ensure Compliance	I	Arch Ctgs - Other	Case Dispo/Rvw, Track, Prep NOVs	0.05	0.25	9,159	49,391	XVIII
9	08 102	Operational Support	II	CEQA Document Projects	CEQA Review	0.15	0.85	27,477	167,688	II,III,IX
10	08 115	Ensure Compliance	I	Case Disposition	Trial/Dispo-Civil Case/Injunct	8.50		1,557,049	101,859	II,IV,V,VII,XV
11	08 131	Advance Clean Air Technology	I	Clean Fuels/Legal Advice	Legal Advice: Clean Fuels	0.05		9,159	599	VIII
12	08 154	Ensure Compliance	I	Compliance/NOV Administration	Review/Track/Prep NOVs/MSAs	2.00		366,364	23,967	IV
13	08 185	Ensure Compliance	I	Database Management	Support IM/Dev Tracking System	0.25		80,796	2,996	IV
14	08 227	Operational Support	III	Employee/Employment Law	Legal Advice: Employment Law	0.75		137,387	8,988	Ia
15	08 275	Policy Support	III	Governing Board	Legal Advice:Attend Board/Cmte Mtgs	1.50	(0.50)	274,773	(79,608)	Ia
16	08 366	Ensure Compliance	I	Hearing Board/Legal	Hear/Disp-Varian/Appeal/Rev	3.50		641,138	41,942	IV,V,XV
17	08 380	Ensure Compliance	I	Interagency Coordination	Coordinate with Other Agencies	0.50	(0.35)	91,591	(62,316)	II
18	08 401	Operational Support	III	Legal Advice/AQMD Programs	General Advice: Contracts	3.00	(1.00)	609,547	(159,215)	Ia
19	08 402	Ensure Compliance	III	Legal Advice/AQMD Programs	Legal Support/Rep on Legal Matter	0.50	(0.25)	91,591	(42,800)	Ia
20	08 403	Ensure Compliance	III	Legal Rep/Liability Defense	Prep/Hearing/Disposition	2.00	1.00	571,864	203,133	Ia,II
21	08 404	Customer Service and Business Assistance	I	Legal Rep/Legislation	Draft Legis/AQMD Position/Mtgs	0.10		18,318	1,198	II,IX,XV
22	08 416	Policy Support	I	Legislative Activities	Lobbying: Supp/Promote/Influence legis/Adm	0.10	(0.05)	18,318	(8,560)	Ia
23	08 457	Advance Clean Air Technology	I	Mob Src/C Moyer/Leg Advice	Moyer/Implem/Program Dev	0.20		36,636	2,397	IX
24	08 465	Ensure Compliance	I	Mutual Settlement	Mutual Settlement Program	2.50	0.10	457,955	49,475	IV,V
25	08 516	Timely Review of Permits	I	Permit Processing/Legal	Legal Advice: Permit Processing	0.10	0.15	18,318	30,473	III
26	08 565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Rec Requests	0.50		91,591	5,992	XVII
27	08 651	Develop Rules	I	Rules/Legal Advice	Legal Advice: Rules/Draft Regs	1.00	(0.25)	183,182	(36,808)	II
28	08 661	Develop Rules	I	Rulemaking/RECLAIM	RECLAIM Legal Adv/Related Iss	0.05	0.05	9,159	10,357	II
29	08 681	Customer Service and Business Assistance	III	Small Business/Legal Advice	Legal Advice: SB/Fee Review	0.05		9,159	599	II,III
30	08 717	Policy Support	II	Student Interns	Gov Board/Student Intern Program	0.25		45,796	2,996	Ia
31	08 726	Ensure Compliance	I	District Prosecutor Support	Assist Enforcement Matters	0.05		9,159	599	IV
32	08 770	Ensure Compliance	I	Title V	Leg Advice: Title V Prog/Perm Dev	0.05		9,159	599	II,IV
33	08 772	Timely Review of Permits	I	Title V Permits	Leg Advice: New Source Title V Permit	0.05		9,159	599	III
34	08 791	Ensure Compliance	I	Toxics/AB2588	AB2588 Legal Advice: Plan & Impl	0.05		9,159	599	X
35	08 805	Policy Support	III	Training	Continuing Education/Training	0.50		91,591	5,992	Ib
36	08 825	Operational Support	III	Union Negotiations	Legal Adv: Union Negotiations	0.05		9,159	599	Ia
37	08 826	Operational Support	III	Union Steward Activities	Rep Employees in Grievance Act	0.05		9,159	599	Ia

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34.00	0.00	\$ 6,532,695	\$ 391,438
FISCAL YEAR 2012-13 TOTAL		34.00	\$6,924,132

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.

LEGAL

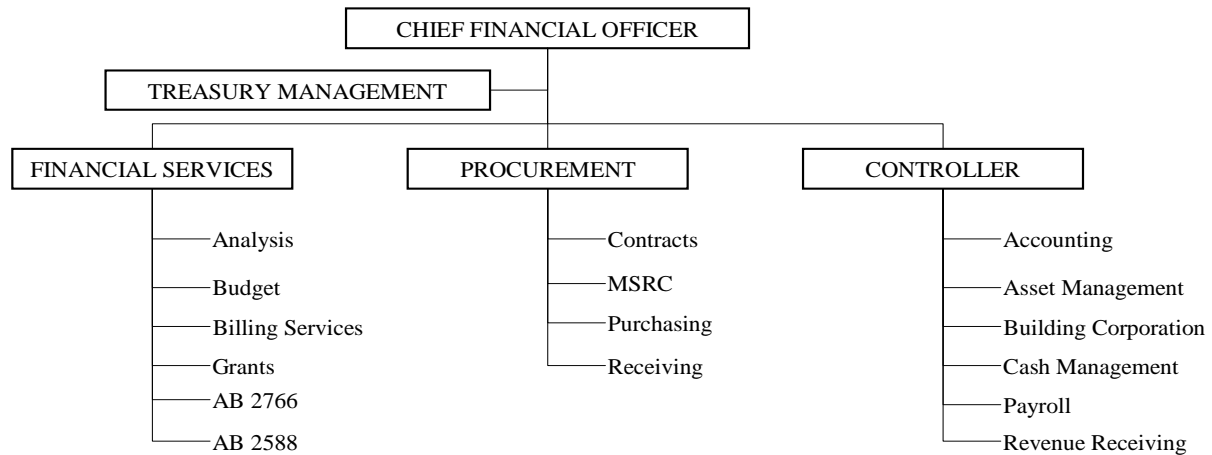
LINE ITEM EXPENDITURE

<u>MAJOR OBJECT/ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
SALARY & EMPLOYEE BENEFITS				
SALARY	\$ 3,456,629	\$ 3,456,629	\$ 3,688,446	\$ 3,688,188
EMPLOYEE BENEFITS	1,869,864	1,869,863	1,743,510	1,940,641
TOTAL	<u>\$ 5,326,493</u>	<u>\$ 5,326,492</u>	<u>\$ 5,431,956</u>	<u>\$ 5,628,828</u>
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 0	\$ 0	\$ 0	\$ 0
67300 RENTS & LEASES EQUIPMENT	0	0	0	0
67350 RENTS & LEASES STRUCTURE	0	0	0	0
67400 HOUSEHOLD	0	0	0	0
67450 PROF. & SPECIAL SERVICES	265,500	665,500	665,500	249,500
67460 TEMPORARY AGENCY SVCS.	4,000	0	0	4,000
67500 PUBLIC NOTICE & ADV.	10,000	0	0	10,000
67550 DEMURRAGE	4,000	4,000	2,055	4,000
67600 MAINTENANCE OF EQUIPMENT	300	250	0	300
67650 BUILDING MAINTENANCE	0	0	0	0
67700 AUTO MILEAGE	1,600	1,600	764	1,600
67750 AUTO SERVICE	0	0	0	0
67800 TRAVEL	7,920	15,920	15,920	15,000
67850 UTILITIES	0	0	0	0
67900 COMMUNICATIONS	10,300	10,300	1,411	10,300
67950 INTEREST EXPENSE	0	0	0	0
68000 CLOTHING	0	125	125	250
68050 LABORATORY SUPPLIES	0	0	0	0
68060 POSTAGE	4,750	4,750	4,069	4,750
68100 OFFICE EXPENSE	9,520	9,395	9,395	9,520
68200 OFFICE FURNITURE	0	0	0	0
68250 SUBSCRIPTION & BOOKS	85,000	85,000	70,103	85,000
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	0	0	0	0
68350 FILM	0	0	0	0
68400 GAS & OIL	0	0	0	0
69500 TRAINING/CONF/TUITION/BOARD EX.	7,875	13,875	13,875	15,000
69550 MEMBERSHIPS	500	550	550	750
69600 TAXES	0	0	0	0
69650 AWARDS	0	0	0	0
69700 MISCELLANEOUS EXPENSES	900	900	900	900
69750 PRIOR YEAR EXPENSE	0	0	0	0
89100 PRINCIPAL REPAYMENT	0	0	0	0
TOTAL	<u>\$ 412,165</u>	<u>\$ 812,165</u>	<u>\$ 784,667</u>	<u>\$ 410,870</u>
77000 CAPITAL OUTLAYS	\$ 35,000	\$ 0	\$ 0	\$ 35,000
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	<u>\$ 5,773,658</u>	<u>\$ 6,138,657</u>	<u>\$ 6,216,623</u>	<u>\$ 6,074,698</u>

PROGRAM STATEMENT AND ORGANIZATIONAL CHART – FINANCE

2012-13 Requested Staffing

<u>Position</u>	<u>Title</u>
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
<u>1</u>	Supervising Payroll Technician
44	Total Requested Positions



Under the leadership of the Chief Financial Officer, all financial and procurement functions for the AQMD are carried out by three distinct sections: Accounting, Payroll, Cash Management, Asset Management and all issues related to the Building Corporation, and the Brain and Lung Tumor and Air Pollution Foundation are under the direction of the Controller; Financial Services and Billing Services are under the direction of the Financial Services Manager; and Contracts, Purchasing and Receiving/Stockroom units, are under the direction of the Procurement Manager.

Accounting, Payroll, Cash Management, and Asset Management

Functions carried out by this section include payroll processing, revenue posting and depositing, bill processing and payment, cash, treasury and asset management (which includes the annual and biennial physical inventory of AQMD assets), and general ledger maintenance. This section is also responsible for tax-related issues affecting AQMD, ensuring AQMD obtains an unqualified independent opinion on each annual independent financial audit, preparing the Comprehensive Annual Financial Report (CAFR) and the Popular Annual Financial Report (PAFR), applying for and complying with the requirements for the annual awards in Excellence in Financial Reporting, issuing the Fund Condition Report, monitoring AQMD restricted funds, and administering state-mandated audits.

Financial Services and Billing Services

Functions carried out by Financial Services include preparation and distribution of the Annual Budget and the Three Year Forecast; report preparation including monthly expenditure and revenue reports, quarterly key indicator/financial status reports, Work Program Tracking Report, and one-time reports as requested by the AQMD Offices; AB2766 and MSRC financial management (which includes biennial audit); budget control; and grant review, reporting, financial management and draw downs. Billing Services produces approximately 80,000 invoices in 24 billing cycles and fields over 20,000 telephone and written inquiries annually from fee payers as well as internal inquiries from engineers, inspectors and other AQMD personnel.

Procurement

Functions carried out by this section include processing all AQMD proposal/bid solicitations, facilitating RFP advertising and outreach, preparing and reviewing all contracts and purchase orders, processing supplier deliveries, and controlling, dispensing and reconciling inventory.

FY 2012-13 WORKPLAN:

FINANCE

#	CODE	PROGRAM CATEGORY	OBJ	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES
						CURRENT	+/-	CURRENT	+/-	
1	04 002	Operational Support	III	AB2766/Mobile Source	Prog Admin: Monitor/Dist/Audit	0.10		\$ 13,005	\$ 9,396	IX
2	04 003	Advance Clean Air Technology	III	AB2766/MSRC	MSRC Program Administration	0.35		45,517	2,085	IX
3	04 020	Operational Support	III	Admin/AQMD Budget	Analyze/Prepare/Impl/Track WP	2.50		325,124	14,891	Ia
4	04 021	Operational Support	III	Admin/AQMD Contracts	Contract Admin/Monitor/Process	3.20		416,159	19,060	Ia
5	04 023	Operational Support	III	Admin/AQMD Capital Assets	FA Rep/Reconcile/Inv/Acct	0.70		115,035	4,169	Ia
6	04 038	Operational Support	III	Admin/Office Management	Fin Mgmt/Oversee Activities	3.10		403,154	18,465	Ib
7	04 045	Operational Support	III	Admin/Office Budget	Office Budget/Prep/Impl/Track	0.05		6,502	298	Ib
8	04 071	Operational Support	I	Arch Ctgs - Admin	Cost Analysis/Payments	0.04		5,202	238	XVIII
9	04 083	Policy Support	II	Brain Tumor & Air Poll Foundat	Brain Tumor & Air Poll Foundation Support	0.02		2,601	119	Ia
10	04 085	Operational Support	III	Building Corporation	Building Corp Acct/Fin Reports	0.02		2,601	119	Ia
11	04 130	Advance Clean Air Technology	III	Clean Fuels/Contract Admin	Clean Fuels Contract Admin/Monitor	0.15		19,507	893	VIII
12	04 170	Customer Service and Business Assistance	I	Billing Services	Answer/Resp/Resolv Prob & Inq	9.00	(1.00)	1,170,447	(74,399)	II,III,IV
13	04 233	Operational Support	III	Employee Relations	Assist HR/Interpret Salary Res	0.10		13,005	596	Ia
14	04 260	Customer Service and Business Assistance	III	Fee Review	Cmte Mtg/Fee-Related Complaint	0.10		13,005	596	II,III,XV
15	04 265	Operational Support	III	Financial Mgmt/Accounting	Record Accts Rec & Pay/Rpts	6.20		850,908	32,329	Ia
16	04 266	Operational Support	III	Financial Mgmt/Fin Analysis	Fin/AQMD Stat Analysis & Audit	0.80		104,040	4,765	Ia
17	04 267	Operational Support	III	Financial Mgmt/Treasury Mgmt	Treas Mgt Anlyz/Trk/Proj/Invst	0.90		219,045	4,361	Ia
18	04 268	Operational Support	III	Financial Systems	CLASS/Rev/Acct/PR/Sys Analyze	0.10		13,005	596	Ia
19	04 355	Operational Support	III	Grants Management	Grant Anlyz/Eval/Negot/Acc/Rpt	1.00		130,050	5,956	V,XV
20	04 447	Operational Support	I	Mobile Sources/Accounting	Record Acct Rec & Pay/Special Funds	0.65		84,532	3,872	IX
21	04 457	Advance Clean Air Technology	III	Mobile Source/Moyer Adm	Carl Moyer: Contract/Fin Admin	1.00		130,050	5,956	IX
22	04 493	Operational Support	III	Outreach/SB/MB/DVBE	Outreach/Incr SB/DVBE Partic	0.05		6,502	298	Ia
23	04 510	Operational Support	III	Payroll	Ded/Ret Rpts/PR/St & Fed Rpts	3.60		483,079	26,543	Ia
24	04 542	Advance Clean Air Technology	I	Prop 1B:Goods Movement	Contracts/Finance Admin	0.50		65,025	2,978	IX
25	04 544	Advance Clean Air Technology	I	Prop 1B:Low Emiss Sch Bus	Grants/Finance Admin	0.10		13,005	596	IX
26	04 565	Customer Service and Business Assistance	I	Public Records Act	Comply w/ Public Rec Requests	0.02		2,601	119	XVII
27	04 570	Operational Support	III	Purchasing	Purch/Track Svcs & Supplies	3.50	(1.00)	455,174	(115,159)	Ia
28	04 571	Operational Support	III	Purchasing/Receiving	Receive/Record AQMD Purchases	1.20		156,060	7,148	Ia
29	04 572	Operational Support	III	Purchasing-Receiving/Stockroom	Track/Monitor AQMD Supplies	1.00		130,050	5,956	Ia
30	04 630	Operational Support	III	Cash Mgmt/Revenue Receiving	Receive/Post Pymts/Reconcile	5.25		682,761	31,271	II,III,IV,XI
31	04 631	Operational Support	III	Cash Mgmt/Refunds	Research/Doc/Prep/Proc Refunds	0.30		39,015	1,787	III,IV,XI
32	04 791	Ensure Compliance	III	Toxics/AB2588	AB2588 Toxics HS Fee Collection	0.15		34,507	893	X
33	04 805	Operational Support	III	Training	Continuing Education/Training	0.20		26,010	1,191	Ib
34	04 825	Operational Support	III	Union Negotiations	Official Labor/Mgmt Negotiate	0.02		2,601	119	Ia
35	04 826	Operational Support	III	Union Steward Activities	Rep Employees in Grievance Act	0.01		1,300	60	Ia
36	04 855	Operational Support	II	Web Tasks	Create/edit/review web content	0.02		2,601	119	Ia

III

46.00	(2.00)	\$ 6,182,787	\$ 18,278
FISCAL YEAR 2012-13 TOTAL		44.00	\$ 6,201,065

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.

FINANCE

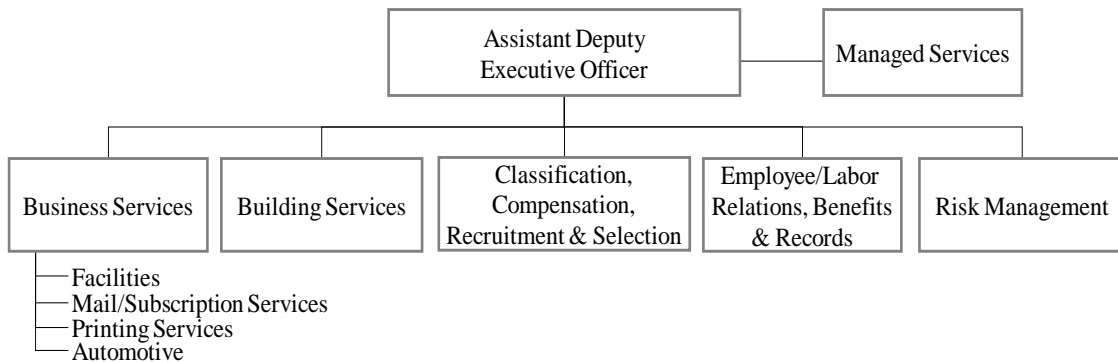
LINE ITEM EXPENDITURE

<u>MAJOR OBJECT/ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
SALARY & EMPLOYEE BENEFITS				
SALARY	\$ 2,877,484	\$ 2,877,484	\$ 2,943,984	\$ 2,930,421
EMPLOYEE BENEFITS	1,828,092	1,828,091	1,638,355	1,730,448
TOTAL	<u>\$ 4,705,575</u>	<u>\$ 4,705,575</u>	<u>\$ 4,582,339</u>	<u>\$ 4,660,869</u>
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 0	\$ 0	\$ 0	\$ 0
67300 RENTS & LEASES EQUIPMENT	0	0	0	0
67350 RENTS & LEASES STRUCTURE	0	0	0	0
67400 HOUSEHOLD	0	0	0	0
67450 PROF. & SPECIAL SERVICES	161,600	161,600	161,600	164,800
67460 TEMPORARY AGENCY SVCS.	38,900	38,900	38,900	52,000
67500 PUBLIC NOTICE & ADV.	5,300	5,300	1,498	5,400
67550 DEMURRAGE	900	900	180	900
67600 MAINTENANCE OF EQUIPMENT	520	670	670	600
67650 BUILDING MAINTENANCE	0	0	0	0
67700 AUTO MILEAGE	4,420	4,420	3,347	4,578
67750 AUTO SERVICE	0	0	0	0
67800 TRAVEL	3,800	3,800	2,745	4,000
67850 UTILITIES	0	0	0	0
67900 COMMUNICATIONS	9,000	9,000	2,628	9,000
67950 INTEREST EXPENSE	0	0	0	0
68000 CLOTHING	1,000	1,000	980	1,200
68050 LABORATORY SUPPLIES	0	0	0	0
68060 POSTAGE	130,000	130,000	113,516	130,000
68100 OFFICE EXPENSE	49,400	49,400	37,454	33,900
68200 OFFICE FURNITURE	1,350	1,350	0	0
68250 SUBSCRIPTION & BOOKS	2,685	2,685	1,944	2,885
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	0	0	0	0
68350 FILM	0	0	0	0
68400 GAS & OIL	0	0	0	0
69500 TRAINING/CONF/TUITION/BOARD EX.	35,900	35,750	4,423	25,350
69550 MEMBERSHIPS	1,580	1,580	1,575	1,690
69600 TAXES	0	0	0	0
69650 AWARDS	0	0	0	0
69700 MISCELLANEOUS EXPENSES	3,925	3,925	3,925	4,625
69750 PRIOR YEAR EXPENSE	0	0	0	0
89100 PRINCIPAL REPAYMENT	0	0	0	0
TOTAL	<u>\$ 450,280</u>	<u>\$ 450,280</u>	<u>\$ 375,387</u>	<u>\$ 440,928</u>
77000 CAPITAL OUTLAYS	\$ 0	\$ 0	\$ 0	\$ 0
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	<u><u>\$ 5,155,855</u></u>	<u><u>\$ 5,155,855</u></u>	<u><u>\$ 4,957,725</u></u>	<u><u>\$ 5,101,797</u></u>

PROGRAM STATEMENT AND ORGANIZATIONAL CHART – ADMINISTRATIVE & HUMAN RESOURCES

2012-13 Requested Staffing

<u>Position</u>	<u>Title</u>
1	Assistant Deputy Executive Officer/Administrative & Human Resources
1	Building Maintenance Manager
1	Building Supervisor
1	Business Services Manager
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
<u>1</u>	Staff Specialist
34	Total Requested Positions



Assistant Deputy Executive Officer

In addition to providing unit leadership and guidance, the Designated Deputy is responsible for overall administration of AQMD human resources and administrative services. Administrative services include negotiating and securing contracts, administering leases, preparing reports, and completing special projects. Current programs of this group include lease administration for the Diamond Bar facility, field offices and air monitoring stations; facility management, including conference center; automotive services; printing; mail and subscription services; and managed services, including the child care center, fitness center, cafeteria, security, landscape, and custodial services. Human Resources administers and interprets human resources-related laws, rules, and regulations for AQMD in managing and directing its work force. The Human Resources section provides essential human resources programs and services in employee and labor relations, employee benefits, workers' compensation and safety programs, equal opportunity and compliance, recruitment and selection, and classification and compensation, and oversees the personnel records management function of the agency.

Business Services

Business Services is comprised of Facilities Services, Subscription and Mail Services, Automotive Services, and Print Shop sections. Business Services assists in managing and leasing portions of the Diamond Bar facility, negotiating agreements for air monitoring stations, service contracts, space improvement/employee relocations, special programs such as oversight of the facility fitness center, and processing of employee continuous service awards.

The Facilities Services section provides service to AQMD staff in the areas of facility management. Facility Services plans, coordinates, and implements all moves, changes, and other facility-related functions. These functions include operating the access control security system, controlling the lock/key system, monitoring service contracts such as janitorial and security guard services, and monitoring utility invoices. Responsibility for overseeing the scheduling of the conference center is also handled by this section.

Subscription Services maintains AQMD's rule subscription mailing lists and coordinates printing, labeling, inserting, and mailing of AQMD publications. Subscription Services also coordinates large mailings of brochures, workshop notifications, and public notices from other AQMD groups. Mailroom staff handles all of AQMD's incoming and outgoing mail, including pickup and delivery of mail to and from the U.S. Post Office and presorting service vendors. The Mailroom is also responsible for determining the most cost-effective and efficient way of metering and mailing AQMD publications and materials and maintaining postage records.

Automotive Services is responsible for overseeing the maintenance of vehicles, including routine servicing such as oil changes, air, water, and fueling for AQMD's car and vanpool participants. This section is frequently called upon to make special deliveries and run errands for various AQMD divisions.

The Print Shop is responsible for producing everything from single-page information sheets to thick, multi-volume manuals and other documents and literature required by AQMD staff. This section also imports documents via the AQMD network, such as Board Agendas, the AQMD Rule Book, and various other documents. Billing and other variable data jobs are output from

the Print Shop's photocopier equipment in conjunction with Information Management. Further, this section is responsible for overseeing maintenance of the walk-up copiers throughout the AQMD.

Building Services

Building Services is responsible for maintenance of AQMD headquarters buildings, field offices, air monitoring stations, and wind stations, as well as oversight of landscaping services. Building Maintenance staff repairs, maintains, and improves building equipment and machinery (such as chillers, boilers, air handlers, pumps, and electrical distribution systems). This section is also responsible for restroom equipment repair, small construction projects, roof repairs, temperature control, and performing preventative maintenance routines on all equipment.

Human Resources

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 AQMD's air quality goals. The unit develops, reviews, and administers AQMD's classification and pay system, recruitment and test development programs, ensures compliance with equal opportunity employment practices, employee benefits, personnel appraisal program, policies and procedures, and maintains official personnel records on all AQMD employees. Human Resources also represents AQMD in labor negotiations, interpreting and administering memoranda of understanding, employee grievances, disciplinary actions, and arbitrations; and provides coaching, counseling, advisory, and consultative services to employees, supervisors and managers regarding a wide variety of human resource management and personnel-related issues. Further, Human Resources provides administrative staff support to the Executive Office through conducting special studies and surveys, reviewing and recommending revisions to AQMD policies and procedures, and providing overall guidance on work force analysis.

Risk Management

Risk Management is responsible for administering workplace programs to reduce risk in the workers' compensation program, the self-insured general and automobile liability programs, and AQMD's property insurance program; and for safety program development and training to reduce workplace accidents and ensure a healthful and safe work environment. Risk Management reviews contracts and maintains records of insurance certificate compliance. Risk Management also controls the daily operation of these programs and recovers losses from insurance carriers and other entities or individuals. Major emphasis is placed on monitoring workers' compensation costs.

FY 2012-13 WORKPLAN:

ADMINISTRATIVE & HUMAN RESOURCES

#	CODE	PROGRAM CATEGORY	OBJ	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES
						CURRENT	+/-	CURRENT	+/-	
1	16 026	Operational Support	III	AQMD Mail	Posting/Mailing/Delivery	2.30		\$ 397,160	\$ 2,921	Ia
2	16 038	Operational Support	III	Admin/Office Management	Reports/Proj/Budget/Contracts	2.05		358,190	2,603	Ib
3	16 060	Operational Support	III	Equal Employment Opportunity	Program Dev/Monitor/Reporting	0.10		17,268	127	Ia
4	16 080	Ensure Compliance	III	Auto Services	Vehicle/Radio Repair & Maint	3.00		518,034	3,809	Ia
5	16 090	Operational Support	III	Building Maintenance	Repairs & Preventative Maint	7.00		1,211,997	8,889	Ia
6	16 092	Operational Support	III	Business Services	Building Services Admin/Contracts	2.40		414,427	3,048	Ia
7	16 225	Operational Support	III	Employee Benefits	Benefits Analysis/Orient/Records	1.40		241,749	1,778	Ia
8	16 226	Operational Support	III	Classification & Pay	Class & Salary Studies	0.30		51,803	381	Ia
9	16 228	Operational Support	III	Recruitment & Selection	Recruit Candidates for AQMD	4.25	(1.00)	758,182	(168,551)	Ia
10	16 232	Operational Support	III	Position Control	Track Positions/Workforce Analys	0.40		69,071	508	Ia
11	16 233	Operational Support	III	Employee Relations	Meet/Confer/Labor-Mgmt/Grievance	2.70		466,231	3,429	Ia
12	16 255	Operational Support	III	Facilities Services	Phones/Space/Keys/Audio-Visual	1.00		174,678	1,270	Ia
13	16 457	Advance Clean Air Technology	I	MS/Carl Moyer Admin	C Moyer/Contractor Compliance	1.00		172,678	1,270	IX
14	16 540	Customer Service and Business Assistance	III	Print Shop	Printing/Collating/Binding	4.00		701,712	5,079	Ia
15	16 565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Rec Requests	0.20		34,536	254	XVII
16	16 640	Operational Support	III	Risk Management	Liabl/Property/Wk Comp/SelfIns	1.00		305,678	1,270	Ia
17	16 717	Policy Support	II	Student Interns	Gov Board/Student Intern Program	0.20		34,536	254	Ia
18	16 720	Customer Service and Business Assistance	I	Subscription Services	Rule & Gov Board Materials	1.70		293,553	2,159	XIV

35.00	(1.00)	\$ 6,221,483	\$ (129,504)
FISCAL YEAR 2012-13 TOTAL		34.00	\$ 6,091,980

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.

ADMINISTRATIVE & HUMAN RESOURCES

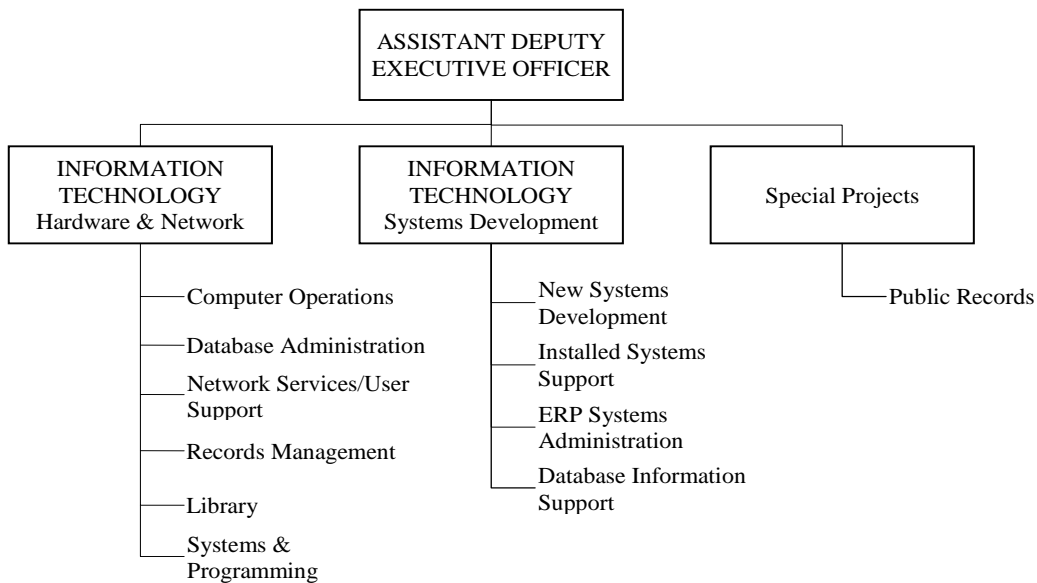
LINE ITEM EXPENDITURE

<u>MAJOR OBJECT/ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
SALARY & EMPLOYEE BENEFITS				
SALARY	\$ 2,407,766	\$ 2,407,766	\$ 2,635,673	\$ 2,498,994
EMPLOYEE BENEFITS	1,524,143	1,524,144	1,408,307	1,464,329
TOTAL	\$ 3,931,910	\$ 3,931,910	\$ 4,043,980	\$ 3,963,323
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 0	\$ 0	\$ 0	\$ 0
67300 RENTS & LEASES EQUIPMENT	170,828	170,828	165,616	91,600
67350 RENTS & LEASES STRUCTURE	0	0	0	0
67400 HOUSEHOLD	2,305	2,305	0	2,305
67450 PROF. & SPECIAL SERVICES	172,750	172,750	145,433	172,750
67460 TEMPORARY AGENCY SVCS.	5,000	5,000	4,836	5,000
67500 PUBLIC NOTICE & ADV.	53,500	53,500	14,846	26,500
67550 DEMURRAGE	0	0	0	0
67600 MAINTENANCE OF EQUIPMENT	59,152	59,152	47,588	76,390
67650 BUILDING MAINTENANCE	0	0	0	0
67700 AUTO MILEAGE	4,200	4,200	4,200	4,200
67750 AUTO SERVICE	311,047	311,047	278,757	311,047
67800 TRAVEL	1,440	1,440	1,259	1,440
67850 UTILITIES	0	0	0	0
67900 COMMUNICATIONS	20,900	20,900	7,108	20,900
67950 INTEREST EXPENSE	0	0	0	0
68000 CLOTHING	8,180	8,180	6,693	8,180
68050 LABORATORY SUPPLIES	0	0	0	0
68060 POSTAGE	11,469	11,469	6,606	11,469
68100 OFFICE EXPENSE	90,740	85,740	81,959	90,740
68200 OFFICE FURNITURE	70,000	70,000	7,213	50,000
68250 SUBSCRIPTION & BOOKS	1,920	1,920	1,467	1,920
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	4,700	4,700	4,131	4,700
68350 FILM	0	0	0	0
68400 GAS & OIL	492,000	492,000	273,301	372,000
69500 TRAINING/CONF/TUITION/BOARD EX.	12,817	17,817	12,437	12,817
69550 MEMBERSHIPS	3,265	3,265	3,170	3,265
69600 TAXES	0	0	0	0
69650 AWARDS	0	0	0	0
69700 MISCELLANEOUS EXPENSES	12,000	12,000	7,164	12,000
69750 PRIOR YEAR EXPENSE	0	0	0	0
89100 PRINCIPAL REPAYMENT	0	0	0	0
TOTAL	\$ 1,508,213	\$ 1,508,213	\$ 1,073,785	\$ 1,279,223
77000 CAPITAL OUTLAYS	\$ 0	\$ 0	\$ 0	\$ 0
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	\$ 5,440,123	\$ 5,440,123	\$ 5,117,765	\$ 5,242,546

PROGRAM STATEMENT AND ORGANIZATIONAL CHART – INFORMATION MANAGEMENT

2012-13 Requested Staffing

<u>Position</u>	<u>Title</u>
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
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
<u>5</u>	Telecommunications Technician II
48	Total Requested Positions



The Information Management (IM) unit provides a wide range of information management systems and services in support of all AQMD operations. In addition to the unit's administration, which provides for overall planning, administration and coordination of the unit's activities, IM is comprised of two Information Technology (IT) sections, and a Special Projects unit. Due to the increasing convergence between hardware, software and digital technologies, the work performed by the two sections often overlaps and requires close coordination. The units are distinguished from each other in that one is primarily concerned with hardware and network issues (while acquiring and applying software to integrate systems and functions), whereas the other 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).

Both IT sections are responsible for developing, acquiring and maintaining systems of critical importance to the operations of the AQMD. Consistent with the Executive Officer's goals and the Strategic Plan for IM, the two IT sections work together to evaluate and apply the latest "favorably demonstrated" technological advances in hardware and software development tools to achieve the goal of automating and streamlining AQMD functions. Each section is responsible for developing cost-effective procedures for implementing and enforcing AQMD rules, using the latest computer technologies and regulatory principles and practices. The resultant systems must be capable of efficiently implementing new and evolving rules such as AB2766, REgional CLean Air Incentives Market (RECLAIM), Title V, and New Source Review (NSR).

The two IT sections also support AQMD activities such as rule development, revenue projections, source test and laboratory analysis tracking, air quality and meteorological data telemetry, emissions inventory development, transportation systems maintenance, public records requests, and human resources activities by performing the more complex programming and data queries to meet the needs of other divisions.

Information Management work functions include the following:

- **Computer Operations.** This work program provides the main source of support for AQMD operations and production services through on-going maintenance, configuration, performance monitoring, and resource management of all AQMD's computer systems. All central computer resources are available 24 hours a day, 7 days a week. This unit has the responsibility to balance complex computer resources usage across all functions of the AQMD and to maintain application processing documentation for all software residing on these computers.
- **Database Administration.** This function handles data as a corporate resource. It involves data modeling and design activities to ensure the integration and integrity of application systems that share data, as well as management and special reporting of enterprise data to internal and external parties.
- **New Systems Development.** These functions support AQMD-wide operational systems development for major regulatory activities as well as special operational needs for individual divisions that help staff better perform daily tasks. This work area includes prefatory analysis, risk assessment, feasibility studies and task order development at the onset; followed by prototyping, specifications and source code development, outsource project management, and new system migration/implementation.

- **Database Information Support.** This work program provides day-to-day support for ad hoc reports and special data extracts from the AQMD's enterprise databases. These data extracts provide information for decision support for both internal staff and external public records requests requiring special programming. This program also supports the implementation of data archiving and warehouse strategies.
- **Library.** This program covers a broad range of research/reference library services to support the AQMD's and public's unique technical information requirements. The Library is a central environmental access point for the public for information on AB2588, AB2766, State Implementation Plan (SIP), Federal Implementation Plan (FIP), RECLAIM, staff reports on AQMD rules, and the AQMD's permit application training program. The Library houses more than 20,000 books, reports, periodicals, maps, videotapes, and audio cassettes available on loan to AQMD employees and members of the public seeking information on air pollution-related topics. The Library also serves as a central point for ordering materials; arranges inter-library loans or vendor services for article copying, including NTIS (National Technical Information Service); and acts as the AQMD's historical archive. Library staff also assists in the monitoring and maintenance of the AQMD's Law Library.
- **Network Services/User Support.** This work function covers on-going maintenance, installation, and operational support of AQMD PCs, servers, voice and data networks, audio video infrastructure; and all software applications. The group provides the planning, design, and implementation of new systems and/or services to meet all AQMD network, communication, and audio visual needs. Specific services include: personal computer support and repair, voice and data network-related support and repair, desktop and server-based application support, Support Line services, hardware and software acquisition/installation, assistance in customizing standard office automation software (i.e., MS Windows and Office Suite), and providing audio visual support for the Auditorium and all conference centers.
- **Public Records.** This work function covers activities necessary for the fulfillment of California Public Records Act requests. Staff researches each request and supplies the necessary information required to verify, compile and prepare the requested data for review by the Chief Prosecutors group within the State's 10-day delivery requirement.
- **Records Management.** This program provides resources for maintaining the AQMD's central records and files, for converting paper files to optical images, and for operating the networked image management system. The program also provides for all off-site, long-term storage of records and files and for developing and monitoring the AQMD's Retention Policy.
 - **Support for Records Retention Policy and Schedule.** Staff conducts analyses of current documents for redundancy, loss and adequacy. Guidelines are developed for optimizing usage and maintenance, and integration and automation of documents for imaging processes. Policies and procedures are maintained in a manual for use by all levels of staff to better understand the agency's Record Retention Policy.
- **Web Tasks.** This work function covers the administration of the AQMD's web site, and coordination with content-developers throughout the agency to publish accurate, up-to-

date content for staff and public use. Staff also works to assist other divisions of the AQMD in the usage of specialized web-based software for publishing electronic newsletters to stakeholders and multimedia presentations for training and educational purposes.

- **Installed Systems Support.** These functions focus on maintenance and support of installed systems and include modification of a software product after delivery to correct faults, improve performance or other attributes, or to adapt the product to a modified environment. The support effort also includes non-corrective actions including user requests for instructional and data-related help and problem reports that in reality are functionality enhancements to the system.
- **Enterprise Resource Planning (ERP).** This program supports acquisition and implementation of PeopleSoft financial and human resources modules and includes implementation of additional features and functions introduced with scheduled software upgrades as well as acquisition and configuration of a distributed n-tier development and production environment.

FY 2012-13 WORKPLAN:

INFORMATION MANAGEMENT

#	CODE	PROGRAM CATEGORY	OBJ	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES
						CURRENT	+/-	CURRENT	+/-	
1	27 038	Operational Support	III	Records Services	Overall Direction/Coord of IM	2.00		\$ 335,716	\$ 17,781	Ia
2	27 071	Operational Support	I	Arch Ctgs - Admin	Database Dev/Maintenance	0.25		41,965	2,223	XVIII
3	27 160	Operational Support	III	Computer Operations	Oper/Manage Host Computer Sys	5.25		1,183,555	36,225	Ia
4	27 184	Operational Support	III	Database Information Support	Ad Hoc Reports/Bulk Data Update	1.00		187,858	8,891	Ia
5	27 185	Operational Support	III	Database Management	Dev/Maintain Central Database	2.25		377,681	20,004	Ia
6	27 215	Operational Support	I	Annual Emission Reporting	System Enhancements for GHG	0.50		83,929	4,445	II,XVII
7	27 370	Operational Support	III	Information Technology Svcs	Enhance Oper Effic/Productivity	2.75		493,960	24,449	Ia
8	27 420	Operational Support	III	Library	General Library Svcs/Archives	1.25	(1.00)	232,773	(180,235)	Ia
9	27 470	Operational Support	III	Network Operations/Telecomm	Operate/Maintain/Implem AQMD	10.25	(1.00)	2,011,790	(194,421)	Ia
10	27 480	Operational Support	III	New System Development	Dev sys for special oper needs	3.00		566,574	30,868	II,IV
11	27 481	Operational Support	III	New System Development	Dev sys in supp of Dist-wide	1.75		324,552	15,558	Ia,III
12	27 523	Timely Review of Permits	III	Permit Streamlining	Permit Streamlining	0.25		41,965	2,223	III
13	27 565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Req for Info	3.75		629,468	33,339	XVII
14	27 615	Operational Support	III	Records Information Mgmt Plan	Plan/Impl/Dir/Records Mgmt plan	1.25		247,823	11,113	Ia
15	27 616	Operational Support	III	Records Services	Records/Documents processing	3.75		769,468	23,843	Ia,III,IV
16	27 735	Operational Support	III	Systems Maintenance	Maintain Existing Software Prog	4.50		1,166,111	(21,343)	II,III,IV
17	27 736	Operational Support	III	Systems Implementation	Fin/HR PeopleSoft Systems Impl	1.50		396,787	113,336	Ia
18	27 770	Timely Review of Permits	III	Title V	Dev/Maintain Title V Program	1.00		167,858	8,891	III
19	27 791	Ensure Compliance	III	Toxics/AB2588	AB2588 Database Software Supp	0.50		139,529	4,445	X
20	27 855	Operational Support	II	Web Tasks	Create/edit/review web content	3.25		557,539	238,894	Ia

	50.00	(2.00)	\$ 9,956,898	\$ 200,529
FISCAL YEAR 2012-13 TOTAL		48.00		\$ 10,157,427

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.

INFORMATION MANAGEMENT

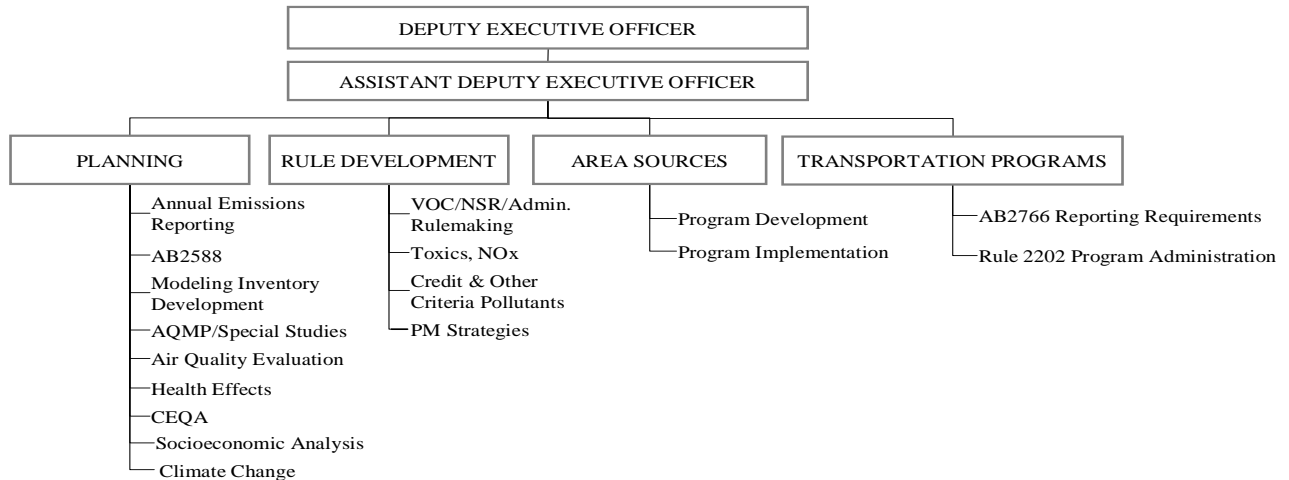
LINE ITEM EXPENDITURE

<u>MAJOR OBJECT/ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
SALARY & EMPLOYEE BENEFITS				
SALARY	\$ 4,329,776	\$ 4,329,776	\$ 4,707,306	\$ 4,415,585
EMPLOYEE BENEFITS	2,407,950	2,407,951	2,324,909	2,362,299
TOTAL	\$ 6,737,726	\$ 6,737,727	\$ 7,032,216	\$ 6,777,884
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 0	\$ 0	\$ 0	\$ 0
67300 RENTS & LEASES EQUIPMENT	1,880	1,880	0	1,880
67350 RENTS & LEASES STRUCTURE	0	0	0	0
67400 HOUSEHOLD	1,250	1,250	0	1,250
67450 PROF. & SPECIAL SERVICES	743,175	753,675	916,502	718,175
67460 TEMPORARY AGENCY SVCS.	500,320	544,320	183,348	500,320
67500 PUBLIC NOTICE & ADV.	0	0	0	0
67550 DEMURRAGE	650	650	0	650
67600 MAINTENANCE OF EQUIPMENT	77,000	77,000	44,013	82,000
67650 BUILDING MAINTENANCE	0	0	0	0
67700 AUTO MILEAGE	1,250	2,150	1,739	1,250
67750 AUTO SERVICE	0	0	0	0
67800 TRAVEL	2,160	2,160	1,115	2,160
67850 UTILITIES	0	0	0	0
67900 COMMUNICATIONS	36,900	36,900	31,785	36,900
67950 INTEREST EXPENSE	0	0	0	0
68000 CLOTHING	0	0	0	0
68050 LABORATORY SUPPLIES	0	0	0	0
68060 POSTAGE	5,500	5,500	793	5,500
68100 OFFICE EXPENSE	276,012	276,012	276,012	293,912
68200 OFFICE FURNITURE	0	0	0	0
68250 SUBSCRIPTION & BOOKS	40,000	40,000	36,309	30,000
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	2,000	2,000	0	2,000
68350 FILM	0	0	0	0
68400 GAS & OIL	0	0	0	0
69500 TRAINING/CONF/TUITION/BOARD EX.	91,575	71,175	67,561	46,575
69550 MEMBERSHIPS	1,770	1,770	904	1,770
69600 TAXES	1,000	1,000	0	1,000
69650 AWARDS	0	0	0	0
69700 MISCELLANEOUS EXPENSES	0	0	0	0
69750 PRIOR YEAR EXPENSE	0	0	0	0
89100 PRINCIPAL REPAYMENT	0	0	0	0
TOTAL	\$ 1,782,442	\$ 1,817,442	\$ 1,560,081	\$ 1,725,342
77000 CAPITAL OUTLAYS	\$ 320,500	\$ 820,500	\$ 820,500	\$ 455,000
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	\$ 8,840,668	\$ 9,375,669	\$ 9,412,797	\$ 8,958,226

PROGRAM STATEMENT AND ORGANIZATIONAL CHART – PLANNING, RULE DEVELOPMENT & AREA SOURCES

2012-13 Requested Staffing

<u>Position</u>	<u>Title</u>
2	Administrative Secretary
9	Air Quality Engineer II
4	Air Quality Inspector II
1	Air Quality Inspector III
41	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
18	Program Supervisor
7	Secretary
2	Senior Administrative Secretary
4	Senior Air Quality Engineer
1	Senior Meteorologist
3	Senior Office Assistant
1	Senior Staff Specialist
1	Senior Transportation Specialist
<u>2</u>	Transportation Plan Reviewer
111	Total Requested Positions



The Office of Planning, Rule Development and Area Sources is responsible for the majority of the AQMD's air quality planning functions. The office also develops proposals for new rules and amendments to existing rules. The office also inventories area sources and conducts permitting and compliance activities related to area sources.

Major new undertakings and continuing support programs for this office for FY 2012-13 are described below:

PLANNING

- Conduct the 2012 Air Quality Management Plan (AQMP) Special Studies to expedite implementation of long-term measures;
- Implementation of Environmental Justice Program Enhancements;
- Implementation of the Clean Communities Plan including pilot studies, and development and implementation of other Clean Communities Plan measures;
- Conduct special efforts to regulate facilities that have previously reported their toxic emissions.
- Continued socioeconomic analysis of rules and programs;
- Continued update of NAICS codes for all permitted facilities;
- Continued CEQA analysis for rules and programs, and review of environmental documents;
- Continued oral testimony at public meetings and hearings on CEQA projects;
- Continue updating the CEQA Air Quality Handbook and Land Use Guidance Document;
- Conduct outreach activities on AQMD's CEQA Program;
- Continue updating and developing air quality-related CEQA policies and programs for AQMD projects and other lead agency projects;
- Collaboration with CARB and the Southern California Association of Governments to improve emission estimates for future years;
- Continued participation in working groups, advisory groups, and other ongoing meetings on the large transportation development projects;
- Participate actively in SCAG's Regional Transportation Plan development;
- Update of air quality forecasting system. Conduct PM10 natural events characterization and public notification;
- Implementation of a new Public Notification Procedure for industry-wide categories such as dry-cleaning and further development of notification procedures for other dry cleaning sources;
- Implementation of updates to air quality models including CAMx, CMAQ, and new chemical mechanisms;
- Implementation of PM rules under SB656 and the 2007 AQMP;
- Provide support for legislative proposals;
- Provide regulatory support for Coachella Valley;
- Participate in SCAG's Transportation Demand Model improvement and validation efforts;
- Work with CARB on emission inventory improvements;
- Work with CARB and others in support of AB32 – California Global Warming Solutions Act of 2006 and other programs to ensure that GHG programs have a positive impact on criteria and toxic programs in the South Coast air basin;
- Review and comment on projects related to General Conformity determinations;
- Implement District Green Policy;
- Work with USEPA on toxic assessments.

RULE DEVELOPMENT

- Continued implementation of 2007 AQMP SIP obligations through development of new and amended VOC, NO_x, PM_{2.5}, and PM₁₀, and other rules including consumer products;
- Develop programs to reduce emissions from intermodal equipment;
- Develop rules to address odor nuisance;
- Follow the development of mobile source credit and fleet rules, support of mobile source controls at the state and federal level and support for development of enhancements to current clean fleet programs;
- Amend existing mobile source credit rules to allow the generation of emission reduction credits on multiple pollutants;
- Support development of backstop regulations to limit emissions from port facilities, under the Board's Clean Port Initiative;
- Develop proposed amendments to other source-specific criteria pollutant and toxic air pollutant rules and administrative rules including Regulation XIII;
- Amend Regulation III – Fees, to support AQMD budget;
- Develop rules to reduce PM_{2.5}, and PM₁₀, and ammonia (NH₃) in the Basin;
- Develop rules to ensure the Basin achieves National Ambient Air Quality Standards for Lead
- Evaluate new and amended rules for opportunities to seek climate change co-benefits;
- Assess and report on the implementation of the requirements of Rule 1118 – Control of Emissions from Refinery Flares;
- Assess remote sensing techniques for fugitive VOC emissions at petroleum refineries;
- Coordinate implementation and implement Clean Communities Plan;
- Amend existing and develop new rules and regulations for toxic air contaminants.

AREA SOURCES

- Amend Rule 1610 pursuant to CARB EFMP;
- Implement technology assessments for architectural coatings, solvent cleaning and lubricants;
- Continued implementation of electronic, “paperless” systems to streamline and automate AQMD filing and registration functions;
- Continued field enforcement of the following rules: architectural coatings and associated fee rule, fleets, auto scrapping, solvent cleaning and associated consumer paint thinners and multi-purpose solvents rule, open burning, ozone depleting compounds (ODC) and on-road motor vehicle mitigation options (2202); implement electronic systems to automate and streamline compliance review;
- Continued development of partnerships with the private sector and other government agencies to improve compliance with area source rules;
- Continued cooperation with land managers (federal and state) to develop cleaner alternatives for wood waste disposal;
- Develop, enhance and maintain databases for fees and emissions of area sources, including consumer products, architectural coatings, and solvents;
- Evaluate contribution of low vapor pressure compounds, currently exempt as a VOC in the Consumer Products Regulation, towards ozone formation;
- Conduct audits on the Averaging Compliance Option in Rule 1113 and Annual Emissions and Emissions Reports in Rule 314.

TRANSPORTATION PROGRAMS

- Provide Rule 2202 technical assistance and training to the regulated community and streamline the Rule 2202 program implementation and administration;
- Provide AB 2766 Subvention Fund technical assistance, outreach, and training to local governments, and fulfill annual local government, AQMD Board and CARB reporting requirements;
- Develop PR 2301-Control of Emissions From New or Redevelopment Projects as follow-up to the 2007 Air Quality Management Plan (AQMP) to meet state and federal Clean Air Act requirements;
- Monitor local jurisdictions in the development of air quality elements and/or policies for inclusion in their general plans; update, as necessary, the AQMD's guidance document for addressing air quality issues in general plans and local planning;
- Provide coordinated input to plans and programs, such as the Regional Transportation Plan and Transportation Conformity, which furthers the region's compliance with federal and state Clean Air Act requirements.

SPECIFIC PROGRAM DESCRIPTIONS

Annual Emissions Reporting (AER)

- Administer Rule 301 (e) annual emissions reporting program for facilities for the preceding fiscal year;
- Consolidate reporting for Annual Emissions Reporting for quadrennial updates for AB2588 facilities;
- Collect emission inventories, conduct workshops, and provide assistance to facilities to submit their emission inventories;
- Compile emission inventory data, performing QA/QC review of emission data and auditing;
- Provide CARB with emission inventory data to be used in the Clean Air Act Program;
- Develop Green House Gas (GHG) emission inventory for AQMD and South Coast Air Basin;
- Provide technical assistance in preparation of CARB Mandatory Reporting Rules;
- Support web-based AER tool and coordination with CARB and EPA for mandatory reporting.

AB 2588

- Implement the reporting and risk reduction requirements of the state's Toxic Hot Spots Reporting Program;
- Review inventories, health risk assessments, and risk reduction plans;
- Conduct public meetings for facilities exceeding specific risk levels;
- Review point source modeling for New Source Review, CEQA and other projects.

Modeling Emissions

- Manage emissions baseline and future projections for point, area and mobile sources for the AQMP;
- Support rule development and other internal programs that rely on inventory information;
- Review and comment on general conformity documents;
- Track rule reductions and prepare SIP submittals;
- Analyze and prepare reports on air quality trends.

Modeling Inventory Development

- Develop gridded inventories used in preparing the AQMP;
- Coordinate with state and federal agencies to enhance emission estimates;
- Conduct studies to update and improve modeling emissions distribution surrogate profiles.

Health Effects

- Provide expert knowledge concerning toxicology of air pollutants;
- Respond to citizen concerns regarding health effects of air pollutants;
- Provide assessments of toxic risk of emissions from motor vehicles.

AB2766 Subvention

- Provide technical assistance to local governments to direct fund expenditures toward the most cost-effective emission reduction projects;
- Conduct annual training sessions for local governments to provide direction and clarification on updated guidelines, policies and annual program submittal requirements;
- Review annual report submittals from local governments specific to financial, cost effective and emission reduction reporting;
- Prepare annual staff report, pending AQMD Governing Board acceptance, for CARB action.

Regional Program Implementation

- Participate and coordinate efforts with local, regional and state agencies with regard to regional programs such as the Regional Transportation Plan, Regional Transportation Implementation Plan, Long Range Plan and Conformity;
- Participate and coordinate efforts with other agencies and utilities to develop, incentive, and implement zero emission technologies, energy efficiency and conservation measures, and promote clean, reliable sources of energy;
- Provide AQMD input in the development of regional programs relative to ensuring that air quality conditions are considered;
- Provide input review and analysis of transportation and mobile source programs.

Emissions Equivalency- Rule 2202

- Implement Rule 2202 strategies including the Employee Commute Reduction Program, Emission Reduction Credit programs, the Air Quality Investment Program and other Emission Reduction Strategies;
- Review and evaluation of annual programs submitted by employers under the rule purview;
- Maintain databases for the Employer Clean Fleet Vehicles Purchase/Lease Program, and the Mobile Source Diesel PM/NOX Emission Minimization Plans;
- Monitor program implementation and refer non-compliant employers to the Compliance Unit for enforcement action;
- Participate in the Notice of Violation (NOV) settlement process;
- Conduct bi-monthly eight hour training classes for employer representatives to be taught the fundamentals of program development and implementation;
- Prepare monthly and annual status reports.

PM Strategies

- Develop control strategies for PM_{2.5} and PM₁₀ ambient air quality standards;
- Implement the PM_{2.5} and PM₁₀ portion of the AQMP;
- Develop regulations to reduce PM_{2.5}, PM₁₀, and ammonia;
- Implement PM_{2.5}, PM₁₀, and ammonia control strategies;
- Update PM_{2.5}, PM₁₀, and ammonia emission inventories;
- Conduct and support special studies related to PM measurement analysis apportionment, and characterization relative to ongoing reduction efforts, including enforcement and other efforts, such as those under Rule 1155 for PM control devices and Rule 1156 for hexavalent chrome monitoring;
- Continue implementation of gas log incentive programs, including that funded by EPA Airshed grant;
- Assist in implementation of wood-burning curtailment program under Rule 445
- Implement and support of PM reduction programs, including outreach, special studies, and emissions inventory development;
- Manage contracts for the reduction of PM and other emissions, such as the AB 1318 Mitigation Fees Fund.

AQMP/ Special Studies

- Coordinate the development of revisions to the AQMP;
- Review and comment on draft state and federal regulations and guidance;
- Conduct special studies and develops white papers for feasibility studies, strategic initiatives and other critical projects.
- Conduct the 4th Multiple Air Toxics Exposure Study (MATES IV) monitoring and modeling air toxic exposure and risk throughout the South Coast Air Basin. MATES IV includes a focus on the localized impacts of ultrafine particle and diesel particulate matter emissions.
- Conduct an extensive Outreach Program for the 2012 AQMP to engage a wide range of stakeholders through a variety of activities such as topical workshops, focus groups, and coordination meetings.

Meteorology/Air Quality Evaluation

- Provide expert knowledge in support of the development of the AQMP and special studies;
- Conduct exceptional event analyses;
- Develop daily air quality, high wind and burn forecasts and provide public notification and documentation of air pollution and natural events;
- Analyze and prepare reports on air quality statistics and trends;
- Analyze and prepare reports for special monitoring studies;
- Implement new/updated numerical meteorological models.

CEQA

- Prepare environmental documents for AQMD rules, regulations and plans;
- Periodically review and evaluate 400-CEQA permit applications;
- Prepare environmental documents for certain permits/projects;
- Review and comment on CEQA documents prepared by other agencies;
- Provide oral testimony on CEQA documents;
- Provide guidance to local governments on preparing air quality analyses for CEQA documents;

- Develop and revise guidance documents for CEQA air quality analyses;
- Continually update mitigation measures as new technologies are developed;
- Maintain computerized emissions databases for emissions models;
- Maintain and upgrade land use emissions model (CalEEMod);
- Prepare monthly report to the Governing Board regarding the status of reviews conducted on CEQA documents prepared by other agencies and the status of environmental documents for permit projects;
- Outreach to other lead agencies on AQMD's CEQA intergovernmental review (IGR) program;
- Maintain and update AQMD's CEQA webpages;
- Work with CAPCOA and others to develop GHG thresholds, analytical tools and mitigation measures.

Socioeconomic Analysis

- Assess the potential socioeconomic impacts of rules, programs and air quality plans;
- Analyze impacts of rules on specific types of industries and small businesses;
- Establish and maintain computerized economic databases and apply economic models;
- Perform facility-based impact assessment of proposed rules and post-rule assessments;
- Maintain and update NAICS codes for regulated facilities;
- Continue refining socioeconomic analyses based on comments from stakeholders and interested parties;
- Conduct economic valuation of health effects of air pollution for at risk population via integration of air quality modeling results and epidemiology studies.

NSR/Administrative Rulemaking

- Update NSR and PSD regulations (Regulation XIII & Regulation XVII), as needed;
- Develop proposed amendments to VOC rules and proposed new VOC rules to assure progress toward attainment of ambient air quality standards for ozone;
- Amend Regulation III (fees) and other administrative rules;
- Assess new and emerging technology for remote sensing of fugitive VOC at petroleum refineries.

Toxics and Nuisances

- Update rules for reducing toxic emissions from stationary sources and improving compliance from these sources;
- Work closely with CARB and EPA to develop proposed rule language and resolve issues associated with implementation of rules;
- Coordinate implementation and implement the Clean Communities Plan;
- Conduct reviews of and provides comments on proposed Federal National Emission Standards for Hazardous Air Pollutants (NESHAPs) and MACT standards and State Airborne Toxics Control Measures (ATCM);
- Amend existing and develop new rules regulating toxic emitting sources;
- Update Rule 1401 to reflect new, deleted or changes to toxic air contaminants identified;
- Implement Title III of the federal Clean Air Act;
- Provide expertise and analysis for toxic issues;
- Implement programs associated with toxic rules, such as dry cleaners and metal finishers;

- Evaluate contribution of toxics from use of consumer products and work with CARB to reduce toxicity;
- Develop rules to address odor nuisances.

Credit Trading and NOx

- Provide expertise and analysis of regulatory programs to expand existing trading market, allow broader trading of credits and minimization of compliance costs;
- Provide support to the development of amendments and new rules to support the RECLAIM program;
- Responsible for updating rules for reducing NOx emissions from stationary sources and improving compliance from these sources;
- Conduct a technical assessment of low NOx burner performance and installation effectiveness and field applications of hand-held NOx emissions testing technology.

Area Source Program Development

- Administer certification/registration and filing (Rule 222) program;
- Work with Information Management to simplify permitting programs such as the certification/registration program and the filing program;
- Develop new source rules and proposed amendments to area source rules to strengthen compliance or achieve further emission reductions.

Area Source Program Implementation

- Administer Rule 314 fees for Architectural Coatings program for manufacturer for the preceding fiscal year;
- Support Web-based Architectural Coatings reporting tool;
- Conduct inspections under certain area source rules including fleets, open burning, GHG/ODC, solvent cleaning and degreasing and associated consumer products rules, auto scrapping, architectural coatings and associated fees rule, and on-road motor vehicle mitigation (Rule 2202);
- Initiate and monitor contracts for technology assessments in support of certain area source rules;
- Add modules for public databases of architectural coatings and associated programs;
- Administer Clean Air Solvent and Clean Air Cleaner Certification Program;
- Administer Rule 1146.2 Boiler Certification Program and provides expert knowledge to manufacturers and operators on compliance with this rule;
- Conduct surveys relative to proposed new/amended rules;
- Administer certification of internal combustion engines (emergency generators), soil remediation equipment for non-halogenated hydrocarbons, boilers/water heaters (>2 million BTU/Hr).
- Administer certification of central furnaces pursuant to Rule 1111;
- Administer certification of residential water heaters (<75,000 BTU/hr) pursuant to Rule 1121;
- Administer filing program for negative air machines, charbroilers, water heaters/boilers (1-2 million BTU/hr) equipment using low-VOC materials, diesel engines >50 BHP at agricultural operations, gasoline storage and dispensing >251 gallons at agricultural operations and oil-well cellars pursuant to Rule 222;
- Administer Rule 1415 – Plan Registration Requirements and maintain database.

Climate Change and Energy

- Implement the Board-adopted Climate Change Policy;
- Develop and implement policies, programs, draft legislation, and rules to reduce greenhouse gases for the Basin, while complementing efforts to reduce criteria and toxic pollutants;
- Evaluate policies, programs, rules and legislation relating to climate change and energy at the state, multi-state, national, and international levels;
- Participate in AB 32 climate change efforts;
- Develop, or assist in the development of, project protocols for voluntary greenhouse gas emission reductions;
- Assist in development of GHG inventories for cities and counties;
- Collaborate and assist in the development of a CAPCOA GHG credit registry; and
- Implement contracts for Tree Planting, reforestation, energy efficiency projects, and other GHG and criteria pollutant reduction projects in the District.

FY 2012-13 WORKPLAN:

PLANNING, RULE DEVELOPMENT & AREA SOURCES

#	CODE	PROGRAM CATEGORY	OBJ	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES
						CURRENT	+/-	CURRENT	+/-	
1	26 002	Develop Programs	I	AB2766/Mobile Source	AB2766 Mobile Source Outreach	0.70		\$ 111,452	\$ 4,042	IX
2	26 007	Customer Service and Business Assistance	I	AB2766/Mobile Source	AB2766 Prov Tech Asst to Cities	0.95		151,257	5,485	IX
3	26 010	Develop Programs	I	AQMP	AQMP Special Studies	0.00	1.00	20,000	164,991	V,IX,XV
4	26 038	Develop Programs	I	Admin/Office Management	Coordinate Off/Admin Activities	0.50		79,609	2,887	Ib
5	26 040	Timely Review of Permits	I	Admin/Office Mgmt/AQ Impl	Admin/Modeling/New Legis/Sm Sr	0.42		66,871	2,425	Ib
6	26 042	Ensure Compliance	I	Admin/Office Mgmt/Compliance	Admin: Compl w AQMD Rules	0.25		39,804	1,443	Ib
7	26 044	Timely Review of Permits	I	Admin/Office Mgmt/Permit & Fee	Admin: Resolve Perm/Fee Issues	0.10		15,922	577	Ib
8	26 046	Ensure Compliance	I	Admin/Office Mgmt/Compliance	Admin: Compl of Existing Source	0.00		-	-	Ib
9	26 048	Policy Support	IV	Admin/Prog Mgmt/Policy	Admin: GB/Committee Support	1.00		159,218	5,774	Ib
10	26 049	Develop Programs	I	Admin/Prog Mgmt/AQMP	Admin: AQMP Development	0.75		119,413	4,330	Ib
11	26 050	Develop Rules	I	Admin/Rule Dev/PRA	Admin: Rule Development	1.00		159,218	5,774	Ib
12	26 057	Develop Programs	I	Admin/Transportation Prog Mgmt	Admin: Transportation Programs	0.70		111,452	4,042	Ib
13	26 061	Develop Programs	I	Air Quality Evaluation	Air Quality Evaluation	1.00		159,218	5,774	IX
14	26 068	Develop Programs	II	AQMD Projects	Prepare Environmental Assessments	5.10		932,010	(70,555)	II,IV,IX
15	26 071	Develop Programs	I	Arch Ctgs - Admin	Rdev/Aud/DB/TA/AQMD/Rpts/AER	1.00		159,218	5,774	XVIII
16	26 072	Ensure Compliance	I	Arch Ctgs - End User	Compliance/Rpts/Rule Implementation	1.00		159,218	5,774	XVIII
17	26 073	Ensure Compliance	I	Arch Ctgs - Other	Compliance/Rpts/Rule Implementation	1.00		159,218	5,774	XVIII
18	26 076	Ensure Compliance	I	Area Sources/Compliance	Area Source Compliance	3.50		607,262	57,208	III,V,IX,XV
19	26 077	Develop Rules	I	Area Sources/Compliance	Dev/Eval/Impl Area Source Prog	4.00		636,870	23,095	II,IX
20	26 078	Policy Support	II	Asthma & Outdoor AQ Consortium	Asthma & Outdoor AQ Consortium	0.10		15,922	577	II,IV
21	26 081	Monitoring Air Quality	I	Air Filtration EPA	Air Filtration EPA/Admn/Impl	0.00	0.10	-	16,499	V
22	26 082	Monitoring Air Quality	I	Air Filtration Other	Air Filtration Oth/Admn/Impl	0.00	0.50	-	82,496	XVII
23	26 083	Policy Support	II	Brain Tumor & Air Poll Fdn	Brain Tumor & Air Poll Foundation Support	0.10		15,922	577	II,IV
24	26 102	Develop Programs	II	CEQA Document Projects	Review/Prepare CEQA Comments	3.40		541,340	19,630	II,IX
25	26 103	Develop Programs	II	CEQA Special Projects	Contracted by Lead Agency	1.40	(1.00)	222,905	(156,908)	XVII
26	26 104	Develop Programs	I	CEQA Policy Development	ID/Develop/Impl CEQA Policy	1.10		175,139	51,351	IV,IX
27	26 120	Timely Review of Permits	I	Certification/Registration Pro	Certification/Registration Prog	1.80		286,592	10,393	III
28	26 128	Develop Programs	I	Cln Communities Pln	Cln Communities Plan Admn/Impl	0.00	1.50	-	247,487	II,IX
29	26 148	Policy Support	IV	PM Enhanced Monitoring	GHG/Climate Change Policy Development	3.00	(1.00)	477,653	(147,670)	XVII
30	26 151	Monitoring Air Quality	II	Community Scale AirToxicsStudy	EPA-funded airports air monit	0.00	0.50	-	82,496	XVII
31	26 165	Ensure Compliance	I	Conformity	Monitor Transp. Conformity	0.45		71,648	2,598	V,IX
32	26 215	Ensure Compliance	I	Annual Emission Reporting	Annl Des/Impl/Emiss Monitor Sys	4.75	(0.75)	861,284	(96,319)	II
33	26 216	Customer Service and Business Assistance	I	AER Public Assistance	AER Design/Impl/Monitor Emiss	0.25	(0.10)	39,804	(15,056)	II
34	26 217	Develop Programs	I	Emissions Inventory Studies	Dev Emiss DB/Dev/Update Emiss	3.00	1.00	477,653	182,312	II,V,IX,XV
35	26 218	Develop Programs	I	AQMP/Emissions Inventory	Dev Emiss Inv: Forecasts/RFPs	2.00	0.25	318,435	52,795	II,IX
36	26 219	Develop Programs	I	Emissions Field Audit	Emissions Field Audit	2.00		318,435	11,547	II
37	26 221	Develop Programs	I	PR2301 ISR Rule Implementation	Mitigate dev growth	1.75		278,631	10,104	II,IX
38	26 240	Policy Support	II	EJ-AQ Guidance Document	AQ Guidance Document	0.15		23,883	866	II,IX
39	26 276	Policy Support	I	Advisory Group/Home Rule	Governing Board Advisory Group	0.30		47,765	1,732	Ia
40	26 277	Policy Support	I	Advisory Group/AQMP	Governing Board AQMP Advisory Group	0.05		7,961	289	II,IX
41	26 278	Policy Support	I	Advisory Group/Sci,Tech,Model	Scientific/Tech/Model Peer Rev	0.05		7,961	289	II,IX
42	26 357	Ensure Compliance	IV	GHG Reptg Sys EPA	GHG Reptg Sys EPA Admin/Impl	0.00	0.10	-	16,499	V
43	26 362	Develop Rules	II	Health Effects	Study Health Effect/Toxicology	1.80		286,592	10,393	II,III,IX
44	26 385	Develop Rules	I	Criteria Pollutants/Mob Srcs	Dev/Impl Intercredit Trading	2.00	(1.00)	318,435	(153,444)	IV,IX
45	26 397	Develop Programs	II	Lead Agency Projects	Prep Envrnmt Assmts/Perm Proj	1.30		206,983	7,506	III
46	26 416	Policy Support	I	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.10		15,922	577	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.

FY 2012-13 WORKPLAN:

PLANNING, RULE DEVELOPMENT & AREA SOURCES (Continued)

#	CODE	PROGRAM CATEGORY	OBJ	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES	
						CURRENT	+/-	CURRENT	+/-		
47	26	445	Monitoring Air Quality	I	Meteorology	ModelDev/Data Analysis/Forecast	2.00	(0.10)	\$ 413,435	\$ 6,048	II,V,IX
48	26	460	Develop Rules	I	Regional Modeling	Rule Impact/Analyses/Model Dev	4.75	0.50	831,284	84,920	II,V,IX
49	26	461	Timely Review of Permits	I	Permit & CEQA Modeling Review	Review Model Permit/Risk Assmt	1.25	0.25	219,022	48,465	III
50	26	463	Develop Programs	I	Mold Project EPA	Mold Project EPA/Admin Impl	0.00	0.10	-	16,499	V
51	26	503	Develop Programs	I	PM Strategies	PM10 Plan/Analyze/Strategy Dev	5.50	(1.50)	875,697	(190,732)	II,V,XV
52	26	530	Monitoring Air Quality	I	Photochemical Assessment	Photochemical Assessment	0.25		39,804	1,443	II,V
53	26	538	Monitoring Air Quality	I	Port AQ/I-710 Monitoring	Monitor AQ in Port Communities	0.00	0.50	-	82,496	IX,XVII
54	26	565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Rec Requests	0.05		7,961	289	XVII
55	26	600	Develop Programs	I	Credit Generation Programs	Dev RFP/AQMP Ctrl Strats/Inter	1.00	0.25	159,218	47,021	II,V,IX
56	26	620	Ensure Compliance	I	Refinery Pilot Project	Refinery Pilot Project	0.25		39,804	1,443	II
57	26	643	Timely Review of Permits	I	Rule 222 Filing Program	Rule 222 Filing Program	0.20		77,844	1,155	IV
58	26	645	Ensure Compliance	I	Rule 1610 Plan Verification	Rule 1610 Plan Verification	0.50		79,609	2,887	IX
59	26	654	Develop Rules	I	Rulemaking/NOX	Rulemaking/NOx	1.00		159,218	5,774	II,IV,XV
60	26	655	Develop Rules	I	NSR/Adm Rulemaking	Amend/Develop NSR & Admin Rules	4.00	0.50	636,870	105,590	II,IV,V,XV
61	26	656	Develop Rules	I	Rulemaking/VOC	Dev/Amend VOC Rules	10.00	(2.60)	1,722,176	(431,241)	II,IV,XV
62	26	659	Develop Rules	I	Rulemaking/Toxics	Develop/Amend Air Toxic Rules	5.70	(1.50)	907,540	(214,577)	II,XV
63	26	661	Develop Rules	I	Rulemaking/RECLAIM	RECLAIM Amend Rules/Related Is	2.00		318,435	11,547	II
64	26	685	Develop Programs	I	Socio-Economic	Apply econ models/Socio-econ	3.50	(0.25)	850,762	(151,040)	II,IV
65	26	716	Ensure Compliance	I	Spec Monitoring/R403	Rule 403 Compliance Monitoring	0.00	0.25	-	41,248	III,IX,XV
66	26	717	Policy Support	II	Student Interns	Gov Bd/Student Intern Program	0.01		1,592	58	Ia
67	26	738	Advance Clean Air Technology	I	Target Air Shed EPA	Targeted Air Shed Admin/Impl	0.00	0.50	-	82,496	V
68	26	745	Develop Programs	I	Rideshare	Dist Rideshare/Telecommute Prog	0.50		79,609	2,887	IX
69	26	789	Monitoring Air Quality	I	Toxic Inventory Development	Toxic Emission Inventory Study	1.00		159,218	5,774	X
70	26	790	Ensure Compliance	I	Toxics/AB2588 Plans/Reports	AB2588 Rev Rpt/Risk Assmt Plan	0.50		79,609	2,887	X
71	26	794	Ensure Compliance	I	Toxics/AB2588	AB2588 Core, Tracking, IWS	7.25	(0.25)	1,154,328	611	X
72	26	805	Operational Support	III	Training	Training	0.05		7,961	289	Ib
73	26	816	Develop Programs	I	Transportation Regional Progs	Dev AQMP Meas/Coord w/Reg Agn	0.50		79,609	2,887	V,IX
74	26	821	Monitoring Air Quality	II	TraPac Air Filt Prg	Admin/Tech Suppt/Reptg/Monitor	0.00	0.25	-	41,248	XVII
75	26	825	Operational Support	III	Union Negotiations	Official Labor/Mgmt Negotiate	0.01		1,592	58	Ia
76	26	826	Operational Support	III	Union Steward Activities	Rep Employees in Grievance Act	0.01		1,592	58	Ia
77	26	833	Customer Service and Business Assistance	II	Rule 2202 ETC Training	Rule 2202 ETC Training	1.30		206,983	7,506	XI
78	26	834	Develop Programs	I	Rule 2202 Implement	Rule 2202 Proc/Sub Plans/Tech Eval	3.50		557,262	20,208	XI
79	26	836	Develop Programs	I	Rule 2202 Support	R2202 Supt/CmptrMaint/WebSubmt	2.50		413,044	14,434	V,XI
80	26	855	Operational Support	II	Web Tasks	Create/edit/review web content	0.10		15,922	577	Ia

113.00	(2.00)	\$ 18,961,089	\$ 125,437
FISCAL YEAR 2012-13 TOTAL		111.00	\$ 19,086,526

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.

PLANNING, RULE DEVELOPMENT & AREA SOURCES

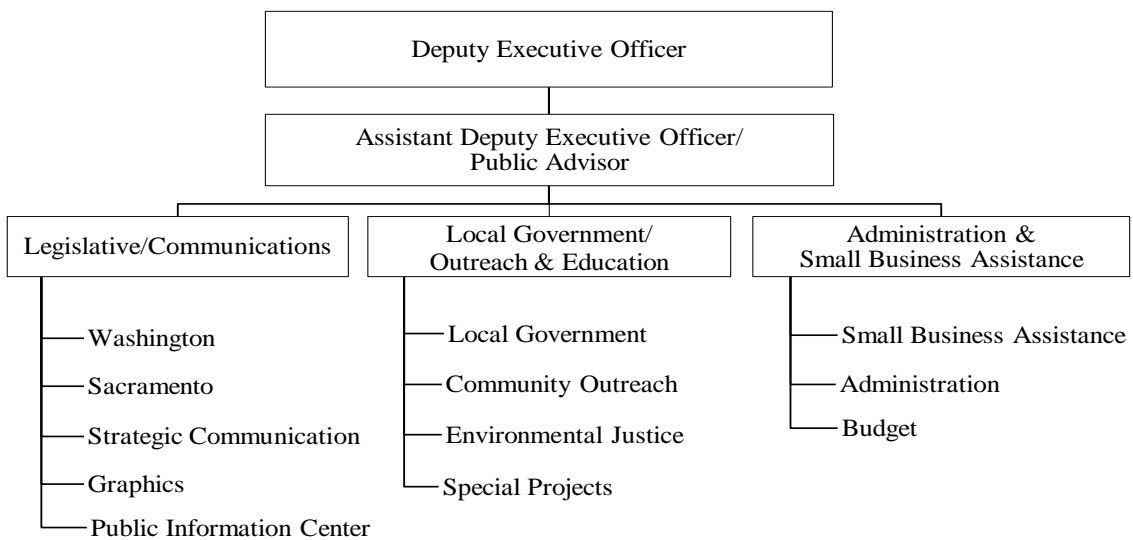
LINE ITEM EXPENDITURE

<u>MAJOR OBJECT/ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
SALARY & EMPLOYEE BENEFITS				
SALARY	\$ 10,257,510	\$ 10,257,510	\$ 10,719,981	\$ 10,382,310
EMPLOYEE BENEFITS	4,774,600	4,774,600	4,217,151	4,724,764
TOTAL	\$ 15,032,111	\$ 15,032,110	\$ 14,937,132	\$ 15,107,074
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 0	\$ 0	\$ 0	\$ 0
67300 RENTS & LEASES EQUIPMENT	1,000	1,500	825	1,000
67350 RENTS & LEASES STRUCTURE	3,000	31,300	20,512	3,000
67400 HOUSEHOLD	0	0	0	0
67450 PROF. & SPECIAL SERVICES	688,500	1,006,000	1,006,000	571,500
67460 TEMPORARY AGENCY SVCS.	46,000	31,000	24,881	46,000
67500 PUBLIC NOTICE & ADV.	127,000	142,000	128,876	127,000
67550 DEMURRAGE	500	500	0	500
67600 MAINTENANCE OF EQUIPMENT	12,000	15,700	1,279	12,000
67650 BUILDING MAINTENANCE	1,000	6,000	0	1,000
67700 AUTO MILEAGE	5,000	5,000	3,396	5,000
67750 AUTO SERVICE	0	0	0	0
67800 TRAVEL	45,000	48,000	30,152	45,000
67850 UTILITIES	0	0	0	0
67900 COMMUNICATIONS	30,000	37,000	36,690	30,000
67950 INTEREST EXPENSE	0	0	0	0
68000 CLOTHING	600	600	188	600
68050 LABORATORY SUPPLIES	0	0	0	0
68060 POSTAGE	22,000	22,100	13,717	17,000
68100 OFFICE EXPENSE	120,000	135,000	47,348	140,000
68200 OFFICE FURNITURE	0	0	0	0
68250 SUBSCRIPTION & BOOKS	700	700	517	700
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	0	1,000	0	0
68350 FILM	0	0	0	0
68400 GAS & OIL	0	0	0	0
69500 TRAINING/CONF/TUITION/BOARD EX.	25,000	27,000	12,952	25,000
69550 MEMBERSHIPS	4,000	4,000	2,497	4,000
69600 TAXES	0	0	0	0
69650 AWARDS	0	0	0	0
69700 MISCELLANEOUS EXPENSES	40,000	40,000	15,592	22,000
69750 PRIOR YEAR EXPENSE	0	0	0	0
89100 PRINCIPAL REPAYMENT	0	0	0	0
TOTAL	\$ 1,171,300	\$ 1,554,400	\$ 1,345,421	\$ 1,051,300
77000 CAPITAL OUTLAYS	\$ 235,000	\$ 235,000	\$ 235,000	\$ 155,000
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	\$ 16,438,411	\$ 16,821,510	\$ 16,517,553	\$ 16,313,374

PROGRAM STATEMENT AND ORGANIZATIONAL CHART – LEGISLATIVE & PUBLIC AFFAIRS

2012-13 Requested Staffing

<u>Position</u>	<u>Title</u>
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
<u>1</u>	Supervising Radio/Telephone Operator
41	Total Requested Positions



The mission of Legislative & Public Affairs is to promote public participation in and understanding of air quality issues and policies. The Office provides information regarding AQMD regulatory, legislative and planning activities to the general public, businesses, local governments, ethnic communities, and environmental organizations.

The Office's objectives are to:

- Directly apprise the Governing Board of stakeholder issues.
- Provide outreach and assistance to local governments, businesses, community and environmental groups and others.
- Coordinate, facilitate and enhance the AQMD's overall public communication activities.
- Design and produce presentation materials, documents, exhibits and literature required by AQMD staff and Governing Board.
- Prepare brochures, newsletters, speech material, marketing, advertising, print and electronic, internet website content, and public relations counseling.
- Coordinate and respond to CUT SMOG calls and telephone calls to the AQMD general line.
- Manage all legislative matters affecting the AQMD and serve as primary point of contact with Congress and the State Legislature.
- Track and analyze bills and recommend positions.
- Represent the AQMD before the State Legislature, in Congress, and in related local governmental forums.
- Provide assistance and support to small businesses seeking to comply with air quality rules.
- Provide input during rule development from government, small business and the general public.
- Monitor and report on the impact of AQMD rules, policies and procedures on small business, local government, and other regulated entities.
- Review AQMD's procedures and programs for impacts on small business and local government.
- Notify the public of all public hearings of the Governing Board.
- Advise and facilitate public participation in AQMD activities.
- Recommend measures to enhance public participation in AQMD Activities.
- Staff the Legislative Committee.
- Staff the Local Government and Small Business Advisory Group.
- Staff the Environmental Justice Advisory Group.
- Develop and implement environmental education programs.
- Administer a speaker's bureau and provide tours of the AQMD.
- Host foreign delegations and dignitaries.
- Oversee the Public Information Center.

FY 2012-13 WORKPLAN:

LEGISLATIVE & PUBLIC AFFAIRS

#	CODE	PROGRAM CATEGORY	OBJ	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES
						CURRENT	+/-	CURRENT	+/-	
1	35 046	Operational Support	III	Admin/Prog Mgmt	Admin Office/Units/SuppCoord Staff	5.02	(2.00)	\$ 745,272	\$ (262,079)	Ib
2	35 111	Ensure Compliance	I	Call Center/CUT SMOG	Smoking Vehicle Complaints	8.00		1,187,684	92,297	IX
3	35 126	Customer Service and Business Assistance	II	Clean Air Connections	Coord of region-wide community group	1.00		148,460	11,537	II,IX
4	35 205	Customer Service and Business Assistance	II	Environmental Education	Curriculum Dev/Project Coord	0.25		37,115	2,884	II,IX,XV
5	35 240	Policy Support	II	Environmental Justice	Impl Board's EJ Pgrms/Policies	2.00		296,921	23,074	II,IV
6	35 260	Customer Service and Business Assistance	III	Fee Review	Cmte Mtg/Fee-Related Complaint	0.50		74,230	5,769	II,III,IV,XV
7	35 280	Policy Support	I	Advisory Group/Ethnic Comm	GB Ethnic Comm Advisory Group	0.40		59,384	4,615	II,IX
8	35 281	Policy Support	I	Advisory Group/Small Business	SBA Advisory Group Staff Support	0.50		74,230	5,769	IV,IX
9	35 283	Policy Support	I	Governing Board Policy	Brd sup/Respond to GB req	0.55		81,653	6,345	Ia
10	35 345	Policy Support	II	Goods Mvmt&Financial Incentive	Goods Movement & Financial Incentives Progr	1.00		148,460	11,537	IX
11	35 350	Operational Support	III	Graphic Arts	Graphic Arts	2.00		342,921	(22,926)	Ia
12	35 381	Policy Support	III	Interagency Liaison	Interact Gov Agns/Promote AQMD	0.15		22,269	1,731	Ia,XV
13	35 390	Customer Service and Business Assistance	I	Intergov/Geographic Deployment	Dev/Impl Local Govt Outreach	7.50	2.00	1,223,454	334,523	II,IX
14	35 412	Policy Support	I	Legislation/Federal	Lobbying/Analyses/Tracking/Out	0.25		228,615	36,884	Ia
15	35 413	Policy Support	I	Legislation/Exec Office Suppor	Coord Legis w/ EO, EC, Mgmt	0.25		37,115	2,884	Ia
16	35 414	Policy Support	I	Legislation State	Lobbying/Analyses/Tracking/Out	0.80		493,768	9,230	Ia,IX
17	35 416	Policy Support	I	Legislative Activities	Supp/Promote/Influence Legis/Adm	0.50		74,230	5,769	Ia
18	35 491	Customer Service and Business Assistance	I	Outreach/Business	Chambers/Business Meetings	1.00		148,460	11,537	II,IV
19	35 492	Customer Service and Business Assistance	I	Public Education/Public Events	Pub Events/Conf/Rideshare Fair	1.00		258,379	121,618	II,V,IX,XV
20	35 494	Policy Support	I	Outreach/Collateral Developmen	Edits,Brds,Talk shows,Commercl	0.60		176,192	6,922	Ia
21	35 496	Customer Service and Business Assistance	I	Outreach/Visiting Dignitary	Tours/Briefings-Dignitary	0.25		37,115	2,884	Ia
22	35 514	Timely Review of Permits	III	Permit: Expired Permit Program	Assist w Permit Reinstatement	0.30		44,538	3,461	IV
23	35 555	Customer Service and Business Assistance	I	Public Information Center	Inform public of unhealthy air	1.00		192,460	(2,463)	II,V,IX
24	35 560	Customer Service and Business Assistance	I	Public Notification	Public notif of rules/hearings	0.50		84,230	15,769	II,IV,IX
25	35 565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Req for Info	0.10		14,846	1,154	XVII
26	35 679	Customer Service and Business Assistance	III	Small Business/Financial Asst	Small Business/Financial Assistance	2.00	(1.00)	296,921	(136,923)	III
27	35 680	Customer Service and Business Assistance	I	Small Business/Permit Streamln	Asst sm bus to comply/AQMD req	3.95		586,419	45,572	II,III,IV,V
28	35 710	Customer Service and Business Assistance	I	Speakers Bureau	Coordinate/conduct speeches	0.10		14,846	1,154	Ia
29	35 717	Policy Support	II	Student Interns	Gov Board/Student Intern Program	0.10		14,846	1,154	Ia
30	35 791	Customer Service and Business Assistance	I	Toxics/AB2588	Outreach/AB 2588 Air Toxics	0.01		1,485	115	X
31	35 825	Operational Support	III	Union Negotiations	Official Labor/Mgmt Negotiate	0.01		1,485	115	Ia
32	35 826	Operational Support	III	Union Steward Activities	Union Steward Activities	0.01		1,485	115	Ia
33	35 855	Operational Support	II	Web Tasks	Create/edit/review web content	0.40		59,384	4,615	Ia

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42.00	(1.00)	\$ 7,208,875	\$ 346,641
FISCAL YEAR 2012-13 TOTAL			\$ 7,555,516

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.

LEGISLATIVE & PUBLIC AFFAIRS

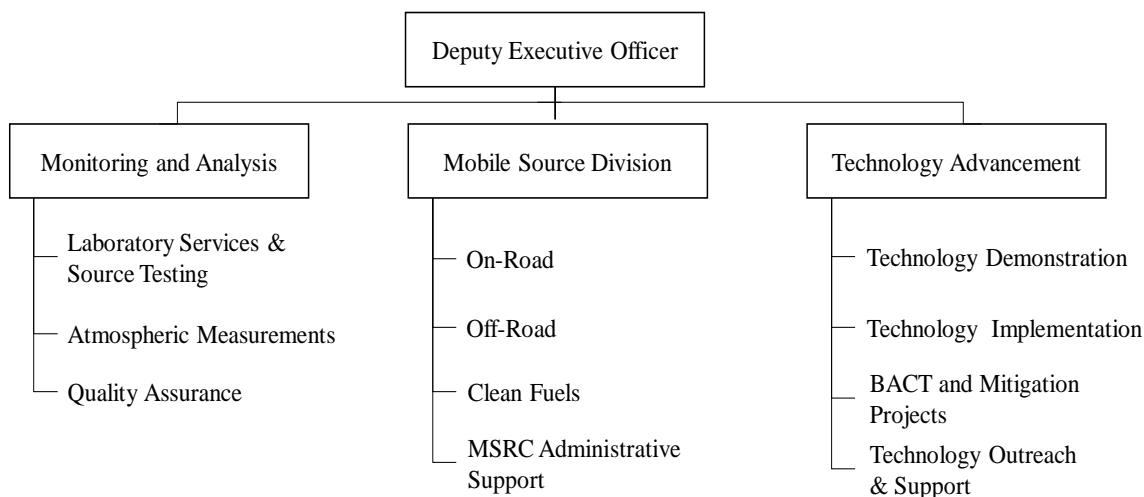
LINE ITEM EXPENDITURE

<u>MAJOR OBJECT/ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
SALARY & EMPLOYEE BENEFITS				
<i>SALARY</i>	\$ 3,117,084	\$ 3,117,084	\$ 3,312,622	\$ 3,341,769
<i>EMPLOYEE BENEFITS</i>	1,717,086	1,717,086	1,575,555	1,722,163
TOTAL	<u>\$ 4,834,170</u>	<u>\$ 4,834,170</u>	<u>\$ 4,888,176</u>	<u>\$ 5,063,933</u>
SERVICES & SUPPLIES				
67250 <i>INSURANCE</i>	\$ 0	\$ 0	\$ 0	\$ 0
67300 <i>RENTS & LEASES EQUIPMENT</i>	6,500	6,500	1,926	6,500
67350 <i>RENTS & LEASES STRUCTURE</i>	9,000	9,000	5,841	9,000
67400 <i>HOUSEHOLD</i>	0	0	0	0
67450 <i>PROF. & SPECIAL SERVICES</i>	833,535	1,215,535	1,215,535	955,616
67460 <i>TEMPORARY AGENCY SVCS.</i>	44,000	103,000	103,000	40,000
67500 <i>PUBLIC NOTICE & ADV.</i>	46,600	26,600	2,256	26,600
67550 <i>DEMURRAGE</i>	0	0	0	0
67600 <i>MAINTENANCE OF EQUIPMENT</i>	9,000	0	0	9,000
67650 <i>BUILDING MAINTENANCE</i>	0	0	0	0
67700 <i>AUTO MILEAGE</i>	23,800	23,800	23,482	23,800
67750 <i>AUTO SERVICE</i>	0	0	0	0
67800 <i>TRAVEL</i>	43,200	43,200	43,200	43,200
67850 <i>UTILITIES</i>	0	0	0	0
67900 <i>COMMUNICATIONS</i>	39,000	39,000	39,000	45,000
67950 <i>INTEREST EXPENSE</i>	0	0	0	0
68000 <i>CLOTHING</i>	0	0	0	0
68050 <i>LABORATORY SUPPLIES</i>	0	0	0	0
68060 <i>POSTAGE</i>	149,300	119,300	61,119	136,800
68100 <i>OFFICE EXPENSE</i>	33,252	48,252	48,252	41,800
68200 <i>OFFICE FURNITURE</i>	0	0	0	0
68250 <i>SUBSCRIPTION & BOOKS</i>	4,960	4,960	4,960	6,950
68300 <i>SMALL TOOLS, INSTRUMENTS, EQUIPMENT</i>	0	0	0	0
68350 <i>FILM</i>	0	0	0	0
68400 <i>GAS & OIL</i>	0	0	0	0
69500 <i>TRAINING/CONF/TUITION/BOARD EX.</i>	7,725	15,225	15,225	8,000
69550 <i>MEMBERSHIPS</i>	25,000	25,000	25,129	25,500
69600 <i>TAXES</i>	0	0	0	0
69650 <i>AWARDS</i>	32,000	32,000	32,000	48,000
69700 <i>MISCELLANEOUS EXPENSES</i>	34,200	34,200	34,200	41,500
69750 <i>PRIOR YEAR EXPENSE</i>	0	0	0	0
89100 <i>PRINCIPAL REPAYMENT</i>	0	0	0	0
TOTAL	<u>\$ 1,341,072</u>	<u>\$ 1,745,572</u>	<u>\$ 1,655,124</u>	<u>\$ 1,467,266</u>
77000 CAPITAL OUTLAYS	\$ 96,000	\$ 96,000	\$ 96,000	\$ 0
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	<u><u>\$ 6,271,242</u></u>	<u><u>\$ 6,675,742</u></u>	<u><u>\$ 6,639,301</u></u>	<u><u>\$ 6,531,199</u></u>

PROGRAM STATEMENT AND ORGANIZATIONAL CHART – SCIENCE & TECHNOLOGY ADVANCEMENT

2012-13 Requested Staffing

<u>Position</u>	<u>Title</u>
25	Air Quality Chemist
10	Air Quality Engineer II
2	Air Quality Inspector II
20	Air Quality Instrument Specialist I
14	Air Quality Instrument Specialist II
12	Air Quality Specialist
2	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
1	Director of Technology Implementation
4	Laboratory Technician
1	Meteorologist Technician
5	Office ssistant
3	PlanninAg and Rules Manager
3	Principal Air Quality Chemist
3	Principal Air Quality Instrument Specialist
13	Program Supervisor
1	Quality Assurance Manager
6	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 Office Assistant
1	Senior Staff Specialist
2	Staff Assistant
3	Staff Specialist
<u>1</u>	Supervising Air Quality Engineer
164	Total Requested Positions



Science and Technology Advancement (STA) includes the Monitoring and Analysis, Technology Advancement, Mobile Source Division, Quality Assurance, and staff liaison and support for the Mobile Source Air Pollution Reduction Review Committee (MSRC).

Monitoring and Analysis

Monitoring and Analysis (M&A) continues to provide important support to key AQMD programs in addition to its own ongoing programs. As examples, Monitoring and Analysis is continuing to implement the PM_{2.5} federally mandated monitoring program, which includes a number of speciation sampling sites; provide special purpose community monitoring; and provide innovative analytical solutions, such as new methods development. The PM_{2.5} program will continue to require 4.8 FTE positions in order to meet monitoring requirements. Funding for these positions are supported by federal Section 103 grant funds.

M&A will continue several long-running programs. A significant portion of budgeted funds and resources will go to Atmospheric Measurements (AM) through the operation and maintenance of 37 monitoring stations designated as State and Local Air Monitoring Stations (SLAMS). M&A will continue to implement the Photochemical Assessment Monitoring Stations (PAMS) as required by the 1990 Clean Air Act Amendments. The overall goal is to continue maintaining 90 percent or greater valid air quality data.

Atmospheric Measurements is responsible for the operation of PM_{2.5} monitors at 19 monitoring locations as well as the implementation of the PM_{2.5} speciation program. AM is also responsible for the deployment and operation of mobile sampling platforms, as needed to support special community monitoring activities. AM will also continue to enhance its capability to respond to local ambient monitoring requests, including meteorological and sampling services as part of the AQMD's emergency response program.

The Laboratory Services and Source Test Engineering (LS&STE) is responsible for analysis of air monitoring samples, compliance samples, methods development, and other analytical efforts as needed to support the AQMD planning and regulatory activities. The branch supports the rulemaking process through the development of test/analytical methods that are subsequently approved by the U.S. EPA and CARB. LS&STE will continue to support compliance efforts through the analysis of samples generated through source testing and field inspection activities, and new specialized equipment has recently been added to improve the quality and efficiency of these analyses.

LS&STE continues to oversee privatized source emissions testing for routine compliance. Internal field testing resources will address the auditing requirements for the privatized program, non-routine compliance tests, information collection in support of rulemaking, and test method development/validation issues. Certification of Continuous Emission Monitoring Systems (CEMS) will continue as a regular part of this program. The test protocol and test report evaluation program will continue as more federal NESHAPS are promulgated. Process improvements and streamlining through the upgrading of information systems accessible by desktop workstations are planned to enable LS&STE staff to effectively handle the increase in workload. LS&STE also provides the administration and implementation of the Laboratory Approval Program to ensure adequate data quality as the emissions testing function is privatized.

There are several key air monitoring analysis programs including the federal PM_{2.5} requirements, the federal PAMS program, Environmental Justice, and support for the development Air Quality Management Plan. The Laboratory follows the analytical regime for Federal-Reference-Method-generated PM_{2.5} sample filters. For FY 2012-13, it is anticipated that over 6,000 filters will be generated and analyzed as a result of this requirement alone.

Quality Assurance

Federal regulations require that each primary ambient air monitoring organization has an independent quality assurance entity (40 CFR, Part 58, Appendix A, Section 2.2). This branch has the primary responsibility to assure the data from the Monitoring and Analysis Division meet or exceed consistent quality criteria needed to satisfy Federal, state and regional data reporting requirements. This is also necessary to assure that data quality is adequately supported and is appropriate for AQMD regulatory, scientific, and administrative decisions.

The QA Branch is responsible for implementing and maintaining a quality system for the environmental measurement programs which include criteria pollutant measurements, PAMS, NATTS, PM programs, source testing, compliance, special monitoring and others. The QA Branch is also responsible for updating and maintaining the Quality Management Plan (QMP) which documents the AQMD's principles, practices and organization of ensuring data quality. The QA Branch has the responsibility for performing and coordinating periodic technical system audits (TSA) and performance evaluations (PE) of the quality management system, reviewing of routine procedures, and examination of data quality to identify areas of improvement and to ensure that the environmental measurement programs consistently follow appropriate sampling and analysis methods and guidelines including the documentation of all procedures and practices. The core of the QA Branch is a corrective action process ensuring that a finding related to quality assurance is recorded and that resolution of the finding is completed and tracked. Also, the QA Branch reviews all data submitted by the Monitoring and Analysis Division in support of U.S. EPA programs and certifies it when acceptance criteria are met.

The priorities for the next fiscal year are to continue implementing the policies and procedures outlined in QMP, update quality assurance documentation for the four federally mandated programs (criteria pollutant measurements, PAMS, NATTS, and PM programs), assess the implementation and quality assurance documentation of the recently implemented NCORE network and the upcoming MATES IV program, conduct independent assessments of the laboratory and air monitoring network, oversee the development of the data management system (DMS), and oversee the process to standardize and centralize procedural documentation and ensure that it is current and relevant.

Technology Advancement

Achieving federal and state clean air standards in the South Coast Air Basin will require emission reductions from mobile and stationary sources beyond those expected using current technologies. The AQMP relies on the expedited, future implementation of advanced technologies and clean-burning fuels in to achieve these standards. To meet the technology

needs of this plan, the Governing Board established the Technology Advancement Office in 1988 to assist industry in the rapid development of progressively lower-emitting technologies and fuels through an innovative public-private partnership.

The AQMD Technology Advancement program cosponsors low- and zero-emission and clean fuel technology development and demonstration projects in a cooperative partnership with private industry, technology developers, and local, state, and federal agencies. This public-private partnership has enabled the AQMD to leverage public funds with outside investment, attracting, on average, about \$3 from outside sources for every dollar contributed by the AQMD to fund these technology demonstration projects.

The Technology Advancement Program mobile source projects have addressed developments in automobiles, transit buses, medium- and heavy-duty trucks, and off-road applications. Vehicle-related development efforts have targeted advancements in engine design, electric powertrains, and energy storage/conversion devices (e.g., fuel cells and batteries); and implementation of clean fuels (e.g., methanol, natural gas, propane, and hydrogen), including their infrastructures. Stationary source projects have included a wide array of advanced low NO_x technologies, low VOC coatings and processes, and clean energy alternatives such as fuel cells, solar power, and other renewable energy systems. Some of these technologies are now being commercialized and implemented in the South Coast Air Basin (Basin). This is the true measure of success for the AQMD's Technology Advancement program.

The primary function of the Technology Advancement program is to administer the AQMD's Clean Fuels Program, which was established through the passage of SB 2297 (Rosenthal) in 1988 and SB 1928 (Presley) in 1990. This California state legislation requires the AQMD to coordinate and manage a clean fuels program under California Health and Safety Code (H&SC) 40404, 40448.5, and 40512. California Vehicle Code Section 9250.11 funds this program through the imposition of a one dollar annual fee on motor vehicles registered in the counties of Los Angeles, Orange, Riverside, and San Bernardino. The objective of the Clean Fuels Program is to support and promote the development and demonstration of clean fuels and related advanced pollution control technologies to increase and expedite their utilization in the Basin.

The technical areas identified as highest priority for the next fiscal year include:

- Electric and hybrid electric technologies including plug-in-hybrid technologies
- Diesel alternatives including alternative fuels
- Off-road applications of alternative fuel technologies
- VOC reduction technologies for stationary sources
- Infrastructure development
- Fuel cells and hydrogen for transportation and power generation

For more than twenty years, the Technology Advancement program has been successful in cosponsoring the development and demonstration of advanced, low-emission clean fuel technologies. A number of these technologies, particularly medium- and heavy-duty alternative fuel engines, have been commercialized. However, the market entry of these low emission diesel alternatives has been challenging with higher cost and limited infrastructure.

Technology Advancement will also continue implementing incentive programs to encourage the immediate use of commercially available, low-emission mobile and stationary technologies. The programs include incentive funding for the replacement, repower, retrofit, or purchase of lower-emitting vehicles and equipment to achieve emission reductions. The Rule 2202 Air Quality Investment Program (AQIP) generates VOC, NO_x, and CO credits, and the other programs reduce NO_x, PM, and VOC. The Carl Moyer Program currently in its 14th year provides monetary grants to help businesses and public agencies clean up their heavy-duty diesel engines

more than required by air pollution regulations. The grants cover the incremental cost difference between purchasing a newer cleaner engine/vehicle, and rebuilding the existing engine. Approximately \$56 million is available annually for the Carl Moyer, Voucher Incentives for trucks, and the School Bus programs, and about \$1.5 million per year is available for the AQIP. Technology implementation also includes incentive funding for goods movement projects with funds approved by the voters in November 2006. Approximately 55% of these funds are allocated for projects within the South Coast Air Basin. In the program's first year, AQMD has obligated over \$125 million for funding of about 2,500 LNG and diesel drayage and non-drayage trucks, four locomotives, and one truck stop electrification project. In the second year of the Proposition 1B Program, AQMD is in process of implementing shore power, truck replacements, and locomotive projects for the amount of \$110 million that has been allocated by CARB. The shore power projects amount to \$59 million and will be implemented at the Ports of Los Angeles, Long Beach, and Hueneme.

Mobile Source Division

In March 2007, the Governing Board established the Mobile Source Division to participate more actively in state and federal mobile source rulemaking, oversee development and implementation of AQMD mobile source rules, and provide technical support in the development of the AQMP. In addition, Mobile Source Division provides input and comments on federal and state mobile source regulations.

Mobile sources, which include cars, trucks, planes, trains and ships, are responsible for more than 80 percent of the Southland's smog-forming emissions. Reducing mobile source emissions is an urgent priority for two reasons: first, a growing body of scientific evidence demonstrates that health effects of air pollution are worse than previously suspected; and second, the Southland is required by federal law to meet the federal standard for PM_{2.5} in less than six years. Attaining the PM_{2.5} standard will require cutting nitrogen oxide emissions by an additional 40 percent, above and beyond current control programs.

The focus of the Mobile Source Division is:

- To participate earlier and more assertively with both CARB and U.S. EPA mobile source rulemaking processes; and
- To follow up on the success of AQMD's local Clean Fleet Rules and develop the next generation of mobile source strategies.

The Mobile Source Division primary functions are:

- To prepare comments on CARB's mobile source control strategy for the State Implementation Plan
- To track and comment on CARB and U.S. EPA mobile source rulemaking
- To track and comment on California Energy Commission and U.S. Department of Energy mobile source fuel policies
- To prepare AQMD mobile source rulemaking proposals
- To provide technical review of CARB and U.S. EPA mobile source emissions inventory methodologies
- To provide comments on the mobile source portion of AB32 implementation (Greenhouse Gas Reduction Measures)

MSRC Liaison & Support

In September 1990, AB2766 was signed into law under H&SC 44220-44247 authorizing the imposition of an additional motor vehicle registration fee in non-attainment air pollution control districts, including the AQMD. The legislation specifies an allocation distribution of the \$4 fee in the AQMD as follows:

- 30% to the AQMD to reduce air pollution from motor vehicles and to carry out planning, monitoring, enforcement, and technical studies related to the California Clean Air Act;
- 40% to cities and counties in the South Coast District to reduce motor vehicle pollution; and
- 30% deposited to a "Discretionary Fund" to be used to implement programs to reduce motor vehicle pollution.

AB2766 specified the creation of the MSRC to develop a work program, evaluate resulting projects and programs, and make recommendations to the AQMD Governing Board as to which projects and programs would be funded from the Discretionary Fund. The MSRC itself is an independent agency comprised of representatives from local cities, counties, and government agencies. The AQMD, through S&TA, provides staff and other support to the MSRC to facilitate its activities. The AQMD also provides a liaison to the MSRC.

Reducing mobile sources is one of the AQMD's top priorities because scientific evidence demonstrates that impacts on health effects from air pollution are worse than previously suspected. Also, the Southland is required by to meet the federal standard of PM2.5 in less than eight years. In order to meet the PM2.5 standard, nitrogen oxide emissions must be cut by an additional 40 percent above and beyond current control programs.

FY 2012-13 WORKPLAN:

SCIENCE & TECHNOLOGY ADVANCEMENT

#	CODE	PROGRAM CATEGORY	OBJ	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES	
						CURRENT	+/-	CURRENT	+/-		
1	44	003	Advance Clean Air Technology	I	AB2766/MSRC	Mob Src Review Comm Prog Admin	1.00		\$ 152,374	\$ 5,531	IX
2	44	004	Advance Clean Air Technology	I	AB2766/MSRC/Contract Admin	AB2766 Admin Discretionary Prog	3.00		457,123	16,593	IX
3	44	012	Advance Clean Air Technology	I	AQMP/Control Tech Assessment	Tech Supp: Quantify Cost Effec	0.10		15,237	553	VIII
4	44	015	Ensure Compliance	I	Acid Rain Program	Acid Rain CEMS Eval/Cert	0.50		76,187	2,765	V
5	44	038	Monitoring Air Quality	I	Admin/Office Mgmt/Monitoring	Overall Program Mgmt/Coord	0.90		137,137	4,978	Ib
6	44	039	Develop Programs	I	Admin/Office Mgt/Tech Adv	Admin Support/Coordination	0.77		117,328	4,259	VIII
7	44	041	Policy Support	I	Admin/Office Mgmt/Policy Supp	Overall Policy Supp/Mgmt/Coord	0.49		74,663	2,710	Ib
8	44	042	Ensure Compliance	I	Admin/Office Mgmt/Compliance	Compliance: Assign/Manage/Supp	0.37		56,378	2,046	Ib
9	44	043	Develop Rules	I	Admin/Office Mgmt/Rules	Rules: Assign/Manage/Supp	0.15		22,856	830	Ib
10	44	046	Monitoring Air Quality	I	Admin/Program Management	STA Program Administration	2.00		316,748	11,062	Ib
11	44	048	Advance Clean Air Technology	I	Admin/Prog Mgmt/Tech Advance	Overall TA Program Mgmt/Coord	2.75	(1.20)	419,029	(174,276)	VIII
12	44	052	Operational Support	I	Admin/Prog Mgmt/Mob Src	Admin: Mobile Source	1.80		274,274	9,956	Ib
13	44	063	Monitoring Air Quality	I	Ambient Air Analysis	Analyze Criteria/Tox/Pollutants	12.91	(1.00)	1,967,151	63,499	II,V,IX
14	44	064	Monitoring Air Quality	I	Ambient Network	Air Monitoring/Toxics Network	17.50	(1.00)	2,864,149	(151,114)	II,V,IX
15	44	065	Monitoring Air Quality	I	Air Quality Data Management	AM Audit/Validation/Reporting	1.00		152,374	5,531	II,V,IX
16	44	066	Advance Clean Air Technology	I	AQIP Marine SCR DPF	AQIP Marine SCR DPF/Admin/Impl	0.00	0.15	-	23,686	IX
17	44	067	Monitoring Air Quality	II	Ambient Lead Monitoring	Lead Monitoring/Analysis/Reporting	0.50		76,187	2,765	II
18	44	069	Develop Programs	I	AQIP Evaluation	AQIP Contract Admin/Evaluation	0.80	(0.15)	121,899	(19,261)	IX
19	44	071	Operational Support	I	Arch Ctgs - Admin	Report Review	0.00		-	-	XVIII
20	44	072	Ensure Compliance	I	Arch Ctgs - End User	Sample Analysis/Rpts	1.00		152,374	5,531	XVIII
21	44	073	Ensure Compliance	I	Arch Ctgs - Other	Sample Analysis/Rpts	2.00		304,748	11,062	XVIII
22	44	081	Monitoring Air Quality	I	Air Filtration EPA	Air Filtration EPA/Admn/Impl	0.00	0.25	-	39,476	V
23	44	082	Monitoring Air Quality	I	Air Filtration Other	Air Filtration Other/Admn/Impl	0.00	0.50	-	78,953	XVII
24	44	095	Policy Support	I	CA Natural Gas Veh Partnership	CA Natural Gas Veh Partnership	0.05		7,619	277	VIII
25	44	105	Ensure Compliance	I	CEMS Certification	CEMS Review/Approval	6.15		937,101	34,015	II,III,VI
26	44	130	Advance Clean Air Technology	I	Clean Fuels/Contract Admin	Admin/Project Supp for TA Cont	3.40		518,072	18,805	VIII,XVI
27	44	132	Advance Clean Air Technology	I	Clean Fuels/Mobile Sources	Dev/Impl Mobile Src Proj/Demo	5.30		807,583	29,314	VIII
28	44	134	Advance Clean Air Technology	I	Clean Fuels/Stationary Combust	Dev/Demo Clean Combustion Tech	0.70		106,662	3,872	XVI
29	44	135	Advance Clean Air Technology	I	Clean Fuels/Stationary Energy	Dev/Demo Alt Clean Energy	0.70		106,662	3,872	XVI
30	44	136	Advance Clean Air Technology	I	Clean Fuels/Tech Transfer	Disseminate Low Emiss CF Tech	1.45		230,943	8,020	VIII
31	44	151	Monitoring Air Quality	I	Community Scale AirToxicsStudy	EPA-funded airports air monit	0.00	1.00	-	157,905	XVII
32	44	175	Ensure Compliance	I	DB/Computerization	Develop Systems/Database	0.44		67,045	2,434	II,IV,VI
33	44	190	Advance Clean Air Technology	I	Diesel Projects EPA	Diesel Projects EPA/Admin/Impl	0.00		-	-	V
34	44	240	Policy Support	II	Environmental Justice	Implement Environmental Justice	1.95	(1.50)	297,130	(226,072)	II,IX
35	44	249	Monitoring Air Quality	I	EPA Air Toxics Study	EPA Air Toxics Study	0.00		-	-	V
36	44	276	Policy Support	I	Advisory Group/Technology Adva	Tech Adv Advisory Group Supp	0.10		15,237	553	VIII
37	44	361	Advance Clean Air Technology	I	HD Trucks DOE ARRA	DOE HD Trucks Admin (ARRA)	2.00		304,748	11,062	V
38	44	396	Develop Programs	I	Lawnmower Exchange	Lawn Mower Admin/Impl/Outreach	0.30		45,712	1,659	XVII
39	44	410	Policy Support	I	Legislation	Support Pollution Reduction thru Legislatio	0.50		76,187	2,765	IX
40	44	423	Advance Clean Air Technology	I	LNG Corridor DOE	DOE LNG Corridor Admin (ARRA)	0.00		-	-	V
41	44	424	Advance Clean Air Technology	I	LNG Trucks CEC	LNG Trucks Admin CEC	1.00		152,374	5,531	V
42	44	439	Monitoring Air Quality	I	MATES IV	MATES IV	0.00	0.50	-	78,953	VIII
43	44	448	Develop Programs	I	Mobile Src Strategies-Off Road	CARB Off-Road Mob Src ctrl strategy for SIP	1.00		152,374	5,531	XVII
44	44	449	Develop Rules	I	Mob Src/AQMD Rulemaking	Prepare AQMD Mob Src rulemaking proposals	2.00		304,748	11,062	VIII,IX
45	44	450	Ensure Compliance	I	Microscopic Analysis	Asbestos/PM/Metals Analysis	3.00		457,123	16,593	VI
46	44	451	Develop Programs	I	Mob Src/CARB/EPA Monitoring	CARB/US EPA Mob Src Fuel Policies	1.50		228,561	8,296	IX
47	44	452	Develop Programs	I	Mob Src/CEC/US DOE Monitoring	CEC/US DOE Mob Src rulemaking proposals	1.00		152,374	5,531	IX,XVII
48	44	453	Advance Clean Air Technology	I	Mob Src: Emiss Inven Method	Rvw CARB/US EPA emissions inven methodology	1.50		228,561	8,296	VIII,IX
49	44	454	Policy Support	I	Mob Src:Greenhs Gas Reduc Meas	Provide comments on mob src portion of AB32	1.50		228,561	8,296	XVII
50	44	456	Develop Rules	I	MS & AQMP Control Strategies	AQMP Control Strategies	0.30		45,712	1,659	VIII

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Revised 4/13/12

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.

FY 2012-13 WORKPLAN:

SCIENCE & TECHNOLOGY ADVANCEMENT (Continued)

#	PROGRAM			PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES	
	CODE	CATEGORY	OBJ			CURRENT	+/-	CURRENT	+/-		
51	44	457	I	Advance Clean Air Technology	Mob Src/C Moyer Adm/Outreach	Carl Moyer: Impl/Admin Grant	5.65	(0.50)	\$ 860,914	\$ (47,703)	IX
52	44	458	I	Develop Programs	Mobile Source Strategies	Implement Fleet Rules	1.00		152,374	5,531	VIII
53	44	459	I	Advance Clean Air Technology	Mob Src/C Moyer/Impl/Prg Dev	Moyer/Implem/Program Dev	4.80	(2.00)	731,396	(289,262)	IX
54	44	460	I	Advance Clean Air Technology	VIP Admin	VIP Admin/Outreach/Impl	0.00	0.80	-	126,324	VIII
55	44	468	I	Monitoring Air Quality	NATTS(Natl Air Tox Trends Sta)	NATTS (Natl Air Tox Trends)	1.50		228,561	8,296	V
56	44	469	I	Monitoring Air Quality	Near Roadway Mon	Near Roadway Monitoring	0.00	1.50	-	236,858	IX
57	44	497	I	Advance Clean Air Technology	Plug-in Hybrid EV DOE ARRA	DOE Plug-in Hybrid EV Admin (ARRA)	0.75		114,281	4,148	V
58	44	500	I	Ensure Compliance	PM2.5 Program	Est/Operate/Maint PM2.5 Network	4.80		731,396	26,549	V
59	44	501	I	Monitoring Air Quality	PM2.5 Program	Analyze PM2.5 Samples	6.00		914,245	33,186	V
60	44	505	I	Monitoring Air Quality	PM Sampling Program (EPA)	PM Sampling Program - Addition	10.60		1,615,167	58,628	V
61	44	507	I	Monitoring Air Quality	PM Sampling Spec	PM Sampling Special Events	0.00	0.10	-	15,791	V
62	44	530	I	Monitoring Air Quality	Photochemical Assessment	Photochemical Assess & Monitor	3.00		457,123	16,593	V,IX
63	44	538	I	Monitoring Air Quality	Port AQ/I-710 Monitoring	Port AQ Monitoring	3.40	(1.60)	518,072	(233,843)	IX,XVII
64	44	542	I	Advance Clean Air Technology	Prop 1B:Goods Movement	Prop 1B:Goods Movement	3.25	2.70	495,216	444,319	IX
65	44	544	II	Advance Clean Air Technology	Prop 1B:Low Emiss Sch Bus	Prop 1B:Low Emiss Sch Bus	0.20	1.80	30,475	285,335	IX
66	44	545	I	Timely Review of Permits	Protocols/Reports/Plans	Eval Test Protocols/Cust Svc	0.10		15,237	553	III,IV
67	44	546	I	Timely Review of Permits	Protocols/Reports/Plans	Eval Test Protocols/Compliance	6.15		937,101	34,015	IV,VI
68	44	565	III	Customer Service and Business Assis	Public Records Act	Comply w/ Public Req for Info	0.17		25,904	940	XVII
69	44	585	I	Monitoring Air Quality	Quality Assurance	Quality Assurance Branch	5.00	(2.00)	761,871	(288,156)	II,IX
70	44	653	I	Develop Rules	Rulemaking/BACT	Dev/Amend BACT Guidelines	2.85	(0.85)	434,267	(118,456)	II
71	44	657	I	Develop Rules	Rulemaking/Support PRA	Assist PRA w/ Rulemaking	0.05		7,619	277	II
72	44	677	I	Advance Clean Air Technology	School Bus/Lower Emission Prog	School Bus Program Oversight	1.10	(0.90)	167,612	(136,031)	VIII
73	44	700	I	Ensure Compliance	Source Testing/Compliance	Conduct ST/Prov Data/Compl	2.25		362,842	12,445	VI
74	44	701	I	Customer Service and Business Assis	Source Testing/Customer Svc	Conduct ST/Prov Data/Cust Svc	0.10		15,237	553	VI
75	44	702	I	Develop Programs	ST Methods Development	Eval ST Methods/Validate	0.95		144,756	5,254	II
76	44	704	I	Ensure Compliance	ST/Sample Analysis/Compliance	Analyze ST Samples/Compliance	4.00		609,497	22,124	VI
77	44	705	I	Develop Programs	ST Sample Analysis/Air Program	Analyze ST Samples/Air Prgrms	0.25		38,094	1,383	II
78	44	706	I	Develop Rules	ST Sample Analysis/Air Program	Analyze ST Samples/Rules	0.25		38,094	1,383	II
79	44	707	I	Ensure Compliance	VOC Sample Analysis/Compliance	VOC Analysis & Rptg/Compliance	7.00		1,098,620	55,717	IV,XV
80	44	708	I	Develop Rules	VOC Sample Analysis/Rules	VOC Analysis & Rptg/Rules	0.25		38,094	1,383	II,XV
81	44	709	I	Customer Service and Business Assis	VOC Sample Analysis/SBA/Other	VOC Analysis & Rptg/Cust Svc	0.50		76,187	2,765	VI
82	44	715	I	Monitoring Air Quality	Spec Monitoring/Emerg Response	Emergency Response	0.50		76,187	2,765	II
83	44	716	I	Ensure Compliance	Special Monitoring/Rule 403	Rule 403 Compliance Monitoring	2.20		385,223	12,168	II,III,IX,XV
84	44	718	II	Advance Clean Air Technology	St Emissions Mitigation Prog	St Emissions Mitigation Prog	0.00		-	-	II
85	44	725	I	Timely Review of Permits	Permit Processing/Support EAC	Assist EAC w/ Permit Process	0.05		7,619	277	III
86	44	738	I	Advance Clean Air Technology	Target Air Shed EPA	Targeted Air Shed Admin/Impl	0.00	0.15	-	23,686	V
87	44	740	I	Advance Clean Air Technology	Tech Adv/Commercialization	Assess CFs/Adv Tech Potential	0.75	(0.50)	114,281	(74,804)	VIII
88	44	741	I	Advance Clean Air Technology	Tech Adv/Non-Combustion	Dev/Demo Non-Combustion Tech	0.35	(0.25)	53,331	(37,540)	XVI
89	44	794	I	Ensure Compliance	Toxics/AB2588	Eval Protocols/Methods/ST	1.25		190,468	6,914	X
90	44	795	I	Ensure Compliance	Toxics/Engineering	R1401 Toxics/HRA Prot/Rpt Eval	0.00		-	-	XVII
91	44	816	I	Advance Clean Air Technology	Transportation Research	Transport Research/Adv Systems	0.50		76,187	2,765	VIII
92	44	821	II	Monitoring Air Quality	TraPac Air Filt Prg	Admin/Tech Suppt/Reptg/Monitor	1.00		152,374	5,531	XVII
93	44	825	III	Operational Support	Union Negotiations	Labor/Mgmt Negotiations	0.05		7,619	277	Ia
94	44	826	III	Operational Support	Union Steward Activities	Rep Employees in Grievance Act	0.05		7,619	277	Ia
95	44	855	II	Operational Support	Web Tasks	Create/edit/review web content	0.00		-	-	Ia
96	44	860	I	Advance Clean Air Technology	Zero Emission Vehicle Program	ZEV: Oversee Prog Admin	0.00		-	-	VIII

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168.00	(4.00)	\$ 25,920,469	\$ 374,578
	164.00		\$ 26,295,047

FISCAL YEAR 2012-13 TOTAL

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.

SCIENCE & TECHNOLOGY ADVANCEMENT

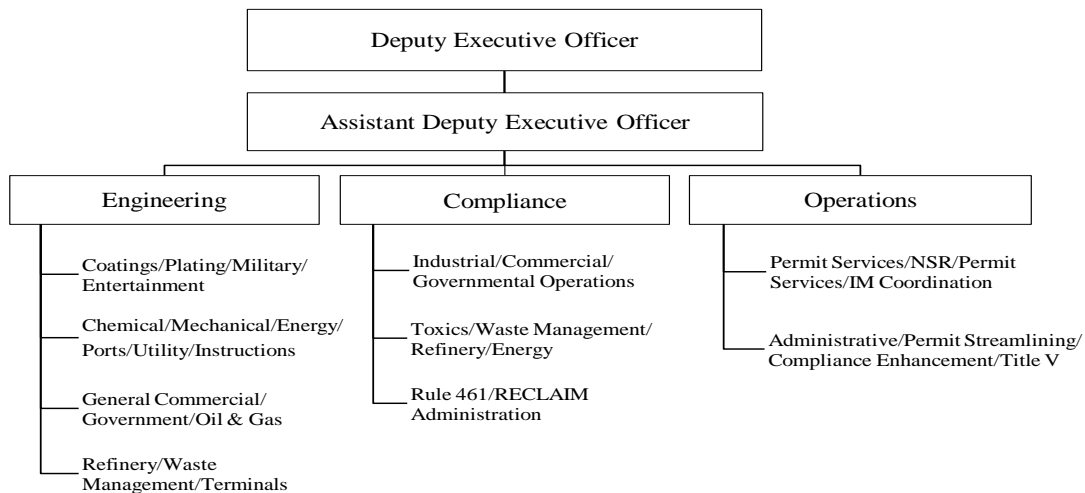
LINE ITEM EXPENDITURE

<u>MAJOR OBJECT/ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
SALARY & EMPLOYEE BENEFITS				
SALARY	\$ 14,046,786	\$ 14,133,653	\$ 13,909,401	\$ 14,123,538
EMPLOYEE BENEFITS	6,721,715	6,721,715	5,811,874	6,595,803
TOTAL	<u>\$ 20,768,501</u>	<u>\$ 20,855,368</u>	<u>\$ 19,721,274</u>	<u>\$ 20,719,341</u>
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 0	\$ 74	\$ 74	\$ 0
67300 RENTS & LEASES EQUIPMENT	16,600	108,180	108,040	16,600
67350 RENTS & LEASES STRUCTURE	150,000	152,000	141,871	150,000
67400 HOUSEHOLD	500	500	500	500
67450 PROF. & SPECIAL SERVICES	112,000	1,614,897	1,614,897	112,000
67460 TEMPORARY AGENCY SVCS.	119,600	301,400	301,400	119,600
67500 PUBLIC NOTICE & ADV.	37,000	43,240	43,240	37,000
67550 DEMURRAGE	40,000	61,000	61,000	40,000
67600 MAINTENANCE OF EQUIPMENT	180,000	408,625	396,665	180,000
67650 BUILDING MAINTENANCE	20,000	52,000	52,000	20,000
67700 AUTO MILEAGE	3,909	98,123	98,123	3,909
67750 AUTO SERVICE	0	0	0	0
67800 TRAVEL	48,403	66,003	90,500	48,403
67850 UTILITIES	0	0	0	0
67900 COMMUNICATIONS	189,636	196,716	196,716	189,636
67950 INTEREST EXPENSE	0	0	0	0
68000 CLOTHING	4,000	9,000	9,000	4,000
68050 LABORATORY SUPPLIES	270,000	557,856	486,340	270,000
68060 POSTAGE	22,318	32,718	32,718	22,318
68100 OFFICE EXPENSE	27,693	62,293	62,293	27,693
68200 OFFICE FURNITURE	0	9,950	9,977	0
68250 SUBSCRIPTION & BOOKS	1,527	1,527	318	1,527
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	35,000	116,000	89,345	35,000
68350 FILM	100	100	0	100
68400 GAS & OIL	0	0	0	0
69500 TRAINING/CONF/TUITION/BOARD EX.	9,000	9,000	9,000	9,000
69550 MEMBERSHIPS	7,250	82,250	82,250	7,250
69600 TAXES	7,000	7,200	6,023	7,000
69650 AWARDS	2,400	2,400	2,285	2,400
69700 MISCELLANEOUS EXPENSES	7,500	16,760	16,760	7,500
69750 PRIOR YEAR EXPENSE	0	0	0	0
89100 PRINCIPAL REPAYMENT	0	0	0	0
TOTAL	<u>\$ 1,311,436</u>	<u>\$ 4,009,812</u>	<u>\$ 3,911,334</u>	<u>\$ 1,311,436</u>
77000 CAPITAL OUTLAYS	\$ 90,000	\$ 1,154,400	\$ 1,154,400	\$ 167,000
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	<u>\$ 22,169,937</u>	<u>\$ 26,019,580</u>	<u>\$ 24,787,008</u>	<u>\$ 22,197,777</u>

PROGRAM STATEMENT AND ORGANIZATIONAL CHART – ENGINEERING & COMPLIANCE

2012-13 Requested Staffing

<u>Position</u>	<u>Title</u>
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
1	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
<u>1</u>	Supervising Office Assistant
306	Total Requested Positions



Engineering & Compliance (E&C) is mainly responsible for Permitting and Compliance for all stationary sources. In addition, compliance staff administers the Portable Equipment Registration Program (PERP), participate in emergency response operations and handle air quality complaints from the public. E&C staff is comprised primarily of inspectors, engineers, and clerical support staff that are organized into industry –specific compliance, permitting and operations “teams,” which include the following:

Permitting

- Coatings/Plating/Military/Entertainment
- Chemical/ Mechanical/Energy/Ports/Utility/Institutions
- General Commercial
- Refinery/ Waste Management & Terminals

Compliance

- Industrial/Commercial & Governmental Operations
- Toxics/Waste Management, Refinery & Energy
- Gas stations and RECLAIM Administration

Permit Streamlining – Economic Development/Business Retention & Compliance Enhancements

- Administrative, Permit Streamlining, Economic Development, and Business Retention and Title V Administration

Operations

- Title V, AIRS, NSR, Permit Services, Agricultural Source Permitting and IM Coordination

PERMITTING

E&C has primary responsibility for AQMD’s permit system, including issuance and administration of RECLAIM (the REgional CLean Air Incentives Market) Facility Permits, Permits to Construct and Permits to Operate equipment at non-RECLAIM facilities, and the Federal Title V Operating Permit Program. E&C permitting staff evaluate all pieces of equipment that may require permits for conformance with AQMD’s rules, with particular emphasis on New Source Review (NSR), Best Available Control Technology (BACT) requirements, and toxic emissions, as well as for conformance with other local, state and federal air quality laws and regulations. Equipment is evaluated in the field to verify compliance under actual operating conditions.

COMPLIANCE

E&C ensures compliance with AQMD permit conditions and all local air quality rules and regulations, as well as state and federal air quality mandates at approximately 27,000 permitted facilities. In addition, E&C responds to all air quality complaints (approximately 7,000 a year) received from the public. Compliance activities are the cornerstone of our interaction with the business community and the public. Facilities rely on E&C inspectors to supply them with up-to-date information on compliance requirements, including new rules, compliance class opportunities, and assessment of their compliance status. Compliance staff also inspect portable

equipment that are registered pursuant to the Statewide Portable Equipment Registration Program.

RECLAIM

E&C implements the requirements of the RECLAIM program. AQMD's RECLAIM program limits total mass emissions from each facility and requires annual facility emission reductions. Each firm participating in RECLAIM has the flexibility to determine how to achieve its emission reductions. Choices may include installing pollution control equipment, using reformulated materials, or buying emission credits from other RECLAIM facilities. The RECLAIM Administration Team is responsible for:

- Annual audits of RECLAIM and Title V records at power generating facilities and some oil production facilities
- RECLAIM annual program audits
- RECLAIM monitoring, reporting and recordkeeping (MRR)
- RECLAIM Rule amendments
- RECLAIM Universe determination
- Review RECLAIM Allocation determination
- RECLAIM Trading Credit (RTC) trade registration processing
- RECLAIM implementation and coordination

NEW SOURCE REVIEW (NSR)

E&C implements the NSR program. State and federal law requires implementation of NSR to ensure that permitting of new, modified, or relocated stationary sources in non-attainment areas does not interfere with the attainment of state and national ambient air quality standards. An NSR tracking system is used for this program to demonstrate NSR equivalency with state and federal regulations (for both RECLAIM and non-RECLAIM sources). This program is also responsible for administration of the Emissions Reduction Credit (ERC) program which entails prescreening of all ERC applications, processing ERC changes of title and ERC alterations, and issuance of ERC Certificates.

TITLE V PERMIT PROGRAM

AQMD received final approval from EPA for its Title V program on January 1, 2004. E&C is now implementing this program. As of this date, there are 439 active facilities have been issued final Title V permits and new ones are pending.

Under this program:

- Major facilities will be issued a "facility permit" that consolidates all requirements for a facility into a single, federally-enforceable permit.
- Small facilities subject to federal Title III toxic regulations will also be subject to Phase II Title V permitting requirements.
- For very low-emitting facilities, the AQMD adopted Rule 3008 which exempts them from Title V based on their actual (rather than potential to emit) emissions.

- Initial Title V permits, Renewals of Title V permits, and all subsequent “significant” modifications require public notice, EPA review and the opportunity for comments prior to permit approval. Permits may be subject to public hearings if requested and granted by AQMD. All “minor” Title V permit modifications are also subject to a 45-day EPA review and comments. All EPA and public comments received will be considered prior to final action on a permit.
- EPA will have veto power over permit issuance and permit amendments.

PERMIT STREAMLINING – ECONOMIC DEVELOPMENT/BUSINESS RETENTION

E&C implements Permit Streamlining, as well as Economic Development/Business Retention Programs.

Permit Streamlining

The Permit Streamlining Task Force was formed in mid-1998 by order of the Chairman of the AQMD Board with a goal to develop recommendations to expedite permitting and improve customer service for the businesses regulated by AQMD. Task force members included three AQMD Board members, representatives from industry, consultants and environmental groups. An independent contractor was hired to conduct a study of AQMD’s permitting program. The AQMD’s efforts also included the creation of a Permit Streamlining Ombudsman and a Permit Streamlining Team.

The Permit Streamlining Task Force was reconvened as per AQMD’s Board’s direction in 2005 and meets on a as needed basis to identify problems associated with permit processing and issuance that affects both businesses and the public and suggests improvements to streamline permit processing. The last PSTF meeting was held on February 17, 2012.

Economic Development and Business Retention

The AQMD was one of the first environmental regulatory agencies to develop and implement an Economic Development and Business Retention (EDBR) Office. The primary function of the office is to work with the business community acting as a bridge to achieve healthful air quality while maintaining a vibrant economy. The objective is for AQMD to establish effective working relationships with the business community and to provide a clear understanding of air quality requirements and options for compliance.

The program was developed to assist businesses that are concerned about expanding their operations, moving to another site within AQMD’s jurisdiction, and those setting up operations in our basin for the first time. The key to the development of the EDBR program was the establishment of close working relationships with other organizations involved in similar efforts at the city, county, and state levels. The close working relationship with AQMD partners helps resolve the sometimes complex issues that cross agencies and other jurisdictional lines.

As part of the EDBR program, the AQMD’s Small Business Assistance Office also provides assistance to small business owners to determine if permits are needed, and helps them through the process to file the applications and complete the other necessary paperwork.

AUTOMATION

Automation continues to be a priority as E&C continues to streamline and improve the efficiency of permit processing, field compliance, and database management operations. Increasing emphasis on real-time access to facility information and the development of standardized query and reporting tools will support more efficient deployment of resources in response to changing operational needs. Additionally, more web-enabled programs are being developed spurred by the successful implementation of real-time application status checking over the Internet. Major objectives include:

- Implementation of **Internet-based Compliance Notification System (ICONS)** enabling users to submit gasoline dispensing vapor recovery testing and asbestos notifications via the Internet.
- Development of a field automation program allowing inspectors to access, query and upload data to AQMD database resources from the field.
Implementation of the RECLAIM enforcement/central station emissions monitoring command center.
- Enhanced facility permit production for Title V and streamlined facility permit printing.
- Improvements to the Permit Administration & Application Tracking System (PAATS) and Permit Processing System (PPS).
- Developing enhancements to the AQMD web page regarding permit information, forms availability, and fee determination.
- NSR permit processing modules modifications.

E&C is committed to developing and implementing effective programs that will improve air quality and protect public health.

FY 2012-13 WORKPLAN:

ENGINEERING & COMPLIANCE

#	CODE	PROGRAM CATEGORY	OBJ	PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES
						CURRENT	+/-	CURRENT	+/-	
1	50 038	Operational Support	I	Admin/Office Management	Dev/Coord Goals/Policies/Overs	4.00		\$ 584,665	\$ 20,535	Ib
2	50 047	Operational Support	I	Admin/Operations Support	Budget/Contracts/Reports/Projects	5.00		735,831	25,669	Ib
3	50 070	Ensure Compliance	I	CARB PERP Program	CARB Audits/Statewide Equip Reg	7.00		1,023,164	35,937	XIX
4	50 071	Operational Support	I	Arch Ctgs - Admin	Report Review	0.10		14,617	513	XVIII
5	50 072	Ensure Compliance	I	Arch Ctgs - End User	Compliance/Rpts/RuleImpmenta	0.10		14,617	513	XVIII
6	50 073	Ensure Compliance	I	Arch Ctgs - Other	Compliance/Rpts/Rule Implementation	4.50		657,748	23,102	XVIII
7	50 148	Policy Support	I	Climate Change	GHG/Climate Change Support	0.50		73,083	2,567	II,IX
8	50 152	Ensure Compliance	III	Compliance/IM Related Activiti	Assist IM: Design/Review/Test	0.50		73,083	2,567	II
9	50 155	Ensure Compliance	I	Compliance Guidelines	Procedures/Memos/Manuals	0.50		73,083	2,567	II
10	50 156	Timely Review of Permits	I	Perm Proc/Info to Compliance	Prov Permit Info to Compliance	3.00		438,499	15,401	III,IV,XV
11	50 157	Ensure Compliance	I	Compliance/Special Projects	Prog Audits/Data Req/Board Supp	5.00		730,831	25,669	IV
12	50 158	Ensure Compliance	I	Compliance Testing	R461/Combustion Equip Testing	1.00		171,766	(20,466)	II
13	50 200	Customer Service and Business Assistance	I	Economic Dev/Bus Retention	Perm Proc/Public Participation	0.10		14,617	513	III
14	50 210	Monitoring Air Quality	I	Emergency Response	Emerg Tech Asst to Public Saf	0.25		36,542	1,283	II,XV
15	50 253	Timely Review of Permits	I	ERC Appl Processing	Process ERC Applications	3.50		511,582	17,968	III
16	50 260	Customer Service and Business Assistance	III	Fee Review	Fee Review Committee	0.10	0.35	14,617	53,468	II,III,IV
17	50 276	Policy Support	I	Board Committees	Admin/Stationary Source Committees	0.25		36,542	1,283	Ia
18	50 365	Ensure Compliance	I	Hearing Bd/Variations	Variations/Orders of Abatement	1.50		219,249	7,701	VII
19	50 367	Timely Review of Permits	I	Hearing Board/Appeals	Appeals: Permits & Denials	0.50		73,083	2,567	III
20	50 375	Ensure Compliance	I	Inspections	Compliance/Inspection/Follow-up	83.20	(4.00)	12,181,130	(198,169)	IV,V,XV
21	50 377	Ensure Compliance	I	Inspections/RECLAIM Audits	Audit/Compliance Assurance	23.80		3,478,756	122,184	II
22	50 416	Policy Support	I	Legislative Activities	Legislative Activities	0.25		36,542	1,283	Ia
23	50 425	Customer Service and Business Assistance	I	Lobby Permit Services	Supp Perm Proc/Customer Svc	1.00		146,166	5,134	III
24	50 475	Timely Review of Permits	I	NSR Implementation	Implement NSR/Allocate ERCs	2.50		410,416	(17,166)	II,V,XV
25	50 476	Timely Review of Permits	I	NSR Data Clean Up	Edit/Update NSR Data	0.50		73,083	2,567	II
26	50 515	Timely Review of Permits	I	Perm Proc/Non TV/Non RECLAIM	PP: Non TitIV/TitIII/RECLAIM	37.05	18.25	5,550,559	2,921,331	III,XV
27	50 517	Timely Review of Permits	I	Permit Services	Facility Data-Create/Edit	32.85	(20.35)	4,801,560	(2,910,310)	III,XV
28	50 518	Timely Review of Permits	I	RECLAIM Non-Title V	Process RECLAIM Only Permits	22.90	(18.40)	3,347,206	(2,666,356)	III,IV,XV
29	50 519	Timely Review of Permits	I	Perm Proc/Title III (Non TV)	Process Title III Permits	1.00		146,166	5,134	III
30	50 520	Timely Review of Permits	I	Perm Proc/Pre-Appl Mtg Outreac	Pre-App Mtgs/Genl Prescreening	4.00		584,665	20,535	III
31	50 521	Timely Review of Permits	III	Perm Proc/Expedited Permit	Proc Expedited Permits (301OT)	0.50		73,083	2,567	III
32	50 523	Timely Review of Permits	I	Permit Streamlining	Permit Streamlining	4.00	(0.25)	584,665	(17,290)	III
33	50 538	Ensure Compliance	I	Port Comm AQ Enforcement	Port Comm AQ Enforcement	0.50		73,083	2,567	IX
34	50 542	Advance Clean Air Technology	I	Prop 1B:Goods Movement	Prop 1B: Gds Mvmnt/Inspect	0.30		43,850	1,540	IX
35	50 550	Ensure Compliance	I	Public Complaints/Breakdowns	Compltresp/Invflwup/Resolutn	10.00		1,461,662	51,338	II,IV,V,XV
36	50 565	Customer Service and Business Assistance	III	Public Records Act	Comply w/ Public Req for Info	0.50		73,083	2,567	XVII
37	50 605	Ensure Compliance	III	RECLAIM/Admin Support	Admin/Policy/Guidelines	10.00		1,511,662	21,338	II,III,IV,XV
38	50 607	Timely Review of Permits	I	RECLAIM & Title V	Process RECLAIM & TV Permits	0.00	12.65	-	1,913,945	III
39	50 650	Develop Rules	I	Rulemaking	Dev/Amend/Impl Rules	0.50		73,083	2,567	II,XV
40	50 657	Develop Rules	I	Rulemaking/Support PRA	Provide Rule Development Supp	0.50		73,083	2,567	II,XV
41	50 678	Ensure Compliance	I	School Siting	Identify Haz. Emission Sources near Schools	1.00		146,166	5,134	II
42	50 680	Timely Review of Permits	III	Small Business Assistance	Asst sm bus w/ Permit Process	0.50		73,083	2,567	III
43	50 690	Customer Service and Business Assistance	I	Source Education	Prov Tech Asst To Industries	2.80		409,265	14,375	III,V,XV
44	50 728	Timely Review of Permits	I	Perm Proc/IM Programming	Assist IM: Design/Review/Test	2.00		292,332	10,268	II,III,IV
45	50 751	Ensure Compliance	I	Title III Inspections	Title III Comp/Insp/Follow Up	0.50		73,083	2,567	IV
46	50 752	Develop Rules	I	Title III Rulemaking	Title III Dev/Implement Rules	0.25		36,542	1,283	II,V,XV
47	50 771	Ensure Compliance	I	Title V Inspections	Title V Compl/Inspect/Follow Up	11.00		1,607,828	56,472	II,IV
48	50 773	Develop Rules	I	Title V & NSR Rulemaking-Supp	Title V Rules Dev/Amend/Impl	0.25		36,542	1,283	II
49	50 774	Timely Review of Permits	I	TV/Non-RECLAIM	Process Title V Only Permits	13.25	4.75	1,936,702	786,698	III
50	50 775	Timely Review of Permits	I	Title V - Admin	Title V Administration	1.00		146,166	5,134	III

154

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.

FY 2012-13 WORKPLAN:

ENGINEERING & COMPLIANCE

#	PROGRAM			PROGRAM	ACTIVITIES/OUTPUTS	FTEs		Cost		REVENUE CATEGORIES	
	CODE	CATEGORY	OBJ			CURRENT	+/-	CURRENT	+/-		
51	50	805	Operational Support	III	Training	Dist/Org Unit Training	6.00		\$ 876,997	\$ 30,803	Ib
52	50	825	Operational Support	III	Union Negotiations	Official Labor/Mgmt Negotiate	0.10		14,617	513	Ia
53	50	826	Operational Support	III	Union Steward Activities	Rep Employees in Grievance Act	0.10		14,617	513	Ia
54	50	850	Ensure Compliance	I	VEE Trains	Smoking Trains-Compl/Inspec/FU	0.50		73,083	2,567	XV
55	50	855	Operational Support	II	Web Tasks	Creation/Update of Web Content	0.50		73,083	2,567	Ia

	313.00	(7.00)	\$ 46,030,828	\$ 411,976
FISCAL YEAR 2012-13 TOTAL		306.00		\$ 46,442,805

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.

ENGINEERING & COMPLIANCE

LINE ITEM EXPENDITURE

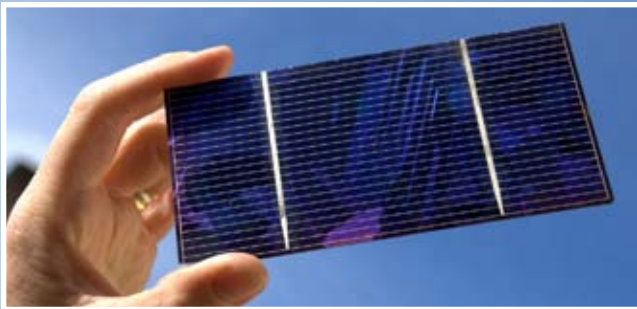
<u>MAJOR OBJECT/ACCOUNT</u>	<u>FY 2011-12 ADOPTED BUDGET</u>	<u>FY 2011-12 AMENDED BUDGET</u>	<u>FY 2011-12 ESTIMATE</u>	<u>FY 2012-13 PROPOSED</u>
SALARY & EMPLOYEE BENEFITS				
SALARY	\$ 26,092,983	\$ 26,092,983	\$ 27,036,025	\$ 26,154,804
EMPLOYEE BENEFITS	11,982,506	11,982,506	11,133,482	11,851,615
TOTAL	<u>\$ 38,075,489</u>	<u>\$ 38,075,489</u>	<u>\$ 38,169,507</u>	<u>\$ 38,006,419</u>
SERVICES & SUPPLIES				
67250 INSURANCE	\$ 0	\$ 0	\$ 0	\$ 0
67300 RENTS & LEASES EQUIPMENT	4,500	4,500	0	1,500
67350 RENTS & LEASES STRUCTURE	97,500	97,500	91,695	92,000
67400 HOUSEHOLD	0	0	0	0
67450 PROF. & SPECIAL SERVICES	25,000	25,000	25,000	25,000
67460 TEMPORARY AGENCY SVCS.	40,202	40,202	0	40,000
67500 PUBLIC NOTICE & ADV.	50,000	50,000	50,552	68,700
67550 DEMURRAGE	500	500	0	500
67600 MAINTENANCE OF EQUIPMENT	27,500	27,500	12,440	27,500
67650 BUILDING MAINTENANCE	0	0	0	0
67700 AUTO MILEAGE	17,000	17,000	9,312	12,000
67750 AUTO SERVICE	1,000	1,000	0	1,000
67800 TRAVEL	39,200	39,200	29,328	39,200
67850 UTILITIES	0	0	0	0
67900 COMMUNICATIONS	148,000	148,000	146,319	148,000
67950 INTEREST EXPENSE	0	0	0	0
68000 CLOTHING	16,320	16,320	9,723	16,320
68050 LABORATORY SUPPLIES	17,400	17,400	11,054	10,000
68060 POSTAGE	55,000	55,000	36,252	55,000
68100 OFFICE EXPENSE	121,020	113,520	83,605	119,000
68200 OFFICE FURNITURE	10,000	10,000	0	5,000
68250 SUBSCRIPTION & BOOKS	800	800	204	800
68300 SMALL TOOLS, INSTRUMENTS, EQUIPMENT	21,200	21,200	18,505	21,460
68350 FILM	0	0	0	0
68400 GAS & OIL	0	0	0	0
69500 TRAINING/CONF/TUITION/BOARD EX.	47,000	47,000	22,463	17,000
69550 MEMBERSHIPS	3,000	3,000	188	1,500
69600 TAXES	0	0	0	0
69650 AWARDS	0	0	0	0
69700 MISCELLANEOUS EXPENSES	10,000	10,000	4,749	10,000
69750 PRIOR YEAR EXPENSE	0	0	0	0
89100 PRINCIPAL REPAYMENT	0	0	0	0
TOTAL	<u>\$ 752,142</u>	<u>\$ 744,642</u>	<u>\$ 551,390</u>	<u>\$ 711,480</u>
77000 CAPITAL OUTLAYS	\$ 215,600	\$ 25,600	\$ 25,600	\$ 80,000
79050 BUILDING REMODELING	0	0	0	0
TOTAL EXPENDITURES	<u>\$ 39,043,231</u>	<u>\$ 38,845,731</u>	<u>\$ 38,746,497</u>	<u>\$ 38,797,899</u>



Technology Advancement Office

Clean Fuels Program 2011 Annual Report and 2012 Plan Update

March 2012



South Coast Air Quality Management District
www.aqmd.gov

Cleaning the air that we breathe...™

South Coast Air Quality Management District

Governing Board

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Assembly Speaker Appointee

County Representatives

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Supervisor, Los Angeles County

Shawn Nelson
Supervisor, Orange County

Josie Gonzales**
Supervisor, San Bernardino County

John J. Benoit*
Supervisor, Riverside County

State Representatives

Jane W. Carney
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

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Councilmember, City of Los Angeles
City of Los Angeles

Michael Cacciotti
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Los Angeles County, Eastern Region

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Los Angeles County, Western Region

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Orange County Cities

Ronald O. Loveridge
Mayor, City of Riverside
Riverside County Cities

Executive Officer

Barry R. Wallerstein, D.Env.

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**Technology Committee Chairman

*South Coast Air Quality Management District
Technology Advancement Office*

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EXECUTIVE SUMMARY

The South Coast Air Quality Management District (SCAQMD) 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, the state established the Clean Fuels Program in 1988 which affords the SCAQMD the ability to fund the development, demonstration and accelerated deployment of clean technologies. For over 20 years, the Clean Fuels Program has supported technologies such as fuel cells, natural gas engines, plug-in hybrid electric vehicles and their associated fueling infrastructure. The SCAQMD continues to support a wide variety of technologies, in different stages of maturity, to provide a continuum of emission reductions and health benefits over time.

In recent years, it has become increasingly clear that the importation of goods 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 two years on developing zero and near-zero emissions goods movement technologies, such as electric trucks, plug-in hybrid trucks with all-electric range, trucks operating from wayside power and even electric locomotives. The prioritization of these types of projects as well as potential technologies which assist with their further development and deployment are emphasized in the 2012 Plan Update portion of the report. The 2011 Annual Report highlights the projects contracted during the previous calendar year and reflect the current status of the program.

2011 Annual Report

The SCAQMD executed 65 new contracts, projects or studies and modified 10 continuing projects adding additional dollars during Calendar Year (CY) 2011 toward research, development, demonstration and deployment (RDD&D) of alternative fuel and clean fuel technologies. Table 2 (page 22) lists these 75 projects or studies, which are further described in this report. The SCAQMD contributed approximately \$8.9 million in partnership with other governmental organizations, private industry, academia and research institutes and interested parties, with total project costs of more than \$27 million. Table 3 (page 25) provides information on outside funding received into the Clean Fuels Fund (\$2.56 million in 2011) as cost-share for contracts executed in this period. Table 4 (page 26) lists federal and state funds awarded to the SCAQMD for programs that align well with the Clean Fuels Program (\$6.7 million in 2011), and Table 5 (page 26) provides an update on the \$95 million in federal and state funding awarded to the SCAQMD in the prior two years, again for projects that align well with the Clean Fuels Program.

These projects or studies executed in 2011 addressed a wide range of issues and opportunities with a diverse mix of advanced technologies. The following core areas of technology advancement include:

- Hybrid and Electric Vehicle Technologies and Related Infrastructure
- Infrastructure and Deployment (predominantly compressed and liquid natural gas)
- Hydrogen Technology and Infrastructure
- Mobile Fuel Cell Technologies
- Emission Control Technologies
- Engine Systems (particularly in the heavy-duty vehicle sector)
- Fuels and Emission Studies
- Stationary Clean Fuels Technology (including renewables)
- Health Impacts Studies
- Outreach and Technology Transfer

During CY 2011, 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 in CY 2011 included development, demonstration and deployment of fuel cell and electric vehicles and infrastructure, demonstrations of emission control technologies on heavy-duty trucks as well as fuels and emission studies, further expansion of natural gas alternative refueling infrastructure and vehicle deployment and development and demonstration of hydrogen technology and infrastructure; .

As of January 1, 2012, there were 125 open contracts in the Clean Fuels Program; these are summarized in Appendix B.

Thirty-one research, development, demonstration and deployment projects or studies and 17 technology assessment and transfer contracts were completed in 2011, as listed in Table 6 (page 57). Appendix C comprises two-page summaries of the technical projects completed in 2011. 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, 2012, after approval by the SCAQMD Governing Board.

2012 Plan Update

The Clean Fuels Program (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. The SCAQMD Program is significant, especially during these economically tough times when both public and private funding available for technology research and development are limited. However, since national and international activities affect the direction of technology trends, the real challenge for the SCAQMD is 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 overall strategy is based in large part on technology needs identified in the Air Quality Management Plan (AQMP) and the SCAQMD Governing Board’s directives to protect the health of residents in the Basin. 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 oxides of nitrogen (NO_x), volatile organic compounds (VOC) and particulate matter (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 AQMP. Large NO_x and PM_{2.5} reductions will be necessary to meet the federal PM_{2.5} standards by 2014 and the federal 8-hour ozone standard by 2023 and so 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 7 (page 70) lists the potential projects across the core technologies identified in this report. Potential projects for 2012 total more than \$16.2 million, with anticipated leveraging of more than \$77.6 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 2011 ANNUAL REPORT

Program Background

The Basin, which comprises the Los Angeles, Orange, 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, on or before March 31 of each year to the Legislature, 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.

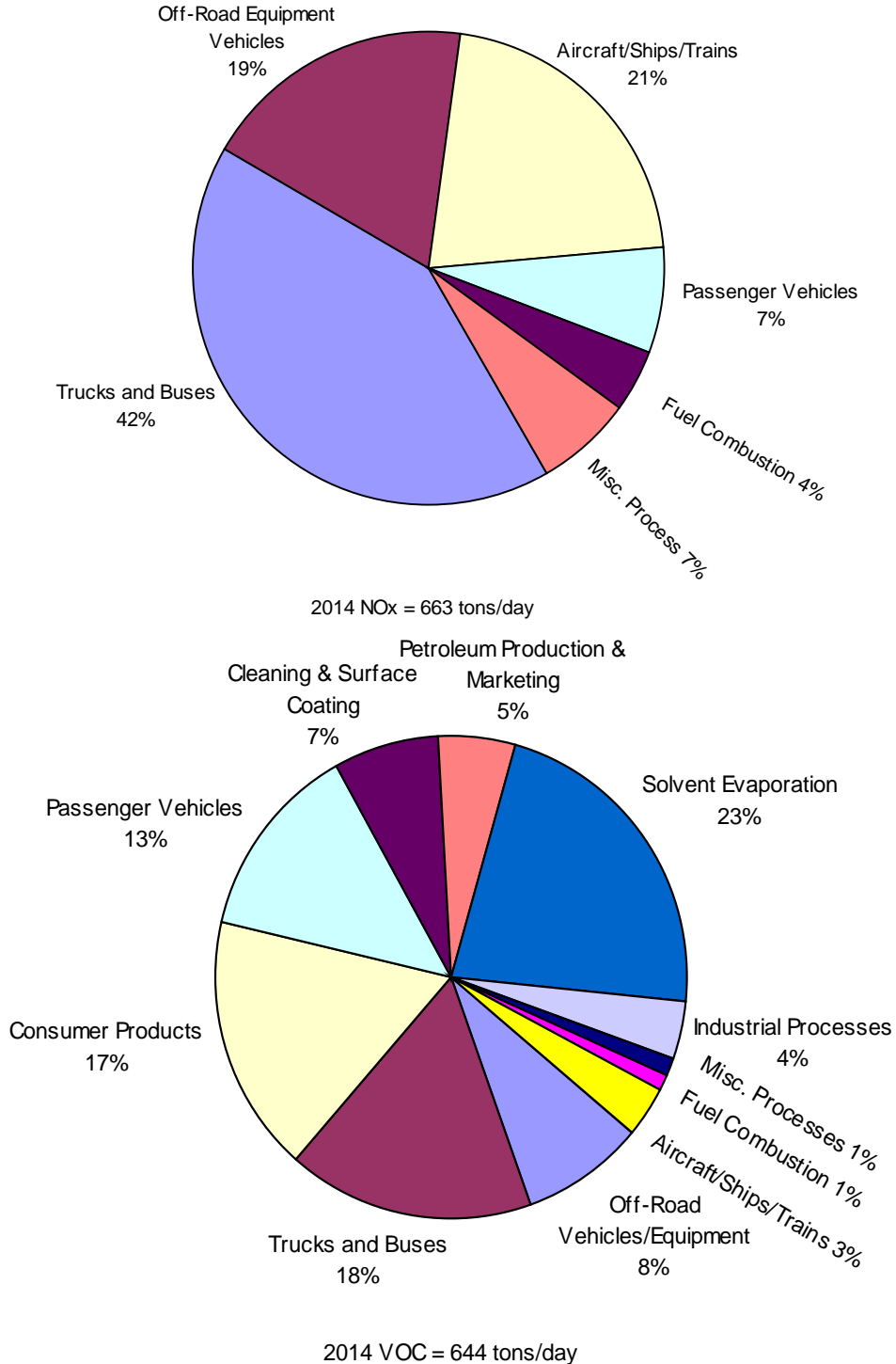
2011 Overview

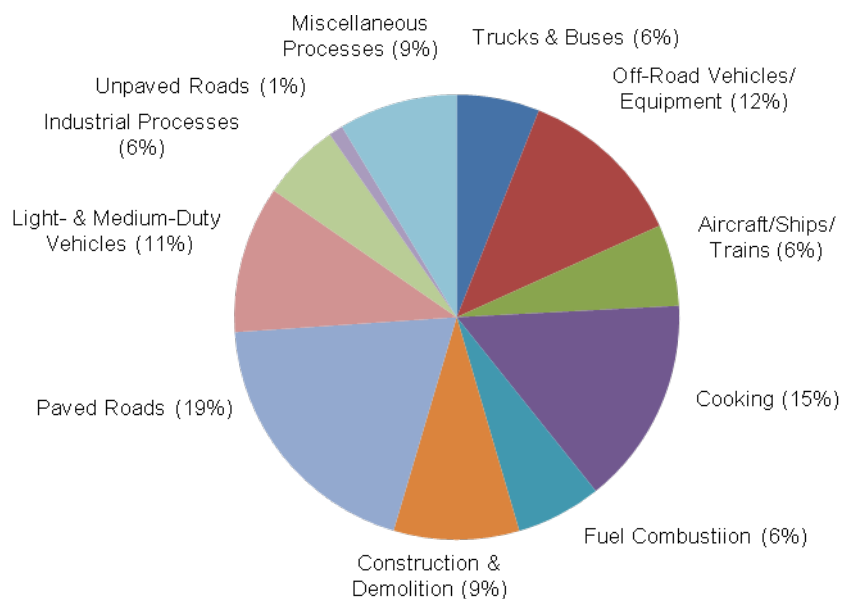
This report summarizes the progress of the SCAQMD Clean Fuels Program for CY 2011. This SCAQMD program co-sponsors projects to develop and demonstrate zero-, near-zero and low-emission clean fuels and advanced technologies and to promote commercialization and deployment of promising or proven technologies 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.

During the period between January 1 and December 31, 2011, the SCAQMD executed 65 new contracts, projects or studies and modified 10 continuing projects adding additional dollars during CY 2011 that support clean fuels and advanced zero-, near-zero and low-emission technologies. The SCAQMD contribution for these projects was nearly \$8.9 million, with total project costs of more than \$27 million. These projects address a wide range of issues with a diverse technology mix. This report highlights achievements and summarizes project costs of the SCAQMD Clean Fuels Program in this period. The report also provides information on outside funding received into the Clean Fuels Fund (\$2.1 million) as cost-share for contracts executed in this period as well as funds awarded to the SCAQMD for programs that align well with the Clean Fuels Program (\$6.7 million in 2011). A status update on the \$95 million in federal and state funding awarded to the SCAQMD in the prior two years, again for projects that align well with the Clean Fuels Program, is also provided.

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 demonstrated by considering the emissions inventory for the Basin and the future emissions levels projected in the 2007 AQMP. The estimated baseline 2014 NO_x, VOC and PM_{2.5} emissions inventory is shown in Figure 1. Based on the 2007 AQMP, significant reductions are necessary to demonstrate attainment with the federal standards.





2014 PM_{2.5} = 100 tons/day

Figure 1: Major Source Contributions (2014)

To fulfill long-term emission reduction targets, the 2007 AQMP relies on advanced technologies that are not yet fully developed for commercial use. Significant reductions are anticipated from implementation of advanced control technologies for both on-road and non-road mobile sources. In addition, the air quality standards for ozone (0.08 ppm, 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, which is in the beginning stages of development, will in large part focus control measures on transportation and cleaner fuels with zero-emissions as a key target. To achieve zero-emissions, especially in the goods movement sector, will require an accelerated effort to advance technologies and cleaner fuels.

Recent health studies also indicate a greater need to reduce NO_x emissions and toxic air contaminant emissions. More importantly, the California Air Resources Board (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 have shown 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. Currently, SCAQMD is working on the MATES IV study that was approved by the Board in December 2011. While the goal of MATES IV like the prior studies will be to assess air toxic levels, update risk characterization, and determine gradients from selected sources, MATES IV has an added ultrafine PM and black carbon monitoring component too. It is anticipated that a draft report on the findings will be available by late 2013.

Greenhouse gas (GHG) emissions and petroleum dependency arising from the heavy use of conventional technologies continue to be a concern and focal point for state and federal government as well as the general public. In response to these concerns, the federal government has launched several programs (the Hydrogen, Fuel Cells and Infrastructure Technologies Program and the FreedomCAR and Vehicle Technologies 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).

California's Governor took this concern one step further when in January 2007 he established a Low-Carbon Fuel Standard (LCFS) by Executive Order. The LCFS came out of AB 32, the "Global Warming Solutions Act," which was signed by the Governor in fall 2006 and requires California's greenhouse gas emissions to be capped at 1990 levels by 2020. The LCFS standard for transportation fuels will necessitate increased research into alternatives to oil and traditional fuels. In September 2008, the Governor signed SB 375 requiring CARB to set regional targets reducing GHG's from cars and light trucks for 2020 and 2035 and directs regional planning agencies to develop land-use strategies to meet the targets. AB 32 faced a challenge in 2010 when an initiative to suspend it was placed on the November 2010 ballot as Proposition 23, but California voters defeated this proposition, demonstrating California's commitment to air quality and the environment.

To achieve the goals established by these landmark efforts, CARB recently 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. In late 2011 CARB also adopted amendments to low-sulfur marine fuel requirements to extend the nautical zone and loosened cargo handling equipment and transportation refrigeration regulations because sufficient retrofit technologies aren't available in the marketplace. 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 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 the Technology Advancement Office. This 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, the SCAQMD's Technology Advancement Office 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 funding, core technologies and advisory oversight 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 2011 the funds available through each of these mechanisms were as follows:

- | | |
|---|--------------|
| • Mobile sources (DMV revenues) | \$12,092,289 |
| • Stationary sources (emission fee surcharge) | \$302,775 |

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 California Energy Commission (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 25) lists the supplemental grants and revenues received in 2011, totaling nearly \$2.56 million, and for which contract the funding passes through to.

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 nearly \$4 of outside funding for each \$1 of SCAQMD funding. For 2011, excluding ARRA and other one-time federal opportunities, one-time settlement funds and incentive funding, the Clean Fuels Program leveraged each \$1 to slightly more than \$3 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 2011 are listed in Table 1 (page 14).

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:

- Hybrid and Electric Vehicle Technologies and Related Infrastructure
- Infrastructure and Deployment (predominantly compressed and liquid natural gas)
- Hydrogen Infrastructure and Mobile Fuel Cell Technologies
- Emission Control Technologies
- Engine Systems
- Stationary Clean Fuels Technologies

The SCAQMD continually seeks to support the deployment of lower emitting technologies. The Clean Fuels Program is shaped by two basic factors:

1. Low- 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. Although the SCAQMD program is significant, especially at a time when both public and private funding available for technology research and development are limited, 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. This is especially true given the current economic climate which could continue through 2012. 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.

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.

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 impact or benefit, 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 2007 AQMP needs for achieving clean air are briefly described below.

Hybrid and Electric Vehicle Technologies

There has been an increased level of activity and attention on hybrid vehicles due to a confluence of factors, including the highly successful commercial introductions of hybrid passenger vehicles by almost all of the automakers, volatility in oil prices and increased public attention on global warming. In January 2012, CARB adopted the California Zero Emission Vehicle (ZEV) III requirements and amended the ZEV and Clean Fuels Outlet (CFO) regulations. 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 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 2011 and 2012 priorities, which is to continue demonstration and deployment of zero-emission cargo container movement technologies.

Infrastructure and Deployment

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 natural gas, alcohol-based fuels, propane, hydrogen, hydrogen-natural gas mixtures and even electricity are much less available or accessible. To realize the emissions reduction benefits, the 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.

Hydrogen Infrastructure and Mobile Fuel Cell Technologies

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. A blind survey of the major automakers conducted by CARB and the California Fuel Cell Partnership (CaFCP), with assistance from the National Renewable Energy Lab (NREL), estimates that there will be 1,400 fuel cell vehicles planned for production in 2014 and 53,000 between 2015-2017, if sufficient hydrogen infrastructure is available. The SCAQMD continues to support the infrastructure required to refuel these 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.

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. The CARB, U.S. EPA and the SCAQMD have also promulgated regulations that lower the sulfur content of diesel fuels, which provides a direct fuel related PM reduction and improves the efficiency of particulate reduction aftertreatment devices.

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. 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 heavy-duty engine technologies, using compressed natural gas (CNG) and liquefied natural gas (LNG) for applications in transit buses, school buses and refuse collection and delivery vehicles to meet future federal emission standards.

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.

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, whose members are listed within Appendix A, 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.

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. The members of the SB 98 Clean Fuels Advisory Group are also listed in Appendix A.

The review process of the Clean Fuels Program now includes several meetings of the two Advisory Groups, review by the Technology Committee of the SCAQMD Governing Board, public hearing of the Annual Report and Plan Update before the full SCAQMD Governing Board and submittal of the Annual Report to the Legislature by March 31 of every year.

PROGRAM STRATEGY AND IMPACT

Scope and Benefits of the Clean Fuels Program

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. Unfortunately, the time needed to overcome these barriers can be long and the costs high, which tends to discourage both manufacturers and end-users from considering advanced technologies. A combination of real-world demonstrations, education, outreach and regulatory impetus and incentives is necessary to catalyze new, clean 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 2 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.

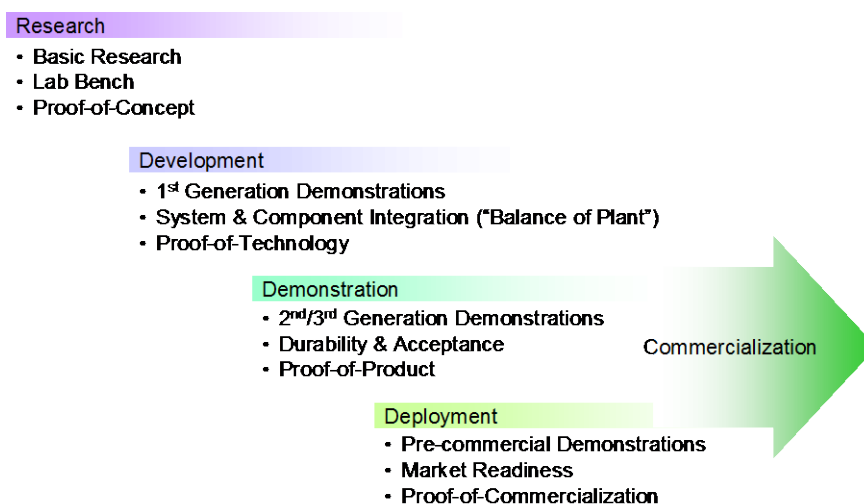


Figure 2: Stages of Clean Fuels Program Projects

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;
 - 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.
- Electric and Hybrid Electric Vehicle Development and Demonstrations
 - EPRI hybrid vehicle evaluation study;
 - Hybrid electric vehicle demonstrations with SCE, UC Davis and AC Propulsion;
 - Electric vehicle demonstrations with Santa Barbara Bus Works, Toyota and GM;
 - 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, Los Angeles Department of Water and Power and Los Angeles County;
 - Proterra battery electric transit bus and fast charging system; and
 - Municipal battery electric utility truck.
- Aftertreatment Technologies for Heavy-Duty Vehicles
 - Johnson Matthey and Engelhard trap demonstrations on buses and construction equipment;
 - Johnson Matthey SCRT and SCCRT NO_x and PM reduction control devices on heavy-duty on-road trucks; and
 - Lubrizol optimization and demonstration of oxidation catalysts on CNG, heavy-duty vehicles.

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.

Overcoming Barriers

Commercialization and implementation of advanced technologies come with a variety of real-world challenges and barriers. These include project-specific issues as well as general technology concerns.

Technology Implementation Barriers	Project-Specific Issues
• Viable commercialization path	• Identifying a committed demonstration site
• Technology price/performance parity with conventional technology	• Overall project cost and cost-share using public monies
• Consumer acceptance	• Securing the fuel
• Fuel availability/convenience issues	• Identifying and resolving real & perceived safety issues
• Certification, safety and regulatory barriers	• Quantifying the actual emissions benefits
• Quantifying emissions benefits	• Viability of the technology provider
• Sustainability of market and technology	

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.

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 Manufacturers of Emission Controls Association (MECA), the California Fuel Cell Partnership (CaFCP), the California Stationary Fuel Cell Collaborative and the California Natural Gas Vehicle Partnership (CNGVP). The coordination efforts with these various stakeholders have resulted in a number of co-sponsored projects.

Descriptions of some of the key contracts executed in CY 2011 are provided in the next section of this report. It is noteworthy that most of the projects are co-sponsored by various funding organizations and include the active involvement of 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 2011 Project Summaries contained within this report.

Table 1: SCAQMD Major Funding Partners in CY 2011

Research Funding Organizations	Major Manufacturers/Providers
California Air Resources Board	Ports of Los Angeles & Long Beach
California Energy Commission	Southern California Gas Company
U.S. & California Departments of Transportation	TransPower United Parcel Service
U.S. Department of Energy	University of California Riverside/ CE-CERT
U.S. Environmental Protection Agency	West Virginia University

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 2011. Such examples are provided in the following sections on Technology Advancement'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 are: (a) the further development and demonstration of fuel cell, plug-in hybrid and electric vehicle technologies and infrastructure; (b) in-use emissions testing and further demonstration of emission control technologies to reduce NO_x and PM emissions reductions on heavy-duty diesel trucks; and (c) a major health study evaluating ultrafine particles from sources and composition to variability and toxicology characteristics.

Develop & Demonstrate Plug-In Hybrid Electric Drive System on Medium- and Heavy-Duty Trucks

Medium- and heavy-duty fleet vehicles represent a large emissions category within the South Coast Air Basin. The SCAQMD has partnered with Odyne Systems, LLC, Los Angeles Department of Water and Power and Los Angeles County to develop and demonstrate two medium- and heavy-duty Plug-in Hybrid Electric Vehicles (PHEVs). These vehicles will be deployed in normal fleet service to evaluate their utility, emissions reduction and fossil fuel consumption reduction potential.

Odyne is a clean technology company that develops and manufactures propulsion systems for medium- and heavy-duty PHEVs. Odyne has developed proprietary and patented hybrid technology combining electric power conversion, power control and energy storage technology with standard electric motors, storage batteries, and other components.

Odyne's plug-in hybrid technology has been applied to commercial truck applications including bucket trucks, digger derricks and compressor trucks. The incorporation of plug-in hybrid technology will add functionality that includes idle reduction, launch assist, regenerative braking, in-cab climate controls, and exportable power. These features will improve vehicle efficiency while driving and completely electrify their operation while working at a jobsite. Electrification of the vehicle's jobsite operation will eliminate emissions at the point of use, reduce emissions on a full-cycle basis, and provide the co-benefit of reducing fossil fuel consumption.



Figure 3: Odyne PHEV

Develop & Demonstrate Zero-Emission Medium-Duty Trucks in UPS Delivery Fleet

In June 2011, the Board approved a project with Electric Vehicle International, Inc. (EVI) to cosponsor the demonstration and replacement of up to 28 older United Parcel Service (UPS) diesel delivery trucks with zero-emission medium-duty trucks for a total amount not to exceed \$1.4 million from the Clean Fuels Fund. The total cost of the project is \$4.9 million and the cost sharing project partners are CARB, EVI and UPS.

UPS is a world leader in goods movement and delivery and operates over 100,000 vehicles worldwide. It has one of the world's largest natural gas vehicle fleets and a growing fleet of hybrid electric vehicles. UPS has an immediate interest in expanding the electrification of this fleet, with a five-year 40-vehicle demonstration in South Coast Air Basin as the kickoff. EVI has developed a zero-emission, medium heavy-duty return-to-base delivery truck ideal for package delivery service providers such as UPS. The new, clean vehicle uses an Original Equipment Manufacturer (OEM) chassis with EVI signature power train to create a zero-emission, aerodynamic model of the walk-in vehicles UPS drivers are accustomed to.

The zero-emission vehicles will be Class 6 trucks with a maximum gross vehicle weight rating (GVWR) of 20,000 pounds. The vehicles include up to 1,000 square feet of package space and will be



Figure 4: EVI/UPS ZEV Delivery Truck

18 feet long and 88 inches wide. The power system includes a 99 kWh lithium iron magnesium phosphate battery pack, which has a guaranteed battery life of 1,500 cycles, equivalent to five years of service in the UPS fleet. EVI is currently manufacturing the vehicles and plans to deliver them to UPS at its San Bernardino facility in August 2012.

The older diesel-powered UPS delivery trucks that are being replaced with the electric trucks will be decommissioned, dismantled and scrapped according to EPA guidelines. All of the vehicles

will be based out of UPS's facility in the City of San Bernardino. UPS will demonstrate the vehicles for a five-year period in their regular operations, during which UPS and EVI will collect data daily on vehicle usage and mileage, electricity provider information, and emissions benefits.

In-Use Emissions Testing & Demonstration of Heavy-Duty Vehicle Retrofit Technologies

On-road heavy-duty engines are now subject to the 2010 U.S. EPA emissions standards of 0.01 gram per brake-horsepower-hr (g/bhp-hr) PM and 0.20 g/bhp-hr NO_x. Some engine manufacturers are using emissions credits which allow them to produce a mixture of engines certified at, below, or above 0.20 g/bhp-hr NO_x. This mixture of engines allows engine manufacturers to comply with the emissions standards on an average basis. These engines are either stoichiometric engines with three-way catalysts or lean-burn engines equipped with exhaust gas recirculation (EGR), selective catalytic reduction (SCR) and/or diesel particulate filter (DPF) technology.

While limited-scale studies have shown reduced NO_x and PM emissions from trucks powered by compliant engines, other studies indicate a potential increase in some exhaust emissions. In particular, in a heavy-duty in-use emissions measurement study conducted by the University of Colorado, ammonia emissions from liquefied natural gas trucks were found to be significantly higher due to the nature of spark-ignited engines. Studies conducted by The Netherland Organization (TNO) indicated that heavy-duty diesel engines equipped with SCR technologies have higher NO_x exhaust emissions than their certified levels. As such, additional studies are required to assess the impact of the technologies on emissions from engines used in a variety of applications, particularly since the number of these engines will continue to increase in the future.

In December 2010, the SCAQMD Board awarded contracts to the University of California Riverside (UCR) and West Virginia University (WVU) to conduct in-use emissions testing, and if needed, to evaluate emission-reduction potential of retrofit technology on existing and new on-road heavy-duty engines. Both WVU and UCR will perform chassis dynamometer tests of in-use emissions of total hydrocarbons, nitrogen dioxide, nitric oxide, NO_x, CO, PM, ammonia, formaldehyde, and toxic air



Figure 5: WVU Transportable Chassis Dynamometer



Figure 6: UCR/CE-CERT Chassis Dynamometer

contaminants from the test vehicles. In addition, if the dynamometer tests results show emissions higher than state or federal allowable limits, WVU will design an oxidation catalyst or identify an alternative retrofit technology capable of reducing ammonia and formaldehyde emissions from natural gas vehicles. The designed or identified retrofit technology will be installed on up to three of the natural gas vehicles, which have three-way catalysts and tested on the chassis dynamometer to assess the performance and emission-reduction potential of the technology.

Ultrafine Particle Health Study

The objective of this project is to provide information on ultrafine particle sources, spatial and seasonal characteristics, and toxicity in Southern California. Current regulatory efforts are focused on reduction of ambient levels of particulate mass for PM₁₀ and PM_{2.5}. However, recent studies have demonstrated that ultrafine particles (UFP), generally defined as smaller than approximately 0.1-0.2 nanometers in diameter, may be more toxic on a per mass basis. Also, recent studies have indicated that while vehicle emissions controls have substantially reduced the mass of particle emissions from motor vehicles, the ambient levels expressed as the number of ultrafine particles per unit of air volume has increased near roadway sources.

This project will make use of samples that have already been collected by the University of Southern California over an approximate 15-month cycle at 10 locations in the Los Angeles Basin reflecting different source and receptor locations, including near freeways. The samples were collected in conjunction with a U.S. EPA funded project characterizing the chemical composition and toxicity of coarse particulate matter (PM_{2.5} – PM₁₀).

The results of this project will provide information to help understand the linkage between sources, chemical composition, and the toxicity of ultrafine particulates, which will provide a strong scientific basis on which to develop cost-effective strategies to protect the public from sources of toxic ultrafine particulate matter. The data will help determine if there is scientific foundation for reducing emissions of ultrafine particulate matter from a subset of sources, including motor vehicles.

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 “commercially available,” require assistance to fully demonstrate the technical viability to end-users and decision-makers.

The following projects contracted during the CY 2011 reporting period illustrate the impact of the SCAQMD’s technology deployment and commercialization efforts.

Deploy Natural Gas-Powered Vehicles for Taxicab Services

The SCAQMD is accelerating the demonstration and deployment of natural gas vehicle technology by providing funding assistance to taxicab operators for the purchase of up to 119 natural gas-powered Ford Transit Connect taxicabs. A total of \$357,000 was approved by the Board to provide a \$3,000 per vehicle subsidy, which in combination with an existing \$3,000 subsidy from the California Energy Commission (CEC), results in an overall purchase incentive of \$6,000 per vehicle. The CEC funds are provided under the Alternative and Renewable Fuel and Vehicle Technology Program, which was established by AB 118.

Deployment of natural gas vehicle technology is of particular interest since taxicab fleets generate high annual mileage, estimated to be approximately 75,000 miles per year on a per vehicle basis. As such, these fleets provide a favorable platform for maximizing both criteria and greenhouse gas emission benefits from natural gas vehicle technology.



Figure 7: CNG Taxicab

The SCAQMD has historically provided funding to assist in the buy-down of clean fuel taxicabs. In 2005 and 2006, the Board allocated \$1.55 million and \$1.19 million, respectively, to incentivize the purchase of 115 natural gas powered taxicabs. Such funding was made available through the Rule 2202 Air Quality Investment Program (AQIP) which allows subject employers to participate by electing to invest in an SCAQMD-administered restricted fund.

In 2010, the Board allocated \$750,000 to cosponsor a buy-down program under the U.S. DOE’s Petroleum Reduction program resulting in the purchase of natural gas-powered airport ground transportation vehicles including taxicabs and airport shuttle vans. Funding applications are expected to be received shortly for the current incentive program.

Establish Customer Service Centers for Truck Owners & Operators

The SCAQMD Chairman’s Helping Hand Initiative required the establishment of two truck outreach centers for heavy-duty truck owners and operators. The centers will be strategically located in areas of heavy truck traffic. The SCAQMD has contracted with Gladstein, Neandross & Associates, LLC (GNA) to perform the work under this project.

Each center will be equipped with an interactive touch-screen kiosk, which will provide information in four categories: technology, educational opportunities, funding, and regulatory information. The kiosks will act as information conduits



Figure 8: Kiosk Design

to initiate truck drivers on the path towards obtaining helpful information. They will introduce drivers to the resources at their disposal and will provide contacts, phone numbers, websites, and brochures, all designed to take the driver's knowledge of a particular subject to the next level. Truck drivers can then call a toll-free hotline that will be staffed by GNA. Questions will be answered by a knowledgeable bilingual staff member in a one-on-one format. The project also includes development and maintenance of a website for access any day or time.

Through a separate contract funded by the Department of Energy, Advanced Transportation Technology & Energy Network of the California Community Colleges is developing materials to be displayed on the kiosks and uploaded onto the website by GNA. This may include video clips that can be viewed on the kiosks. All of these elements will combine to form a comprehensive package of information to educate drayage truck owners and operators on applicable regulations, approved emission control technologies, and available incentive funding opportunities.

Develop & Implement Clean Vehicle Outreach Project

The SCAQMD has long supported the development and demonstration of clean, advanced technology vehicles due to the clean air benefit. Multiple automakers are increasing production of cleaner cars for California, and the SCAQMD has several initiatives to support deployment of these vehicles in our region.

The intent of this outreach campaign is to implement outreach goals of the SCAQMD Board to provide the general public, local governments and employers with accurate and timely information that communicates the true value, both in costs and benefits, associated with the purchase and fueling of clean and efficient vehicles. This is a proactive information campaign that highlights programs and services provided by SCAQMD and other stakeholders that will assist in increasing consumer confidence in new vehicle technology.

The SCAQMD has contracted with Three Squares Inc. (TSI) to retool existing SCAQMD programs to include and expand the current efforts to focus some or all of the messaging aspects, where appropriate, in the near-term on clean and high-efficiency vehicles. These efforts will be included under a newly badged Clean Air Choices (CAC) program, which will provide an umbrella platform to promote all of the SCAQMD clean air technology activities in the future, such as low-VOC paints and solvents, electric lawn and garden equipment, as well as clean vehicles.



Figure 9: New Clean Air Choices Logo

The SCAQMD is preparing to relaunch the Clean Air Choices program, which will begin with an initial focus on the benefits of clean fueled vehicles, including PEVs. This initial vehicle outreach program is envisioned to include multiple elements to direct online traffic to CleanAir Choices.org, and link to other synergistic programs. There will be a mobile web site that will serve as the information portal for the program and will include clean vehicle models, local dealerships, and a fuel and cost savings calculator. Also a Local Events Calendar that lists when and where PEVs will be available for test-drives at public venues in the South Coast region (tradeshows, malls, and environmental events). Dealerships and vehicle manufacturers will have the option to submit events to the calendar listing. Widgets to find charging stations will also be on the webpage. The website will be designed to be smart-phone accessible to take advantage of mobile and tablet connectivity. The project tasks will be completed within 12 months, with benefits ongoing.

2011 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, 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 Governing Board.

As projects are approved by the 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, 2011.

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, 2011, a total of 75 contracts, projects or studies that support clean fuels were executed or amended, as shown in Table 2 (page 22).

The major technology areas summarized are: hybrid/electric technologies, infrastructure and deployment, fuels/emission studies, emission control technologies, hydrogen technology and infrastructure, mobile fuel cell technologies, engine systems, stationary clean fuel technologies, health impacts studies, outreach and technology transfer. The distribution of funds based on technology area is shown graphically in Figure 10 (page 20). 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 2011 reporting period are shown below with the total projected project costs:

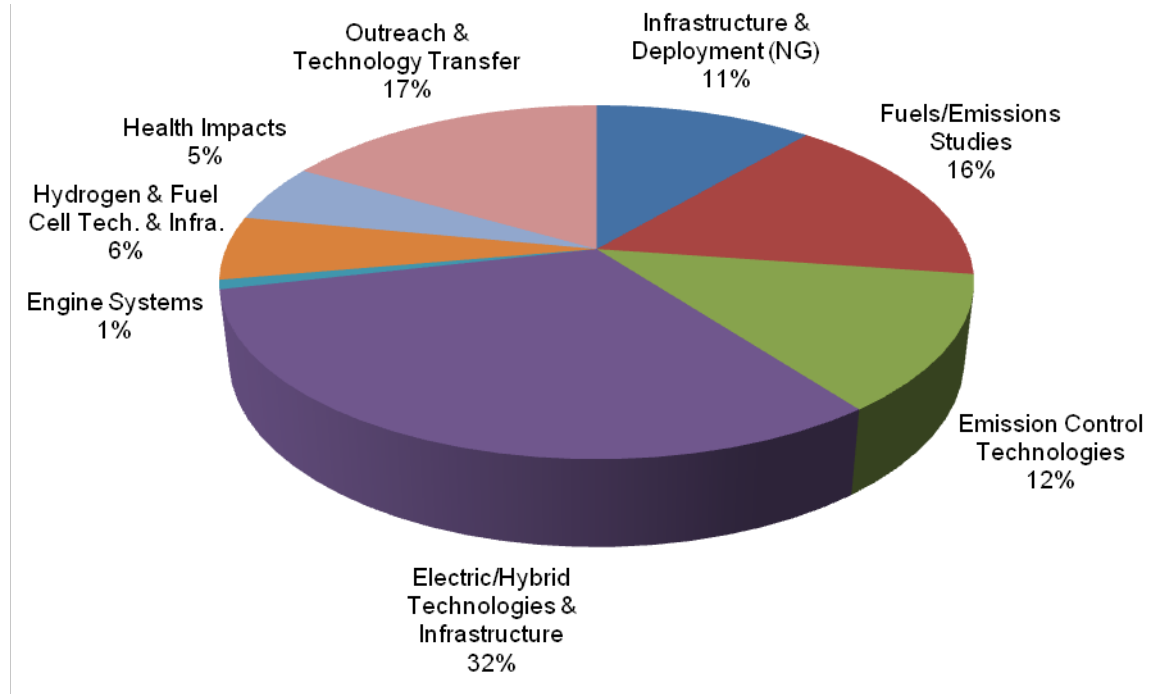
- | | |
|--|--------------|
| • SCAQMD Clean Fuels Fund Contribution | \$8,859,841 |
| • Total Cost of Clean Fuels Projects | \$27,434,969 |

Each year, the SCAQMD Governing Board approves funds to be transferred to the General Fund Budget for Clean Fuels administration. For 2011, the Board transferred \$600,000 for workshops, conferences, co-sponsorships and outreach activities as well as postage, supplies and costs for special conferences. Only the funds committed by December 31, 2011, are included within this report. Any portion of the Clean Fuels Funds not spent by the end of Fiscal Year 2011-12 ending June 30, 2012, 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 totaling \$2,563,350 is listed within Table 3 (page 25). Appendix B lists all Clean Fuels Fund contracts, totaling 125, that were open and active as of January 1, 2012.

For Clean Fuels executed and amended contracts, projects and studies in 2011, the average SCAQMD contribution is approximately 32 percent of the total cost of the projects, identifying that each dollar from the SCAQMD was leveraged with more than three dollars of outside investment.

During 2011, the SCAQMD executed contracts, projects, studies or contract amendments with additional funding of approximately \$8.9 million for Clean Fuels projects. The distribution of funds is shown in Figure 10 below.



**Figure 10: Distribution of Funds for Executed Clean Fuels Projects
CY 2011 (\$8.9 million)**

As noted in the last annual report, the SCAQMD applied and was awarded more than \$95 million in 2009 and 2010 through the American Recovery and Reinvestment Act as well as other federally and state-funded programs to implement projects that align well with the Clean Fuels Program. The SCAQMD continued to seek funding opportunities and in 2011 was awarded an additional \$6,743,676 for similar complementary projects. Table 4 (page 26) provides a breakdown of these \$6.7 million awards. Table 5 (page 26) provides an update and project status of the \$95 million in awards from 2009 and 2010.

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, 2011, the firm of Thompson, Cobb, Bazilio & Associates, P.C. 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. Thompson, Cobb, Bazilio & Associates, P.C. gave the SCAQMD an “unqualified opinion,” the highest obtainable. Notably, the SCAQMD has achieved this rating on all prior annual financial audits.

Project Funding Detail

The 75 new and continuing contracts, projects and studies that received SCAQMD funding in 2011 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, 2011

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	Project Total \$
Infrastructure and Deployment						
09218	Rim of the World Unified School District	Install Mountain Safety Equipment on Seven New CNG School Buses	01/05/10	12/31/16	65,850	65,850
10067	Rim of the World Unified School District	Install Mountain Safety Equipment on Five New CNG School Buses	12/21/09	12/31/16	92,190	92,190
11559	Ace Parking Management	Purchase Six Natural Gas-Powered Cutaway-Type Shuttle Vans	05/06/11	07/31/13	96,200	600,950
11561	Supershuttle International	Purchase and Convert 20 Gasoline-Powered Passenger Vans to CNG-Powered Passenger Shuttle Vans	06/01/11	07/31/13	320,600	954,600
12135	Placentia-Yorba Linda Unified School District	Upgrade CNG Fueling Station	11/18/11	11/30/17	60,000	60,000
Direct Pay	South Bay Ford	Purchase Up to 119 Natural Gas-Powered Vehicles for Taxicab Services	07/08/11	07/08/11	357,000	714,000
Fuels/Emissions Studies						
11611	West Virginia University Research Corporation	In-Use Emissions Testing and Demonstrate Retrofit Technology of On-Road Heavy-Duty Engines	07/08/11	10/07/12	734,742	894,647
11612	University of California Riverside	In-Use Emissions Testing and Demonstrate Retrofit Technology of On-Road Heavy-Duty Engines	07/08/11	10/07/12	689,742	708,524
Emission Control Technologies						
08246	Griffith Company	Showcase: Demonstrate NO _x and PM Emissions Control Technology on Diesel Powered Construction Equipment	08/25/11	12/31/12	450	450
08261	Community Recycling & Resource Recovery, Inc.	Showcase: Demonstrate NO _x and PM Emissions Control Technology on Diesel Powered Construction Equipment	12/12/08	03/24/11	(450)	(450)
11655	California State University Long Beach Foundation	CSULB CEERS Student Education Study to Assess the Effects of an Exhaust Scrubber on Diesel Emissions	06/14/11	12/31/11	28,000	28,000
12113	Southern Counties Terminals dba Griley Air Freight	Retrofit Three Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/13/11	03/31/14	15,000	45,000
12114	South Bound Express, Inc.	Retrofit Three Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/13/11	03/31/14	15,000	54,623
12118	National Ready Mixed Concrete	Retrofit 13 Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/13/11	03/31/14	65,000	239,806
12120	Standard Concrete Products	Retrofit 40 Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/13/11	03/31/14	200,000	596,665
12121	Challenge Dairy Products, Inc.	Retrofit Three Heavy-Duty Diesel Trucks with Diesel Particulate Filters	11/18/11	03/31/14	15,000	46,845

Table 2: Contracts Executed or Amended (w/\$) between January 1 & December 31, 2011

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	Project Total \$
Emission Control Technologies (cont'd)						
12122	Bear Trucking, Inc.	Retrofit One Heavy-Duty Diesel Truck with Diesel Particulate Filter	10/14/11	03/31/14	5,000	13,555
12123	RRM Properties	Retrofit 107 Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/06/11	03/31/14	535,000	1,481,067
12124	Gaio Trucking, Inc.	Retrofit Nine Heavy-Duty Diesel Trucks with Diesel Particulate Filters	09/28/11	03/31/14	45,000	165,669
12125	Spragues Ready Mix	Retrofit Four Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/14/11	03/31/14	20,000	62,953
12175	RRM Properties	Retrofit Seven Heavy-Duty Diesel Trucks with Diesel Particulate Filters	12/08/11	03/31/14	35,000	84,812
12186	Pipeline Carriers Inc.	Retrofit 25 Heavy-Duty Diesel Trucks with Diesel Particulate Filters	12/16/11	03/31/14	125,000	455,750
Electric/Hybrid Technologies						
99109	Toyota	Lease Two Toyota RAV4 Electric Vehicles for CY 2011	04/04/99	02/01/11	7,902	7,902
05260	Energy Control Systems Engineering, Inc.	Conversion of Light-Duty Vehicle to Plug-In Hybrid Vehicles	09/09/05	03/31/12	(45,000)	(45,000)
09360	BMW of North America LLC	Lease of Five Mini Cooper Electric Vehicles for CY 2011	05/14/08	12/31/12	10,953	10,953
11606	Odyne Systems, LLC	Develop and Demonstrate Plug-In Hybrid Electric Drive System for Medium- and Heavy-Duty Vehicles	07/08/11	07/07/13	494,000	2,599,000
11725	Puente Hills Nissan	Lease of Three Nissan Leaf Vehicles for 39 Months	05/27/11	08/26/14	60,222	82,722
12024	ECotality North America	Install Electric Charging Infrastructure	11/04/11	05/03/13	70,000	70,000
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
Direct Pay	Clean Fuel Connection	Install Three Electric Vehicle Chargers by Coulomb Technologies at SCAQMD Headquarters	08/23/11	08/23/11	9,007	9,007
Transfer	Transfer from Clean Fuels (for Volvo Project)	Develop Class 8 Plug-In Hybrid Heavy-Duty Vehicle	12/02/11	12/02/11	600,000	2,400,000
Transfer	Transfer from Clean Fuels (for TransPower Contract #11614)	Demonstrate Battery Electric Heavy-Duty Trucks	03/04/11	03/04/11	196,505	2,616,275
Engine Systems						
11485	Waste Management Collection & Recycling, Inc.	Demonstrate Refuse Truck Retrofitted with Cummins ISL-G Natural Gas Engine	03/18/11	01/31/12	75,000	300,876

Table 2: Contracts Executed or Amended (w/\$) between January 1 & December 31, 2011

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	Project Total \$
Mobile Fuel Cell Technologies						
10714	University of California Irvine	Develop Fuel Cell Gas Turbine Hybrid System for On-Board Locomotive Applications	12/02/11	12/01/13	78,000	156,000
11656	Bevilacqua-Knight, Inc.	Participate in California Fuel Cell Partnership for Calendar Year 2011 and Provide Support for Regional Coordinator	01/01/11	12/31/11	137,800	1,632,600
Hydrogen Infrastructure						
10061	Hydrogenics Corporation	Maintenance & Data Management for the SCAQMD's Hydrogen Fueling Station	10/30/09	06/30/12	50,000	50,000
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
Health Impact Studies						
11527	University of Southern California	Conduct Study on Sources, Composition, Variability and Toxicological Characteristics of Ultrafine Particles in Southern California	07/24/11	07/24/14	470,969	470,969
Outreach and Technology Transfer						
10062	TIAX LLC	Technical Assistance for Implementation of Proposition 1B Goods Movement Program and Truck Replacement Program	11/13/09	12/31/12	200,000	575,000
10662	Gladstein, Neandross & Associates	Technical Assistance for Implementation of Proposition 1B Goods Movement and Truck Replacement Program	05/12/10	12/31/13	175,000	175,000
10663	Clean Fuel Connection	Technical Assistance for Implementation of Proposition 1B Goods Movement Program	05/12/10	12/31/12	250,000	350,000
11028	Marty Kay	Technical Assistance on Stationary Source Control Measures and Future Consultation on TAO Activities	08/04/10	12/31/12	15,000	15,000
11144	San Diego Community College District on behalf of Advanced Transportation Technology and Energy	Natural Gas-Powered Vehicle Training and Safety and Fuel Cylinder Inspection Program	12/10/10	05/31/13	130,000	130,000
11484	Gladstein, Neandross & Associates, LLC	Develop and Implement Two Customer Centers to Provide Education and Outreach to Truck Owners and Operators	01/27/11	05/31/12	150,000	150,000

Table 2: Contracts Executed or Amended (w/\$) between January 1 & December 31, 2011

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	Project Total \$
Outreach and Technology Transfer (con'd)						
12104	Three Squares, Inc.	Development, Initiation & Implementation of a Clean Vehicle Outreach Project	09/23/11	09/22/12	100,000	100,000
Transfer	Transfer from Clean Fuels	Conduct Clean Vehicle Outreach and Expand Clean Air Choices Program	07/08/11	07/08/11	50,000	50,000
Transfer	Transfer from Clean Fuels	Participation in California Natural Gas Vehicle Partnership for Fiscal Years 2010-11 and 2011-12	3/4/11	3/4/11	25,000	210,000
Direct Pay	Various	Cosponsor 21 Conferences, Workshops & Events plus 9 Memberships & Subscriptions	Various	Various	380,159	1,419,159

Table 3: Supplemental Revenue Grants Received into Clean Fuels Fund between Jan. 1 & Dec. 31, 2011

Revenue Agreement	Revenue Source	Project Title	Contractor	SCAQMD Project	Total
10739	U.S. Dept. of Energy/National Energy Tech Lab	Purchase of CNG Taxicabs and Shuttle Vans	Supershuttle International and Ace Parking Management	#11561 & #11559	\$ 110,350
11617	Southern California Gas Company	Natural Gas-Powered Vehicle Training and Safety and Fuel Cylinder Inspection Program	San Diego Community College District on behalf of Advanced Transportation Technology and Energy	#11144	53,000
10707	U.S. Environmental Protection Agency	Demonstrate and Replace UPS Diesel Delivery Trucks with Zero-Emission Medium-Duty Trucks	Electric Vehicle International Inc.	#12028	1,400,000
09320	U.S. Environmental Protection Agency	Retrofit Heavy-Duty Diesel Trucks with Diesel Particulate Filters	Ten Different Contractors	Ten Contractors	1,000,000
					\$2,563,350

Table 4: Summary of Federal & State Funding Awarded between Jan. 1 & Dec. 31, 2011

Awarding Entity or Program	Award Date	Purpose	Contractors	Total
California Department of Transportation 07-6373R	06/15/11	Replace Existing Heavy-Duty Diesel Trucks with New Heavy-Duty Natural Gas Trucks (Revenue Agreement #11458 – Executed 07/12/11)	TBD	\$ 1,799,612
California Air Resources Board(AB 118 AQIP Program) G10-AQIP-09	04/05/11	Purchase Cordless Electric Lawnmowers (Revenue Agreement #11595 – Executed 04/05/11)	Various	494,314
U.S. EPA (Clean Air Technology Initiative Program) A 00909411	12/15/10	Demonstrate Battery Electric Heavy-Duty Trucks & Install Air Filtration Systems at Schools or Community Centers (Revenue Agreement #11530 – Executed 01/11/11)	TransPower Contract #11614 and IQAir North America	400,000
U.S. EPA EM-83493501	07/14/11	Implement Garden Equipment and Boiler Efficiency Incentive Programs to Demonstrate Reductions in Ozone and PM2.5 Air Pollution in LA-San Bernardino Nonattainment Areas (Revenue Agreement #11598 – Executed 3/25/11)	Various	1,270,000
California Energy Commission ARV-10-045	05/20/11	Administer the SoCalEV Infrastructure Project (Install or Upgrade Up to 315 Electric Vehicle Charging Stations throughout Southern California) (Revenue Agreement #12295 - Pending Execution)	Various	840,750
California Air Resources Board (AB 118 AQIP) G10-AQIP-10	08/10/11	Demonstrate Combined DPF and SCR Technologies on Marine Vessels (Revenue Agreement #12022 – Executed 08/10/11)	HUG	439,000
U.S. Department of Energy (Clean Cities Program) DE-EE0005588	09/26/11	Plug-In Electric Vehicle Infrastructure Planning (Revenue Agreement #12167 – Executed 11/12/11)	6 Contractors Pending	1,000,000
Southern California Gas Company 5660020940 (augmenting U.S.DOE funding to NREL)	06/24/11	Develop, Integrate & Demonstrate Heavy-Duty Natural Gas Engines and Vehicles (Revenue Agreement #11722 – Executed 06/24/11)	National Renewable Energy Laboratory	500,000
				\$6,743,676

Table 5: Update of Federal & State Funding Awarded between Jan. 1, 2009 & Dec. 31, 2010

Awarding Entity or Program	Award Date	Purpose	Contractors	Total
U.S. EPA/DERA DE 96085601	02/03/09	Retrofit 200 Heavy-Duty Trucks with Diesel Particulate Filters (Revenue Agreement #09320 – Executed 02/18/09)	Various	\$ 1,000,000
CARB (from U.S. EPA/DERA Program) G08-DERA-02	05/22/09	Placement of up to 43 aftertreatment devices (retrofit traps) on public school buses operating on diesel fuel (Revenue Agreement #G-08-DERA-02 – Executed 05/22/09) – Project Completed	3 School Districts	898,000

Table 5: Update of Federal & State Funding Awarded between Jan. 1, 2009 & Dec. 31, 2010

Awarding Entity or Program	Award Date	Purpose	Contractors	Total
U.S. EPA/DERA Program EM-00T16601	07/10/09	Implement Heavy-Duty Diesel Drayage Truck Replacement Program (Revenue Agreement #10119 – Executed 10/28/09)	Various	7,500,000
U.S. EPA/DERA Program (Emerging Technologies) 2A 83442501 2A 83442101	10/02/09	Implement program to optimize and demonstrate selective catalytic regenerating and selective catalytic continuously regenerating technologies on on-road heavy-duty diesel trucks (Revenue Agreements #10064 & #10063 - Executed 10/20/09)	Johnson Matthey Contracts #10696 and #10697	4,000,000
Dept. of Energy/ Transportation Electrification Program DE-EE0002549	12/14/09	Develop U.S. manufactured next-generation batteries and electric vehicles and to fully integrate plug-in hybrid electric vehicle systems for 378 medium-duty utility and delivery trucks and shuttle buses (Revenue Agreement #10193 - Executed 03/25/10) – project in progress	Electric Power Research Institute Contract #10659	45,443,332
Dept. of Energy/ Clean Cities Program DE-EE0002562	12/18/09	Expansion of an LNG corridor from Ontario to Las Vegas, which would include both vehicles and infrastructure and be implemented in conjunction with the United Parcel Service (UPS) (Revenue Agreement #10467 - Executed 03/04/10) – project in progress	4 Contractors	5,591,611
Dept. of Energy/ Clean Cities Program DE-EE0002547	12/18/09	Implement a natural gas drayage truck replacement program (Revenue Agreement #10480 - Executed 1/26/10) – projects in progress	Various	9,408,389
Dept. of Energy/ Clean Cities Program DE-EE0002545	03/12/10	Ontario LNG Station Upgrade (Revenue Agreement #10685 - Executed 05/07/10) – project in progress	TBD	150,000
U.S. EPA EM 00T34701	04/21/10	Truck Replacement (diesel to diesel and diesel to zero emission), install shorepower to two ships, demonstrate a combined diesel particulate filter and selective catalytic reduction system on two tugboat engines. (Revenue Agreement #10707 – Executed 05/06/10) – pass-through contracts in process	4-5 Contractors	5,000,000
U.S. EPA DE 83420301	04/28/09	Develop & Demonstrate SCRT® for NO _x and PM Emissions Control (Revenue Agreement #09405 - Executed 06/02/09)	Johnson Matthey, Inc. Contract #10069	900,000
U.S. EPA DE-83468501	06/23/10	Demonstrate Emerging Technologies Advanced Maritime Emissions Controls (Revenue Agreement #11030 – Executed 07/23/10) – Pass-through contracts in process	Advanced Cleanup Technologies Inc.	1,500,000
Dept. of Energy/ Clean Cities Petroleum Reduction Technologies Program DE-EE0000150	06/24/10	Implement buydown program for natural gas-powered taxicabs and shuttles (Revenue Agreement #10739 - Executed 11/12/10) – projects in progress	3-4 Contractors	500,000
U.S. EPA DE 00T37701	06/30/10	National Clean Diesel Program – School Bus Replacement (Revenue Agreement #11029 - Executed 07/16/10) – Deliverables Completed	Various	1,065,465

Table 5: Update of Federal & State Funding Awarded between Jan. 1, 2009 & Dec. 31, 2010

Awarding Entity or Program	Award Date	Purpose	Contractors	Total
California Energy Commission ARV-09-003	09/02/10	Develop U.S. manufactured next-generation batteries and electric vehicles and to fully integrate plug-in hybrid electric vehicle systems for 378 medium-duty utility and delivery trucks and shuttle buses (Revenue Agreement #11043 - Executed 09/02/10) – project in progress	Electric Power Research Institute Contract #106591	5,000,000
California Energy Commission/AB118	09/10/10	Alternative and Renewable Fuel and Vehicle Technology Program – Construct & Install 10 NG Fueling Stations (Revenue Agreement #12152 – Executed 11/08/11) – Pass-through contracts in process	Various	2,600,000
California Energy Commission/AB118	09/10/10	Alternative and Renewable Fuel and Vehicle Technology Program – Construct & Install One NG Fueling Station (Revenue Agreement #12286 – Pending Execution)	Earth Energy Fuels	300,000
California Energy Commission ARV-09-002	10/07/10	Implement LNG Drayage Truck Replacement Program (Revenue Agreement #11040 - Executed 10/07/10) – project in progress	Various	5,142,000
				\$95,998,797

Project Summaries by Core Technologies

The following represents summaries of the contracts, projects and studies executed or amended with additional dollars in 2011. 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, co-sponsors and their respective contributions, contract term and a description of the projects as required by H&SC Section 40448.5.1(d).

Infrastructure and Deployment

09218: Install Mountain Safety Equipment on Seven New CNG School Buses

Contractor: Rim of the World Unified School District	SCAQMD Cost-Share	\$ 65,850
Term: 01/05/10 – 12/31/16	Total Cost:	\$ 65,850

In 2011, this Lower-Emission School Bus Retrofit Program grant with Rim of the World Unified School District was amended to add additional funding of \$13,170 per bus for mountain safety equipment. Rim school buses travel on many routes that have steep grades and are covered in snow during the winter season. To protect the safety of the kids who travel in these buses, the SCAQMD awarded this safety package along with the new CNG buses to help improve traction, braking and visibility during driving. This modification awarded mountain safety equipment for seven new CNG buses, which replaced seven pre-1987 diesel school buses.

10067: Install Mountain Safety Equipment on Five New CNG School Buses

Contractor: Rim of the World Unified School District	SCAQMD Cost-Share	\$ 92,190
Term: 12/21//09 – 12/31/16	Total Cost:	\$ 92,190

In 2011, this Lower-Emission School Bus Retrofit Program grant with Rim of the World Unified School District was amended to add additional funding of \$13,170 per bus for mountain safety equipment. Rim school buses travel on many routes that have steep grades and are covered in snow during the winter season. To protect the safety of the kids who travel in these buses, the SCAQMD awarded this safety package along with the new CNG buses to help improve traction, braking and visibility during driving. This modification awarded mountain safety equipment for five new CNG buses, which replaced five pre-1977 diesel school buses.

11559: Purchase Six Natural Gas-Powered Cutaway-Type Shuttle Vans

Contractor: Ace Parking Management	SCAQMD Cost-Share	\$ 96,200
	Cosponsor:	
	Ace Parking Management	504,750
Term: 05/06/11 – 07/31/13	Total Cost:	\$ 600,950

In February 2011 the Board approved funding of \$96,200, which comprised \$70,700 from Clean Fuels plus pass-through revenue of \$25,500 awarded by the U.S. Department of Energy Clean Cities under the Petroleum Reduction Technologies This project involves the purchase and conversion of six new gasoline-powered Ford E450 medium-duty cutaway buses to CNG-powered cutaway buses, including fuel system retrofit and fuel tank replacement. The program

has a three-year life and requires quarterly reporting of fuel use and mileage. These vehicles are used to provide airport ground transportation services to commercial airports in the South Coast Air Basin and will accrue high mileage during the project life. The project is expected to provide additional demonstration of CNG-powered high mileage vehicles, and a reduction in emissions from petroleum based fuels.

11561: Purchase and Convert 20 Gasoline-Powered Passenger Vans to CNG-Powered Passenger CNG Shuttle Vans

Contractor: SuperShuttle International	SCAQMD Cost-Share	\$ 320,600
	Cosponsor:	
	SuperShuttle International	634,000
Term: 06/01/11 – 07/31/13	Total Cost:	\$ 954,600

In February 2011 the Board approved funding of \$320,600, which comprised \$25,000 from Clean Fuels plus pass-through revenue of \$84,580 awarded by the U.S. Department of Energy Clean Cities under the Petroleum Reduction Technologies Projects for the Transportation Sector. This project involves the purchase and conversion of 20 new gasoline-powered Ford E350 passenger class vans to CNG-powered passenger shuttle vans, including fuel system retrofit and fuel tank replacement. The program has a three-year life and requires quarterly reporting of fuel use and mileage. These vehicles are used to provide airport ground transportation services to commercial airports in the South Coast Air Basin and will accrue high mileage during the project life. The project is expected to provide additional demonstration of CNG-powered high mileage vehicles, and a reduction in emissions from petroleum based fuels.

12135: Upgrade CNG Fueling Station

Contractor: Placentia-Yorba Linda Unified School District	SCAQMD Cost-Share	\$ 60,000
Term: 11/18/11 – 11/30/17	Total Cost:	\$ 60,000

At the May 7, 2010 meeting, the Board authorized awards of \$40,000 to Placentia-Yorba Linda Unified School District to upgrade their CNG school bus fueling station from the Clean Fuels Fund. At the time the awards were made, the compressors that were quoted were undersized as they did not take into account the school districts expanding natural gas fleet. As a result, on October 7, 2011, the Board authorized an increase of \$20,000 to the award to Placentia-Yorba Linda for a total of \$60,000 to upgrade their CNG school bus fueling stations.

Direct Pay: Purchase Up to 119 Natural Gas-Powered Vehicles for Taxicab Services

Contractor: South Bay Ford	SCAQMD Cost-Share	\$ 357,000
	Cosponsor	
	California Energy Commission	357,000
Term: 07/08/11 – 07/08/11	Total Cost:	\$ 714,000

In July 2011 the Board approved funding of \$357,000 from Clean Fuels to match a California Energy Commission award to South Bay Ford of \$357,000 under the AB 118 Alternative and Renewable Fuel and Vehicle technology Program. The CEC program includes a \$3,000 vehicle rebate for light-and medium-duty natural gas vehicles including vehicles used in taxicab services.

This project involves the purchase and conversion of 119 new gasoline-powered Ford passenger class vehicles (expected to be the new Ford Transit Connect compact multi-purpose vehicle) to CNG-powered taxi cabs, including fuel system retrofit and fuel tank replacement. The program has no reporting requirements of fuel use and mileage. These vehicles will be used to provide ground transportation services throughout the SCAQMD's jurisdictional area and will accrue high mileage, typically averaging 75,000 miles per year. The project is expected to provide additional demonstration of CNG-powered high mileage vehicles, and a reduction in emissions from petroleum based fuels. The total cost for the project, excluding base vehicle costs, is \$714,000.

Fuels/Emission Studies

11611: In-Use Emissions Testing and Demonstrate Retrofit Technology of On-Road Heavy-Duty Engines

Contractor: West Virginia University Research Corporation	SCAQMD Cost-Share	\$ 734,742
	Cosponsor	
	West Virginia University Research Corporation	159,905
Term: 07/08/11 – 10/07/12	Total Cost:	\$ 894,647

On-road heavy-duty engines are now subject to the 2010 U.S. EPA emissions standards of 0.01 gram per brake-horsepower-hr (g/bhp-hr) PM and 0.20 g/bhp-hr NO_x. Some engine manufacturers are using emissions credits which allow them to produce a mixture of engines certified at, below, or above 0.20 g/bhp-hr NO_x. This mixture of engines allows engine manufacturers to comply with the emissions standards on an average basis. These engines are either stoichiometric engines with three-way catalysts or lean burn engines equipped with exhaust gas recirculation (EGR), selective catalytic reduction (SCR) and/or diesel particulate filter (DPF) technology. While recent limited-scale studies have shown reduced NO_x and PM emissions from trucks powered by compliant engines, other studies indicate a potential increase in some exhaust emissions. In particular, in a recent heavy-duty in-use emissions measurement study conducted by the University of Colorado, ammonia emissions from liquefied natural gas trucks were found to be significantly higher due to the nature of spark-ignited engines. Studies conducted by The Netherland Organization (TNO) indicated that heavy-duty diesel engines equipped with SCR technologies have higher NO_x exhaust emissions than their certified levels. As such, additional studies are required to assess the impact of the technologies on emissions from engines used in a variety of applications, particularly since the number of these engines will continue to increase in the future. On December 3, 2010, the Board awarded contracts to West Virginia University for \$734,742 to conduct in-use emissions testing, and if needed, to evaluate emission-reduction potential of retrofit technology on existing and new on-road heavy-duty engines.

11612: In-Use Emissions Testing and Demonstrate Retrofit Technology of On-Road Heavy-Duty Engines

Contractor: University of California Riverside	SCAQMD Cost-Share	\$ 689,742
	Cosponsor	
	University of California Riverside	18,782
Term: 07/08/11 – 10/07/12	Total Cost:	\$ 708,524

On-road heavy-duty engines are now subject to the 2010 U.S. EPA emissions standards of 0.01 gram per brake-horsepower-hr (g/bhp-hr) PM and 0.20 g/bhp-hr NO_x. Some engine manufacturers are using emissions credits which allow them to produce a mixture of engines certified at, below, or above 0.20 g/bhp-hr NO_x. This mixture of engines allows engine manufacturers to comply with the emissions standards on an average basis. These engines are either stoichiometric engines with three-way catalysts or lean burn engines equipped with exhaust gas recirculation (EGR), selective catalytic reduction (SCR) and/or diesel particulate filter (DPF) technology. While recent limited-scale studies have shown reduced NO_x and PM emissions from trucks powered by compliant engines, other studies indicate a potential increase in some exhaust emissions. In particular, in a recent heavy-duty in-use emissions measurement study conducted by the University of Colorado, ammonia emissions from liquefied natural gas trucks were found to be significantly higher due to the nature of spark-ignited engines. Studies conducted by The Netherland Organization (TNO) indicated that heavy-duty diesel engines equipped with SCR technologies have higher NO_x exhaust emissions than their certified levels. As such, additional studies are required to assess the impact of the technologies on emissions from engines used in a variety of applications, particularly since the number of these engines will continue to increase in the future. On December 3, 2010, the Board awarded a contract to the University of California Riverside for \$689,742 to conduct in-use emissions testing of existing and new on-road heavy-duty engines.

Emission Control Technologies

08246: Showcase: Demonstrate NO_x and PM Emissions Control Technology on Diesel Powered Construction Equipment

Contractor: Griffith Company	SCAQMD Cost-Share	\$ 450
Term: 05/14/08 – 12/31/2012	Total Cost:	\$ 450

The objective of this project was to demonstrate after-treatment DPF-SCR emission control systems for off-road construction vehicles. The control system consisted of a diesel particulate filter (DPF) for control of PM emissions and selective catalytic reduction (SCR) system for control of NO_x emissions. On October 5, 2007, the SCAQMD Board awarded a contract to Griffith Company to participate in the “Showcase” demonstration of NO_x and PM control technologies. The original award to Griffith was \$77,550 for two off-road vehicles. On October 2, 2009, funding was increased to \$191,000 to allow for five vehicles and specific control technologies selected by CARB. Unfortunately, the technology providers for two vehicles withdrew from the program. New providers were selected by CARB but they submitted higher quotations than the original providers. Also, the actual cost for a third vehicle was less than originally included in the contract. The net cost change reflecting the new quotations and the actual costs incurred was an increase of \$450 for a final contract value of \$191,450.

08261: Showcase: Demonstrate NO_x and PM Emissions Control Technology on Diesel Powered Construction Equipment

Contractor: Community Recycling & Resource Recovery, Inc.	SCAQMD Cost-Share	\$ (450)
Term: 12/12/08 – 3/24/11	Total Cost:	\$ (450)

The objective of this project was to demonstrate after-treatment DPF-SCR emission control systems for off-road construction vehicles. The control system consisted of a DPF for control of

PM emissions and a SCR system for control of NO_x emissions. On October 5, 2007, the SCAQMD Board awarded a contract to Community Recycling to participate in the “Showcase” demonstration of NO_x and PM control technologies. The original award to Community Recycling was \$363,250 for nine off-road vehicles. Unfortunately, only two off-road vehicles could be retrofitted with devices due to their mechanical condition, configuration, or the withdrawal of device manufacturers from the Showcase Program. The total cost for Community Recycling was \$77,700. The balance of \$285,550 was de-obligated and \$450 of that was reallocated to Griffith Company Contract #08246.

11655: CSULB CEERS Student Education Study to Assess the Effects of an Exhaust Scrubber on Diesel Emissions

Contractor: California State University Long Beach Foundation	SCAQMD Cost-Share	\$ 28,000
Term: 06/14/11 – 12/31/11	Total Cost:	\$ 28,000

Air misting has been used to remove dust particles in the air. In general, fogging and air misting could reduce concentration of large particles of 2-10 microns but not smaller ones. One of the effective methods for removing small particles is electrostatic scrubber. The objective of the investigation by the students at CSULB’s Center for Energy and Environmental Research and Services (CEERS) was focused on reducing PM emission of diesel engines with an electrostatic fog. Initial investigation was focused on feasibility study of incorporating an electro static fog as part of an emission reduction system. Further development will include development of a system on board the diesel engine that could use the exhaust heat for generating fog from distilled water and an effective electrostatic device for the generated fog and a collecting device for capturing the PM emission.

12113: Retrofit Three Heavy-Duty Diesel Trucks with Diesel Particulate Filters

Contractor: Southern Counties Terminals dba Griley Air Freight	SCAQMD Cost-Share	\$ 15,000
	Cosponsor	
	Southern Counties Terminals dba Griley Air Freight	30,000
Term: 10/13/11 – 03/31/14	Total Cost:	\$ 45,000

On March 6, 2009, the Board recognized \$1 million from the U.S. EPA under the Diesel Emissions Reduction Act (DERA) program to retrofit heavy-duty diesel trucks with DPFs. The scope of the project includes the design, installation and operation of DPF technologies on 200 1998-2006 model year heavy-duty diesel trucks. A total of 833 applications were received, 14 of which were for retrofit of 216 heavy-duty diesel trucks with DPFs at \$5,000 per truck. Staff has evaluated and ranked those 14 applications based on cost-effectiveness of the projects and the U.S. EPA DERA program requirement. Of those, staff has selected 13 proposals and has been in discussion with the applicants to ensure that upon Board approval, the retrofit projects will be completed. The successful implementation of the proposed project will provide direct PM emission reduction in a cost-effective and expeditious manner as required under the U.S. EPA DERA program and meet the goals of the 2007 AQMP. The above-proposed trucks will operate for many years in the South Coast Air Basin. The three trucks have been retrofitted and are or will be placed into operation.

12114: Retrofit Three Heavy-Duty Diesel Trucks with Diesel Particulate Filters

Contractor: South Bound Express, Inc.	SCAQMD Cost-Share	\$ 15,000
	Cosponsor	
	South Bound Express, Inc	39,623
Term: 10/13/11 – 03/31/14	Total Cost:	\$ 54,623

On March 6, 2009, the Board recognized \$1 million from the U.S. EPA under the Diesel Emissions Reduction Act (DERA) program to retrofit heavy-duty diesel trucks with DPFs. The scope of the project includes the design, installation and operation of DPF technologies on 200 1998-2006 model year heavy-duty diesel trucks. A total of 833 applications were received, 14 of which were for retrofit of 216 heavy-duty diesel trucks with DPFs at \$5,000 per truck. Staff has evaluated and ranked those 14 applications based on cost-effectiveness of the projects and the U.S. EPA DERA program requirement. Of those, staff has selected 13 proposals and has been in discussion with the applicants to ensure that upon Board approval, the retrofit projects will be completed. The successful implementation of the proposed project will provide direct PM emission reduction in a cost-effective and expeditious manner as required under the U.S. EPA DERA program and meet the goals of the 2007 AQMP. The above-proposed trucks will operate for many years in the South Coast Air Basin. The three trucks have been retrofitted and are or will be placed into operation.

12118: Retrofit 13 Heavy-Duty Diesel Trucks with Diesel Particulate Filters

Contractor: National Ready Mixed Concrete	SCAQMD Cost-Share	\$ 65,000
	Cosponsor	
	National Ready Mixed Concrete	174,806
Term: 10/13/11 – 03/31/14	Total Cost:	\$ 239,806

On March 6, 2009, the Board recognized \$1 million from the U.S. EPA under the Diesel Emissions Reduction Act (DERA) program to retrofit heavy-duty diesel trucks with DPFs. The scope of the project includes the design, installation and operation of DPF technologies on 200 1998-2006 model year heavy-duty diesel trucks. A total of 833 applications were received, 14 of which were for retrofit of 216 heavy-duty diesel trucks with DPFs at \$5,000 per truck. Staff has evaluated and ranked those 14 applications based on cost-effectiveness of the projects and the U.S. EPA DERA program requirement. Of those, staff has selected 13 proposals and has been in discussion with the applicants to ensure that upon Board approval, the retrofit projects will be completed. The successful implementation of the proposed project will provide direct PM emission reduction in a cost-effective and expeditious manner as required under the U.S. EPA DERA program and meet the goals of the 2007 AQMP. The above-proposed trucks will operate for many years in the South Coast Air Basin. The 13 trucks have been retrofitted and are or will be placed into operation.

12120: Retrofit 40 Heavy-Duty Diesel Trucks with Diesel Particulate Filters

Contractor: Standard Concrete Products	SCAQMD Cost-Share	\$ 200,000
	Cosponsor	
	Standard Concrete Products	396,665
Term: 10/13/11 – 03/31/14	Total Cost:	\$ 596,665

On March 6, 2009, the Board recognized \$1 million from the U.S. EPA under the Diesel Emissions Reduction Act (DERA) program to retrofit heavy-duty diesel trucks with DPFs. The scope of the project includes the design, installation and operation of DPF technologies on 200 1998-2006 model year heavy-duty diesel trucks. A total of 833 applications were received, 14 of which were for retrofit of 216 heavy-duty diesel trucks with DPFs at \$5,000 per truck. Staff has evaluated and ranked those 14 applications based on cost-effectiveness of the projects and the U.S. EPA DERA program requirement. Of those, staff has selected 13 proposals and has been in discussion with the applicants to ensure that upon Board approval, the retrofit projects will be completed. The successful implementation of the proposed project will provide direct PM emission reduction in a cost-effective and expeditious manner as required under the U.S. EPA DERA program and meet the goals of the 2007 AQMP. The above-proposed trucks will operate for many years in the South Coast Air Basin. Fifteen of the 40 trucks have been retrofitted and are or will be placed into operation; the contractor has decided not to retrofit the remaining 35 trucks.

12121: Retrofit Three Heavy-Duty Diesel Trucks with Diesel Particulate Filters

Contractor: Challenge Dairy Products, Inc.	SCAQMD Cost-Share	\$ 15,000
	Cosponsor	
	Challenge Dairy Products, Inc.	31,845
Term: 11/18/11 – 03/31/14	Total Cost:	\$ 46,845

On March 6, 2009, the Board recognized \$1 million from the U.S. EPA under the Diesel Emissions Reduction Act (DERA) program to retrofit heavy-duty diesel trucks with DPFs. The scope of the project includes the design, installation and operation of DPF technologies on 200 1998-2006 model year heavy-duty diesel trucks. A total of 833 applications were received, 14 of which were for retrofit of 216 heavy-duty diesel trucks with DPFs at \$5,000 per truck. Staff has evaluated and ranked those 14 applications based on cost-effectiveness of the projects and the U.S. EPA DERA program requirement. Of those, staff has selected 13 proposals and has been in discussion with the applicants to ensure that upon Board approval, the retrofit projects will be completed. The successful implementation of the proposed project will provide direct PM emission reduction in a cost-effective and expeditious manner as required under the U.S. EPA DERA program and meet the goals of the 2007 AQMP. The above-proposed trucks will operate for many years in the South Coast Air Basin. The three trucks have been retrofitted and are or will be placed into operation.

12122: Retrofit One Heavy-Duty Diesel Trucks with Diesel Particulate Filters

Contractor: Bear Trucking, Inc.	SCAQMD Cost-Share	\$ 5,000
	Cosponsor	
	Bear Trucking, Inc.	8,555
Term: 10/14/11 – 03/31/14	Total Cost:	\$ 13,555

On March 6, 2009, the Board recognized \$1 million from the U.S. EPA under the Diesel Emissions Reduction Act (DERA) program to retrofit heavy-duty diesel trucks with DPFs. The scope of the project includes the design, installation and operation of DPF technologies on 200 1998-2006 model year heavy-duty diesel trucks. A total of 833 applications were received, 14 of which were for retrofit of 216 heavy-duty diesel trucks with DPFs at \$5,000 per truck. Staff has evaluated and ranked those 14 applications based on cost-effectiveness of the projects and the U.S. EPA DERA program requirement. Of those, staff has selected 13 proposals and has been in discussion with the applicants to ensure that upon Board approval, the retrofit projects will be completed. The successful implementation of the proposed project will provide direct PM emission reduction in a cost-effective and expeditious manner as required under the U.S. EPA DERA program and meet the goals of the 2007 AQMP. The above-proposed trucks will operate for many years in the South Coast Air Basin. The contractor is in the process of ordering the retrofit device.

12123: Retrofit 107 Heavy-Duty Diesel Trucks with Diesel Particulate Filters

Contractor: RRM Properties	SCAQMD Cost-Share	\$ 535,000
	Cosponsor	
	RRM Properties	946,067
Term: 10/6/11 – 03/31/14	Total Cost:	\$ 1,481,067

On March 6, 2009, the Board recognized \$1 million from the U.S. EPA under the Diesel Emissions Reduction Act (DERA) program to retrofit heavy-duty diesel trucks with DPFs. The scope of the project includes the design, installation and operation of DPF technologies on 200 1998-2006 model year heavy-duty diesel trucks. A total of 833 applications were received, 14 of which were for retrofit of 216 heavy-duty diesel trucks with DPFs at \$5,000 per truck. Staff has evaluated and ranked those 14 applications based on cost-effectiveness of the projects and the U.S. EPA DERA program requirement. Of those, staff has selected 13 proposals and has been in discussion with the applicants to ensure that upon Board approval, the retrofit projects will be completed. The successful implementation of the proposed project will provide direct PM emission reduction in a cost-effective and expeditious manner as required under the U.S. EPA DERA program and meet the goals of the 2007 AQMP. The above-proposed trucks will operate for many years in the South Coast Air Basin. Of 107 trucks, 105 of them have been retrofitted and are or will be placed into operation.

12124: Retrofit Nine Heavy-Duty Diesel Trucks with Diesel Particulate Filters

Contractor: Gaio Trucking, Inc.	SCAQMD Cost-Share	\$ 45,000
	Cosponsor	
	Gaio Trucking, Inc.	120,669
Term: 9/28/11 – 03/31/14	Total Cost:	\$ 165,669

On March 6, 2009, the Board recognized \$1 million from the U.S. EPA under the Diesel Emissions Reduction Act (DERA) program to retrofit heavy-duty diesel trucks with DPFs. The scope of the project includes the design, installation and operation of DPF technologies on 200 1998-2006 model year heavy-duty diesel trucks. A total of 833 applications were received, 14 of which were for retrofit of 216 heavy-duty diesel trucks with DPFs at \$5,000 per truck. Staff has evaluated and ranked those 14 applications based on cost-effectiveness of the projects and the U.S. EPA DERA program requirement. Of those, staff has selected 13 proposals and has been in discussion with the applicants to ensure that upon Board approval, the retrofit projects will be completed. The successful implementation of the proposed project will provide direct PM emission reduction in a cost-effective and expeditious manner as required under the U.S. EPA DERA program and meet the goals of the 2007 AQMP. The above-proposed trucks will operate for many years in the South Coast Air Basin. Four of the nine trucks have been retrofitted and are or will be placed into operation.

12125: Retrofit 4 Heavy-Duty Diesel Trucks with Diesel Particulate Filters

Contractor: Spragues Ready Mix	SCAQMD Cost-Share	\$ 20,000
	Cosponsor	
	Spragues Ready Mix	42,953
Term: 10/14/11 – 03/31/14	Total Cost:	\$ 62,953

On March 6, 2009, the Board recognized \$1 million from the U.S. EPA under the Diesel Emissions Reduction Act (DERA) program to retrofit heavy-duty diesel trucks with DPFs. The scope of the project includes the design, installation and operation of DPF technologies on 200 1998-2006 model year heavy-duty diesel trucks. A total of 833 applications were received, 14 of which were for retrofit of 216 heavy-duty diesel trucks with DPFs at \$5,000 per truck. Staff has evaluated and ranked those 14 applications based on cost-effectiveness of the projects and the U.S. EPA DERA program requirement. Of those, staff has selected 13 proposals and has been in discussion with the applicants to ensure that upon Board approval, the retrofit projects will be completed. The successful implementation of the proposed project will provide direct PM emission reduction in a cost-effective and expeditious manner as required under the U.S. EPA DERA program and meet the goals of the 2007 AQMP. The above-proposed trucks will operate for many years in the South Coast Air Basin. Two of the four trucks have been retrofitted and are or will be placed into operation.

12175: Retrofit Seven Heavy-Duty Diesel Trucks with Diesel Particulate Filters

Contractor: RRM Properties	SCAQMD Cost-Share	\$ 35,000
	Cosponsor	
	RRM Properties	49,812
Term: 12/8/11 – 03/31/14	Total Cost:	\$ 84,812

On March 6, 2009, the Board recognized \$1 million from the U.S. EPA under the Diesel Emissions Reduction Act (DERA) program to retrofit heavy-duty diesel trucks with DPFs. The scope of the project includes the design, installation and operation of DPF technologies on 200 1998-2006 model year heavy-duty diesel trucks. A total of 833 applications were received, 14 of which were for retrofit of 216 heavy-duty diesel trucks with DPFs at \$5,000 per truck. Staff has evaluated and ranked those 14 applications based on cost-effectiveness of the projects and the U.S. EPA DERA program requirement. Of those, staff has selected 13 proposals and has been in discussion with the applicants to ensure that upon Board approval, the retrofit projects will be

completed. The successful implementation of the proposed project will provide direct PM emission reduction in a cost-effective and expeditious manner as required under the U.S. EPA DERA program and meet the goals of the 2007 AQMP. The above-proposed trucks will operate for many years in the South Coast Air Basin. The seven trucks have been retrofitted and are or will be placed into operation.

12186: Retrofit 25 Heavy-Duty Diesel Trucks with Diesel Particulate Filters

Contractor: Pipeline Carriers Inc.	SCAQMD Cost-Share	\$125,000
	Cosponsor	
	Pipeline Carriers Inc.	330,750
Term: 12/16/11 – 03/31/14	Total Cost:	\$ 455,750

On March 6, 2009, the Board recognized \$1 million from the U.S. EPA under the Diesel Emissions Reduction Act (DERA) program to retrofit heavy-duty diesel trucks with DPFs. The scope of the project includes the design, installation and operation of DPF technologies on 200 1998-2006 model year heavy-duty diesel trucks. A total of 833 applications were received, 14 of which were for retrofit of 216 heavy-duty diesel trucks with DPFs at \$5,000 per truck. Staff has evaluated and ranked those 14 applications based on cost-effectiveness of the projects and the U.S. EPA DERA program requirement. Of those, staff has selected 13 proposals and has been in discussion with the applicants to ensure that upon Board approval, the retrofit projects will be completed. The successful implementation of the proposed project will provide direct PM emission reduction in a cost-effective and expeditious manner as required under the U.S. EPA DERA program and meet the goals of the 2007 AQMP. The above-proposed trucks will operate for many years in the South Coast Air Basin. The contractor informed us in January 2012 that only 5 trucks will be retrofitted by 4/30/2012. Due to the sluggish economy, Pipeline Carriers plans to retrofit only 5 of the 25 vehicles originally identified. A modification to the contract will be processed in 2012 to de-obligate funds reducing the contract award to only \$25,000.

Electric/Hybrid Technologies

99109: Lease Two Toyota RAV4 Electric Vehicles for CY 2011

Contractor: Toyota	SCAQMD Cost-Share	\$ 7,902
Term: 04/04/99 – 02/01/12	Total Cost:	\$ 7,902

The SCAQMD operates a number of alternative fuel vehicles (AFVs), including EVs and HEVs. The primary objective of having these vehicles as part of the SCAQMD fleet is to continue to demonstrate the use of zero-emission vehicles in our fleet. Various SCAQMD-owned AFVs are used to demonstrate new clean fuel vehicles to public and private organizations so that potential purchasers may familiarize themselves with available low-emission technologies. This contract amendment provides for a lease extension and corresponding funding for 2011. It is anticipated that the lease will be extended again for 2012 and newer model year RAV4s may be provided under the lease.

05260: Conversion of Light-Duty Vehicle to Plug-In Hybrid Vehicles

Contractor: Energy Control Systems Engineering, Inc.	SCAQMD Cost-Share	\$ (45,000)
Term: 09/09/05 – 03/31/12	Total Cost:	\$ (45,000)

The SCAQMD de-obligated \$45,000 since the option to convert the last two hybrids to plug-in was not exercised, but SCAQMD provided support for service and maintenance during operation of the three plug-in hybrids in its demonstration fleet and extended the contract for additional time to complete reporting.

09360: Lease of Five Mini Cooper Electric Vehicles for CY 2011

Contractor: BMW of North America LLC	SCAQMD Cost-Share	\$ 10,953
Term: 05/14/08 -12/31/12	Total Cost:	\$ 10,953

The SCAQMD leased five Mini Cooper electric vehicles from BMW North America. The electric vehicles are part of a 450 vehicle demonstration program being conducted by BMW North America. BMW has deployed these vehicles in the Los Angeles and New York areas to collect user feedback, which will be used to assist in developing vehicle requirements for an upcoming electric vehicle that BMW has announced. This contract amendment provides for a lease extension and corresponding funding for 2011.

11606: Develop and Demonstrate Plug-In Hybrid Electric Drive System of Medium- and Heavy-Duty Vehicles

Contractor: Odyne Systems, LLC	SCAQMD Cost-Share	\$ 494,000
	Cosponsors	
	Odyne Systems, LLC	1,011,000
	U.S. Department of Energy	809,000
	Los Angeles Department of Water & Power	200,00
	Los Angeles County	85,000
Term: 07/08/11 – 07/07/13	Total Cost:	\$ 2,599,000

The SCAQMD has partnered with Odyne Systems to develop, deploy and demonstrate plug-in hybrid technology on medium- to heavy-duty work truck applications. The incorporation of plug-in hybrid technology will add functionality that includes electrification of jobsite operation, electric launch assist, regenerative braking, electrification of in-cab climate controls, and exportable power. These features will improve vehicle efficiency while driving and electrify their operation while working at a jobsite. The jobsite vocations targeted by this technology includes bucket trucks, digger derricks and compressor trucks. Electrification of the vehicle's jobsite operation will eliminate emissions at the point of use, reduce emissions on a full-cycle basis, and provide the co-benefit of reducing fossil fuel consumption.

11725: Lease of Three Nissan Leaf Vehicles for 39 Months

Contractor: Puente Hills Nissan	SCAQMD Cost-Share	\$ 60,222
	Cosponsor	
	Federal Tax credit \$7500 partially offset by Nissan lease financing	22,500
Term: 05/27/11 – 08/26/14	Total Cost:	\$ 82,722

The SCAQMD operates a number of alternative fuel vehicle, including electric vehicles, fuel cell vehicles, and plug-in hybrid-electric vehicles. The primary objective of having these vehicles as part of the SCAQMD demonstration fleet is to continue to support the use of zero emission vehicles. The three Nissan Leaf battery electric vehicles with lithium-ion batteries will be used to demonstrate these new clean-fuel vehicles to public and private organizations so that potential purchasers may familiarize themselves with available low-emission technologies.

12024: Install Electric Charging Infrastructure

Contractor: ECotality North America	SCAQMD Cost-Share	\$ 70,000
Term: 11/04/11 -05/03/13	Total Cost:	\$ 70,000

There are approximately 1,800 EV chargers in need of upgrading in the South Coast Air Basin. These sites are ideal locations to upgrade EV infrastructure to Level 2 charging at a lower cost than to install EV infrastructure at new site locations. Leveraging the U.S. DOE and CEC funding received by the three major EVSE manufacturers—ECotality, Coulomb Technologies, and Clipper Creek, the SCAQMD has executed a contract with ECotality (and is in the process of executing contracts with the other two manufacturers) to install new or upgraded Level 2 EV infrastructure at high usage site locations identified by SCAQMD and the manufacturers. ECotality has received a combination of U.S. DOE and CEC funding which will pay for the equipment and up to \$2,000 of the installation cost for Level 2 EV infrastructure at 70 site locations. The SCAQMD is providing co-funding of \$1,000 per charger to offset installation costs at these locations. Data will be collected by ECotality from these chargers and provided to SCAQMD to assist in SCAQMD’s PEV infrastructure planning process for the U.S. DOE and CEC PEV infrastructure grants for the South Coast region.

12028: Demonstrate and Replace UPS Diesel Delivery Trucks with Zero-Emission Medium-Duty Trucks

Contractor: Electric Vehicle International, Inc.	SCAQMD Cost-Share	\$ 1,400,000
	Cosponsors	
	United Parcel Service (UPS)	2,772,000
	California Air Resources Board	560,000
	Electric Vehicle International, Inc.	140,000
Term: 09/09/11 – 09/08/17	Total Cost:	\$ 4,872,000

The SCAQMD recognizes the impact of goods movement on air quality in the South Coast Air Basin, as well as the relationship between the goods movement industry and nearly every other sector of California’s economy. The emissions generated from goods movement involve the transportation of merchandise, supplies, and other cargo in to, out of, or within California. Emissions from the movement of goods and freight through California’s ports and along its transportation corridors pose a threat to statewide air quality and public health. United Parcel Service (UPS) is a world leader in goods movement and delivery and operates over 100,000 vehicles worldwide. It has one of the world’s largest natural gas vehicle fleets and a growing fleet of hybrid electric vehicles. UPS has an immediate interest in expanding the electrification of this fleet, with a five-year, 40-vehicle demonstration in South Coast Air Basin as the kickoff. Electric Vehicle International (EVI) has developed a zero-emission, medium heavy-duty return-to-base delivery truck ideal for package delivery service providers such as UPS. The new, clean vehicle

uses an Original Equipment Manufacturer (OEM) chassis with EVI's signature power train to create a zero-emission, aerodynamic model of the walk-in vehicles UPS drivers are accustomed to. The vehicles will be delivered to UPS in August 2012.

Direct Pay: Install Three Electric Vehicle Chargers by Coulomb Technologies at SCAQMD Headquarters

Contractor: Clean Fuel Connection	SCAQMD Cost-Share	\$ 9,007
Term: 08/23/11 – 08/23/11	Total Cost:	\$ 9,007

As part of the U.S. DOE ChargePoint America program, Coulomb Technologies will be installing three electric vehicle chargers at SCAQMD headquarters. The ChargePoint America program gives the potential station owner the opportunity to own charging stations at no cost except the cost of installation. This is made possible by the American Recovery and Reinvestment Act through the Transportation Electrification Initiative administered by the U.S. Department of Energy and the objective is to accelerate the development and production of electric vehicles to substantially reduce petroleum consumption, reduce greenhouse gas production, and create jobs. The chargers will be installed in the front lobby parking area and replace the older existing chargers. The installation will be performed by Clean Fuel Connection, Inc.

Transfer: Develop Class 8 Plug-In Hybrid Heavy-Duty Vehicle

Contractor: Transfer from Clean Fuels (for Volvo Project)	SCAQMD Cost-Share	\$ 600,000
	Cosponsors	
	Volvo	1,200,000
	Ports of Los Angeles/Long Beach	600,000
Term: 12/2/11 – 12/2/11	Total Cost:	\$ 2,400,000

The SCAQMD will contract with Volvo to develop, build and demonstrate a prototype level Class 8 plug-in hybrid electric drayage truck. The truck will feature a new MD8 engine in a proprietary 6x2 Mack chassis with a second generation, I-SAM hybrid powertrain, a new energy optimized battery, external charging interface and newly developed energy management and control systems. The supplemental power and torque capabilities provided by the hybrid system will allow for the vehicle to be designed with a downsized internal combustion engine, which will provide additional fuel economy benefits. Studies will also be conducted to evaluate the adaptation of the plug-in hybrid system to interface with a wayside power system. The wayside power connection would enable the vehicle to drive electrically, on a dedicated corridor, without the need for significant on-board energy storage.

Transfer: Demonstrate Battery Electric Heavy-Duty Trucks

Contractor: Transfer from Clean Fuels Fund (for TransPower Contract #11614)	SCAQMD Cost-Share	\$ 196,505
	Cosponsor	
	California Energy Commission	1,000,000
	TransPower	1,119,770
	U.S. Environmental Protection Agency	300,000
Term: 07/08/11 – 11/07/13	Total Cost:	\$ 2,616,275

The electrification of transportation technologies has the potential to significantly reduce criteria pollutant and greenhouse gas emissions. This can provide substantial benefits to communities, neighborhoods, and school areas where these vehicles operate. The TransPower “ElecTruck” drive system is a zero-emission solution that eliminates 100% of the harmful emissions produced by road vehicles, at the point of operation. TransPower has selected port trucks as its initial target market because of the high potential for environmental benefits if these vehicles can be converted to electric propulsion. TransPower will demonstrate two zero emission battery-electric Class 8 truck at the Ports of Los Angeles and Long Beach and intermodal facilities. TransPower will integrate electric drive components into two Class 8 trucks. One truck will be used as a static test vehicle to test new components, and the other will be placed into revenue service carrying cargo containers at the Ports of Los Angeles and Long Beach to intermodal facilities. The battery-electric drive system will utilize high-power drive motors and inverters and energy will be stored in high-energy lithium battery packs. The revenue service vehicle will be operated by a leading drayage firm, and closely monitored under real-world operating conditions. Currently, TransPower is conducting tests on the early prototype vehicles.

Engine Systems**11485: Demonstrate Refuse Truck Retrofitted with Cummins ISL-G Natural Gas Engine**

Contractor: Waste Management Collection & Recycling Inc.	SCAQMD Cost-Share	\$ 75,000
	Cosponsor	
	Waste Management Collection & Recycling Inc.	225,876
Term: 03/18/11 – 01/31/12	Total Cost:	\$ 300,876

Recent amendments to Rule 1193 require 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 to reduce air toxic and criteria pollutant emissions. In October 2010, the SCAQMD Board awarded Waste Management Collection & Recycling a \$75,000 grant for a project to repower a diesel-fueled refuse truck with a Cummins ISL-G natural gas engine that is compliant with the 2010 emissions standard. This project will provide a cost-effective CNG vehicle option to comply with Rule 1193 and help accelerate the turnover of older diesel-fueled refuse trucks in the Basin. Waste Management has partnered with Cummins Cal Pacific and AFV Fleet Services to engineer a diesel-to-CNG proof-of-concept (POC) vehicle,

equipped with a new cooling system designed to provide sufficient cooling capacity for a spark-ignited natural gas engine. The successful demonstration of the POC vehicle will have the potential to reduce emissions significantly from approximately 3,800 diesel-fueled refuse collection trucks affected by Rule 1193.

Mobile Fuel Cell Technologies

10714: Develop Fuel Cell Gas Turbine Hybrid System for On-Board Locomotive Applications

Contractor: University of California Irvine	SCAQMD Cost-Share	\$ 78,000
	Cosponsor	
	California Air Resources Board	78,000
Term: 12/02/11 – 12/01/13	Total Cost:	\$ 156,000

SCAQMD has sponsored the development and deployment of fuel cell systems for mobile and stationary applications for many years and has successfully demonstrated molten carbonate fuel cell (MCFC) technology for stationary source applications. The high operating temperature and nature of materials used in solid oxide fuel cells (SOFCs) allow for the direct internal reforming of hydrocarbon based fuels and direct utilization of fuel impurities such as carbon monoxide. This has the advantage of lower capital and maintenance costs required for pre-reformers, gas cleaning systems, and water management systems required for low temperature PEM fuel cell technology requiring high purity hydrogen. Additionally, SOFCs when combined with gas turbines (GT) can achieve system efficiencies exceeding 70%. In 1999, AQMD executed a contract with Edison Technology Solutions (ETS) in conjunction with UCI's National Fuel Cell Research Center (NFCRC) to develop and demonstrate a 250 kW SOFC-microturbine power plant, and the project was successfully completed in 2003. Recently the NFCRC at UCI has conducted a preliminary research study under a National Science Foundation grant to critically review the potential of fuel cell-gas turbine hybrid technology for powering locomotives. The completion of this project would lead to a real world demonstration project for a first of its kind, fuel flexible SOFC-GT powered locomotive. Union Pacific will share their expertise and experience to identify the needs of the rail industry in order to ensure that the analysis conducted by NFCRC will meet practical requirements. The success of this project will also demonstrate technology transfer of SOFCs utilizing currently available fuels on board existing medium- and heavy-duty diesel trucks, other mobile source, and stationary source applications. For this project, a proof-of-concept SOFC-GT system analysis on-board a locomotive and a conceptual design for real world demonstration will be developed. The proof-of-concept stage of this project will consist of modeling and analysis of the SOFC-GT system to meet the expectations of the railroad industry and technical requirements set forth by the fuel cell and gas turbine manufactures. The conceptual design will include the design of the main power systems, including the SOFC, GT, reformer, and fuel storage; design of peripheral systems such as thermal management and traction control systems; and packaging of the unit into the locomotive.

11656: Participate in California Fuel Cell Partnership for Calendar Year 2011 and Provide Support for Regional Coordinator

Contractor: Bevilacqua-Knight, Inc.	SCAQMD Cost-Share	\$ 137,800
	Cosponsors	
	8 automakers; 2 energy providers; 6 government agencies; 1 fuel cell provider, and 14 associate members	1,494,800
Term: 01/01/11 – 12/31/11	Total Cost:	\$ 1,632,600

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 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 CaFCP administration. In 2011, 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.

Hydrogen Infrastructure

10061: Maintenance & Data Management for the SCAQMD's Hydrogen Fueling Station

Contractor: Hydrogenics	SCAQMD Cost-Share	\$ 50,000
Term: 10/30/09 – 06/30/12	Total Cost:	\$ 50,000

Hydrogenics Corporation has had a sole-source contract for the continued maintenance of the SCAQMD hydrogen fueling station for the last few years. In order to continue maintenance and data management of the existing SCAQMD hydrogen station, an amendment of the existing contract with Hydrogenics Corporation was required. This contract modification extends beyond the original scope of the project and will ensure the station is maintained while plans are made for the station's upgrade. Maintenance and management services will include the following: 1) Train staff in the proper use of the fueling dispenser, card-lock system and vehicle fueling procedures; 2) Repair unsafe or inoperable equipment or parts of the fueling system as needed; 3) Detailed vehicle fueling reports (paper and electronic); and 4) Summary reports for station use.

10482: Install/Demonstrate PEM Electrolyzer, Providing Hydrogen Fueling for Vehicles and Utilizing the Technology in the Engineering Technology Curriculum at the University

Contractor: California State University Los Angeles	SCAQMD Cost-Share	\$ 250,000
	Cosponsors	
	California State University Los Angeles	1,112,000
	MSRC/AB2766 Discretionary Fund	250,000
	So. California Automobile Club	50,000
Term: 03/04/11 – 10/03/17	Total Cost:	\$ 1,662,000

The implementation of zero-emission vehicles (ZEVs) is a key component in the effort to achieve air quality attainment in the South Coast Air Basin. Fuel Cell Vehicle (FCV) technology is emerging at an accelerated pace and may play a crucial role in this effort. To accelerate this technology as a viable commercial alternative, the SCAQMD includes funding in its program allocations to support the installation of a network of hydrogen fueling stations throughout the Basin to support the operation and demonstration of FCVs in the South Coast Air Basin. California State University, Los Angeles submitted a proposed project for SCAQMD to co-fund the construction, installation and operation of a hydrogen fueling station which consists of a Polymer Electrolyte Membrane (PEM) Electrolyzer system that generates, compresses, stores and dispenses hydrogen located near CSULA's Engineering Technology Laboratory on the university's campus. The station is currently going through the commissioning process.

Health Impacts Studies

11527: Conduct Study on Sources, Composition, Variability and Toxicological Characteristics of Ultrafine Particles in Southern California

Contractor: University of Southern California	SCAQMD Cost-Share	\$ 470,969
Term: 07/24/11 – 07/24/14	Total Cost:	\$ 470,969

The objective of the proposal is to provide information on ultrafine particle sources, spatial and seasonal characteristics, and toxicity in Southern California. The proposed project will make use samples that have already been collected by USC over an approximate 15-month cycle at 10 locations in the Los Angeles Basin reflecting different source and receptor locations, including near freeways. The samples were collected in conjunction with a U.S. EPA funded project characterizing the chemical composition and toxicity of coarse particulate matter (PM_{2.5} – 10). Seven of these locations are also sampling sites for the EPA's Multiple Ethnic Study of Atherosclerosis Air Pollution Study (MESA Air). MESA Air is a multi-year study funded by U.S. EPA that is looking into the health effects of PM_{2.5}. Thus, the results of the proposed study can be used to compare the composition, sources, and toxicity of UFP with those of PM_{2.5} and PM_{2.5} – 10. These results will be important in forming the scientific basis for air quality policies to reduce emissions and improve public health.

Outreach and Technology Transfer

10062: Technical Assistance for Implementation of Proposition 1B Goods Movement Program and Truck Replacement Program

Contractor: TIAX LLC	SCAQMD Cost-Share	\$ 200,000
	Cosponsor	
	Proposition 1B-Goods Movement/Fund 81	375,000
Term: 11/13/09 – 12/31/12	Total Cost:	\$ 575,000

Under this Contract, TIAX is providing expert technical assistance to SCAQMD to implement the Proposition 1B-Goods Movement Clean Truck incentive program as it complements the goals and objectives of the Clean Fuels Program. Their services will include helping SCAQMD staff in outreach, application quality control and evaluations, and other project implementation activities.

TIAX has previously assisted SCAQMD with implementing a wide-array of incentive programs to deploy lower-emitting heavy-duty vehicles and advanced transportation technologies. TIAX has extensive experience and professional knowledge about the feasibility and inner workings of such incentive programs.

10662: Technical Assistance for Implementation of Proposition 1B Goods Movement Program and Truck Replacement Program

Contractor: Gladstein, Neandross & Associates	SCAQMD Cost-Share	\$ 175,000
Term: 05/12/10 – 12/31/13	Total Cost:	\$ 175,000

Under this Contract, Gladstein, Neandross & Associates (GNA) is providing expert technical assistance to SCAQMD to implement the Proposition 1B-Goods Movement Clean Truck incentive program as it complements the goals and objectives of the Clean Fuels Program. GNA has previously assisted SCAQMD with implementing a wide-array of incentive programs to deploy lower-emitting heavy-duty vehicles and advanced transportation technologies. GNA has extensive experience and professional knowledge about the feasibility and inner workings of such incentive programs.

10663: Technical Assistance for Implementation of Proposition 1B Goods Movement Program

Contractor: Clean Fuel Connection	SCAQMD Cost-Share	\$ 250,000
	Cosponsor	
	Proposition 1B-Goods Movement/Fund 81	100,000
Term: 05/12/10 – 12/31/12	Total Cost:	\$ 350,000

Under this Contract, Clean Fuel Connection is providing expert technical assistance to SCAQMD to implement the Proposition 1B-Goods Movement Clean Truck incentive program as it complements the goals and objectives of the Clean Fuels Program. Their services will include helping SCAQMD staff in outreach, application quality control and evaluations, and other project implementation activities. Clean Fuel Connection has previously assisted SCAQMD with implementing a wide-array of incentive programs to deploy lower-emitting heavy-duty vehicles and advanced transportation technologies. Clean Fuel Connection has extensive experience and professional knowledge about the feasibility and inner workings of such incentive programs.

11028: Technical Assistance on Stationary Source Control Measures & Future Consultation on TAO Activities

Contractor: Marty Kay	SCAQMD Cost-Share	\$ 15,000
Term: 08/04/10 – 12/31/12	Total Cost:	\$ 15,000

In mid-2010, a contract with Marty Kay was approved for technical assistance on research, to define and develop stationary source control measures and clean energy projects in the amount of \$25,000. In 2011 Marty Kay's contract was modified to extend the term through the end of 2012 and add an additional \$15,000 to accomplish two new tasks: 1) Develop the scope of work and provide guidance in review, evaluation and implementation of proposals for estimating the impacts on overall pollutant emission inventories and air quality from natural gas combustion

equipment from a residential, commercial, and industrial perspective from the introduction of LNG in the pipeline in the South Coast Air Basin and also assist SCAQMD staff in the implementation of future research on this subject; and 2) Provide technical support in the evaluation of proposals associated with RFP #P2011-21 - Deployment of Five Megawatts or More of In-Basin Renewable Distributed Electricity Generation and Storage to Support Electric Transportation Technologies and to provide technical guidance on the implementation of the contractor's work.

11144: Natural Gas-Powered Vehicle Training and Safety and Fuel Cylinder Inspection Program

Contractor: San Diego Community College District on behalf of Advanced Transportation Technology and Energy	SCAQMD Cost-Share	\$ 130,000
Term: 12/10/10 – 05/31/13	Total Cost:	\$ 130,000

In February 2011 the Board approved an augmentation of funding for an existing contract with Advanced Transportation Technology and Energy Network of the California Community Colleges (ATTE) to provide outreach in education and safety training for natural gas vehicle operators, technicians, and fleet managers operating within the SCAQMD's jurisdictional area. The trainings include: four natural gas vehicle safety overview courses, three CNG fueling cylinder inspection courses, and six natural gas vehicle diagnostics courses. The training courses are developed for heavy-duty vehicles, particularly CNG-powered school buses, and outreach efforts are being primarily directed to school districts which operate and maintain their own CNG-powered school buses. The project is expected to provide additional training and expertise to individuals whose occupations range from fleet manager to vehicle technician, and will improve the reliability and safety of CNG-powered heavy-duty vehicles operating in the South Coast Air Basin and particularly school districts in this air basin. The total cost for the project is \$130,000, which is comprised of \$77,000 from Clean Fuels plus pass-through revenue of \$53,000 from the Southern California Gas Company.

11484: Develop and Implement Two Customer Centers to Provide Education and Outreach to Truck Owners and Operators

Contractor: Gladstein, Neandross & Associates, LLC	SCAQMD Cost-Share	\$ 150,000
Term: 01/27/11 – 05/31/12	Total Cost:	\$ 150,000

This project addresses the component of the Chairman's Helping Hand Initiative that provides customer service centers for heavy-duty truck owners and operators. Two customer service centers are being established for truck owners and operators; a toll-free hotline will be staffed by experts who can respond to inquiries generated at the service centers; and a supporting website is being developed. The service centers are being strategically located in areas with heavy truck traffic. Through a separate contract funded by the Department of Energy, Advanced Transportation Technology & Energy Network of the California Community Colleges is providing materials to be displayed and distributed by Gladstein, Neandross & Associates, LLC.

12104: Develop, Initiate and Implement a Clean Vehicle Outreach Project

Contractor: Three Squares	SCAQMD Cost-Share	\$ 100,000
Term: 09/23/11 – 09/22/12	Total Cost:	\$ 100,000

The intent of this outreach campaign is to implement outreach goals of the SCAQMD Board. Three Squares Inc. (TSI) will retool existing SCAQMD programs to include and expand the current efforts to focus some or all of the messaging aspects, where appropriate, in the near-term on clean and high-efficiency vehicles. These efforts will be included under a newly badged Clean Air Choices (CAC) program, which will provide an umbrella platform to promote all of the SCAQMD clean air technology activities in the future, such as low-VOC paints and solvents, electric lawn and garden equipment, air filters, low NO_x boiler and aftertreatment technologies, as well as clean vehicles. A CAC Showcase is envisioned in the SCAQMD headquarters lobby to highlight all of these technologies and “choices” residents can make for clean air. This initial vehicle outreach program is envisioned to include multiple elements to direct online traffic to CleanAirChoices.org, and link to other synergistic programs.

Transfer: Conduct Clean Vehicle Outreach and Expand Clean Air Choices Program

Contractor: Transfer from Clean Fuels Fund	SCAQMD Cost-Share	\$ 50,000
Term: 07/08/11 – 07/08/11	Total Cost:	\$ 50,000

A re-launch of the SCAQMD’s Clean Air Choices Program was initiated with the intent of expanding the program to showcase clean vehicle technologies supported and promoted by the SCAQMD. The Board approved a \$50,000 transfer of funds from the Clean Fuels Fund to support activities in other departments related to the implementation of this program, such as software upgrades to support the mobile phone application, design and printing of program materials, and outreach events with local vehicle dealerships.

Transfer: Participate in California Natural Gas Vehicle Partnership

Contractor: Transfer from Clean Fuels	SCAQMD Cost-Share	\$ 25,000
	Cosponsors	
	CNGVP Participating Members	185,000
Term: 03/04/11 – 03/04/11	Total Cost:	\$ 210,000

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 March 2011, the SCAQMD approved \$25,000 for the SCAQMD’s participation on the Steering Committee for the next two years.

Direct Pay: Cosponsor 21 Conferences, Workshops & Events, plus 9 Memberships & Subscriptions

Contractor: Various	SCAQMD Cost-Share	\$ 380,159
	Cosponsors:	
	Various	1,039,000
Term: Various	Total Cost:	\$ 1,419,159

The SCAQMD regularly participates in and hosts or cosponsors conferences, workshops and events. These funds provide support for the 21 events during 2011, plus 9 business council/association memberships and subscriptions. The 21 conferences, workshops and events are as follows: 12th Annual Western Riverside Council of Governments Advancing the Choice Event, the Move LA “We Love LA” Events Series, outreach & planning assistance for MSRC’s 20th anniversary workshop & retreat; the Coordinating Research Council’s Life Cycle Analysis Workshop of Biofuels, The Women in Green Forum, the Asilomar 2011 Conference on Transportation and Energy; Calstart’s CalHeat Forum, UCR’s PEMS Workshop, CRC’s Real World Emissions Workshop, U.S. EPA’s Forum Clean Tech Conference, the Coachella Valley Energy Summit, UCR’s UC Eco-Driving Workshop, Aztlan Athletics’ Greenest Fastest Mile, KABC’s 7th Annual Clean Air Car Showase, the Sixth Annual Alt Car Expo, the 3rd Annual Electric & Alternative Fuel Vehicle Fair, JLP’s Climate Day 2011, the 4th METTRANS National Urban Freight Conference, Calstart’s “Advanced Clean Vehicles: Working to Ensure Sustainability Workshop,” West Virginia University’s “Workshop on Advances in Tailpipe Sensors: Research and Development,” and the Fourth Symposium on Global Emerging Environmental Challenges and Government Responses. Platinum membership for the California Hydrogen Business Council, Core Program Sponsor Member Renewal with the Transportation Review Board and general memberships for the CalETC and Fuel Cell & Hydrogen Energy Association for both 2011 & 2012, plus subscriptions to Automotive News, Autoweek, Green Car Journal and the California Natural Gas Vehicle Coalition’s NGV Fuel Station Directory are also included.

PROGRESS IN 2011

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 6 (page 57) provides a list of 48 projects and contracts completed in 2011. 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.

Develop & Demonstrate Hydraulic-Hybrid Shuttle Bus

The project has designed, developed and tested a series hydraulic hybrid vehicle (HHV) with gasoline Homogeneous Charge Compression Ignition (HCCI) engine in an urban based shuttle bus; exploring its potential to cost-effectively achieve ultra-low levels of both criteria and greenhouse gas emissions. The integration of these two new technologies in a medium-duty shuttle bus platform demonstrates its potential as an additional solution to dramatically reduce greenhouse gases, NO_x to the 2010 standards without NO_x aftertreatment, PM to gasoline engine levels or lower, and other regulated emissions.

The series HHV shuttle bus is powered by a 6.4 liter gasoline HCCI engine and was compared to the conventional Navistar IC 3200 Shuttle Bus with a "stock" 2008 6.4 liter diesel engine on a myriad of drive cycles. The drive cycles shown below are represented in an increasing level of inertial intensity, which would be indicative of driving behavior that has more stop and go driving behavior. The series hydraulic hybrid drive system is a power dense system that has the ability to recover a significant amount of energy during braking events, and later expend this recovered energy during the next acceleration event. These attributes are well suited for inertially intensive drive cycles. However, the series architecture of the system is not as efficient for high speed operation or driving behavior that does not provide the opportunity to recover braking energy.

The fuel economy improvements shown below are indicative of these attributes, with the HWFET cycle showing a small reduction in fuel economy and the Denver Bus showing a 182% improvement in fuel economy. The HWFET is the drive cycle used by the EPA to estimate highway fuel economy for passenger cars, and is characterized by higher speeds with minimal stop and go driving behavior; whereas, the Denver Bus cycle has driving behavior typical of an urban transit bus which would be characterized by intensive stop and go driving behavior.

Figure 11: Fuel Economy Results

Drive Cycle	Fuel Economy (mpg)		
	Diesel (baseline)	HCCI - Series Hybrid	Improvement
HWFET	10.2	9.25	-9%
LA4	7.51	10.26	37%
Manhattan Bus	4.35	10.3	137%
Denver Bus	3.16	8.92	182%

The NO_x measurements shown below are 70-90% lower than those from the conventional pre-2010 standards diesel engine. The measurements are in line with 2010 emission standards for NO_x, but without the need for costly diesel aftertreatment. These results are summarized below.

Figure 12: NO_x Emission Results

Drive Cycle	NO _x (g/mile)		
	Diesel (baseline)	HCCI - Series Hybrid	Improvement
HWFET	2.67	0.392	-85%
LA4	3.758	0.769	-80%
Manhattan Bus	8.176	0.83	-90%
Denver Bus	8.124	1.004	-88%

Demonstrate Battery Electric Class 4 Utility Truck

In June 2009, the Board approved a project with the City of Santa Monica to develop and demonstrate a zero-emission battery electric medium-duty truck with an advanced lithium ion battery pack. The SCAQMD provided \$87,205 for this project from the Clean Fuels Fund, and the total project cost of \$174,410 was cost-shared by the City of Santa Monica, Electrorides, EV Innovation and Velocity Vehicle Group.



Figure 13: Santa Monica’s ZeroTruck

This ZeroTruck utility vehicle was developed and is being used by Santa Monica’s Water Resources Division of the Public Works Department for maintenance, repairs, and customer service visits throughout the city. The ZeroTruck has a low cab forward design and brings the latest in electric drive technology. It is powered by 350-400-volt Dow Kokam lithium battery pack and a high efficiency 100-kilowatt electric motor from UQM Technologies. The battery has a 2,500 cycle life battery life that translates to approximately eight years of service life for this application.

The truck has a fully automated transmission with a 65-mile range for city driving at speeds up to 50 mph. The overall performance, range, functionality is very positive, and the fit, finish and layout of the systems on board the truck all were professionally assembled. The truck’s range of approximately 60-65 miles is sufficient to operate on all routes and locations in Santa Monica. The performance of the truck when fully loaded is also sufficient to climb grades and accelerate to maintain flow with the traffic. The truck can be plugged in overnight and be ready for use during the day using a standard 220 volt 30 amp outlet.

This project will allow the City of Santa Monica to evaluate the potential of replacing an additional ten medium-duty trucks with electric vehicles in the Public Works Department, as well as other divisions of the City fleet services. With modifications, the ZeroTruck could eventually replace as many as 30 medium-duty vehicles in the city fleet. The City of Santa Monica is pursuing this project in an effort to make further progress towards meeting the goals of switching municipal fleets to zero-emission technologies.

Develop & Demonstrate 2010 Compliant LNG Heavy-Duty Truck

In November 2006, the Ports of Los Angeles and Long Beach adopted a five-year Clean Air Action Plan (CAAP) establishing several control measures and programs to reduce emissions from port-related operations. One such measure, HDV1 (performance standards for on-road heavy-duty vehicles) includes the replacement of approximately 16,000 drayage trucks serving the ports to meet the clean truck standard, which is defined as the EPA 2007 on-road emissions standard, and includes both diesel and LNG-fueled engines. Year by year, the oldest trucks will be barred from the ports until only trucks meeting the clean truck standard will be permitted to work in the ports. In addition, the CAAP also established a Technology Advancement Program, which seeks to accelerate the verification or commercial availability of new, clean technologies, through evaluation and demonstration activities, to identify cleaner technologies for port-related emissions sources. A portion of the drayage trucks can now be replaced with LNG trucks powered by Westport Power 1.2 g/bhp-hr NO_x High Pressure Diesel Injection (HPDI) engines. A portion of the remaining trucks can be replaced with LNG trucks powered by 0.8 g/bhp-hr NO_x HPDI engine or 0.6 g/bhp-hr NO_x HPDI engines, which are being proposed for development by Westport Power, Inc.



Figure 14: Westport Engine and LNG System

The primary objective of this project completed by Westport Power was to develop, demonstrate, and certify an LNG HPDI engine used in Class 8 heavy-duty truck applications at or below 0.6 g/bhp-hr NO_x and 0.01 g/bhp-hr PM in early 2008, and 0.2 g/bhp-hr NO_x and 0.01 g/bhp-hr PM emissions in mid-2009. Phase 1 focused on calibration improvements using the existing engine hardware, as well as development of processes in conjunction with Kenworth Truck Company to make the LNG truck available as a Kenworth product. This included development of a new higher-volume production facility

for Westport systems which opened in February 2007. Phase 1 was completed with the Kenworth truck offering in February 2009. Phase 2 included the development of new 2010 system architecture leading to certification and on-road demonstration of the 0.2g NO_x solution. A draft version of the final report task was submitted to SCAQMD in December 2011 and the final version will be completed by the end of February 2012.

Due to limitations of the engine hardware the sub-0.6 g/bhp-hr NO_x calibration developed during Phase 1 was considered not robust enough for certification and with the agreement of SCAQMD, a different (0.68g NO_x) calibration was introduced as a running change. This solution still offered

benefits over the current product at that time, including a 0.1g/bhph reduction in NO_x over the transient cycle representative of urban driving and a 3.3% fuel economy improvement over the steady-state cycle representative of highway driving. For the 0.2g NO_x solution, the new system architecture and in particular the addition of the SCR to the aftertreatment system required wide-ranging calibration development. This included improving fuel system control algorithms and diagnostics and further fine-tuning of the Auxiliary Emissions Control Devices (AECs). Following extensive engine dynamometer and vehicle testing the system was certified at a third-party facility to the following emissions levels, comfortably exceeding the EPA regulations.

Regulated Emissions (g/bhp-hr)			
CO	NO _x	nmHC	PM
0.13	0.14	0.02	0.004

A six-month field trial of three trucks equipped with the 0.2g NO_x engine was completed in March 2011 and accumulated 167,000 miles. The vehicles selected as the demonstration fleet operated as port drayage trucks between the Port of Long Beach and locations within the Southern California Basin. With its launch in 2010 the Westport GX 15L engine in the Kenworth T800 became the first commercially available LNG-fuelled truck meeting the EPA 2010 on-road heavy-duty emissions standards. As of January 2012 over three hundred of these trucks have been put into service in the U.S., surpassing the sales of the pre-2010 version developed in Phase 1. Sales are projected to increase in 2012 and the next few years as LNG fuelling infrastructure is expanded across the country. Westport continues to work on refinements and cost-reduction initiatives to further improve the product.

Develop & Demonstrate Selective Catalytic Reduction Technology (SCRT™) for NO_x and PM Emissions Control of Diesel-Powered Heavy Heavy-Duty Trucks

Diesel-powered on-road heavy heavy-duty vehicles contribute over 70 percent and 85 percent of the total Basin NO_x and PM emissions, respectively from 1998 to 2002 model year heavy-duty diesel vehicles, based on CARB’s EMFAC 2007 emissions model. Selective catalytic reduction and particulate filter technologies are capable of significantly reducing NO_x and PM emissions from diesel engines. Additional field demonstration would provide further information on the use of such technologies and could lead to early commercialization.

The goal of the project completed by Johnson Matthey, Inc. was to develop, optimize, and demonstrate a combined diesel particulate filter and selective catalytic reduction technology, otherwise called selective catalytic regeneration technology (SCRT™) on fourteen 1998 through 2002 model year on-road vehicles powered by diesel engines rated at 350 hp or more.

In this project, Johnson Matthey’s SCRT™ systems were installed on fourteen 1998 through 2002 model year trucks operating out of the Ralph’s Grocery distribution center in Riverside California. The trucks were powered with Caterpillar C12 or DDC Series 60 diesel engines. The trucks were operated with the SCRT™ systems for periods ranging from one year to three years. Two trucks were tested over UDDS cycle on a fresh (< 30 hours of operation) and aged (>2,500 hours) SCRT™ systems.



Figure 15: Truck Equipped with SCRT™

The test result showed that the SCRT™ system reduced engine out NO_x emission by between 67 and 70 percent and PM emission by more than 85 percent over the test cycle as shown in Figure 2. This project identified areas in the system that needed improvement like the wiring harness to increase the system reliability. The project also highlighted a need for larger diameter catalysts to minimize the back pressure caused by the system. The improvements to the system that resulted from this project are being used by SCAQMD in three new programs funded under the EPA emerging technologies program.

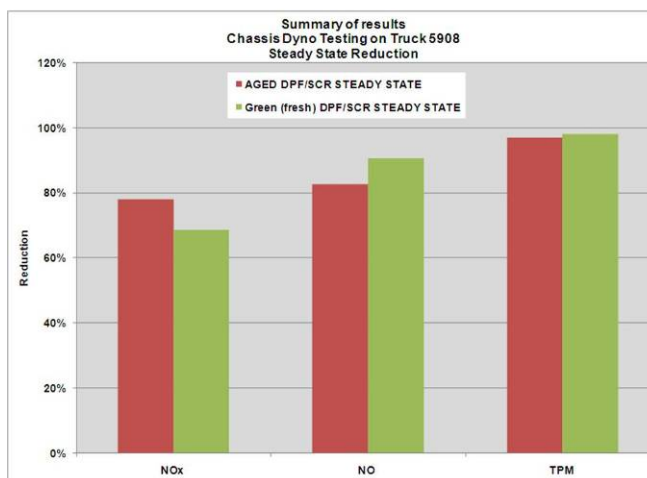


Figure 16: Chassis Dyno Testing Results on Truck 5908 Steady State Reduction

Demonstrate Projects for Renewable Feedstock to Energy and Fuel Technologies

Renewable energy is an integral part of California's strategy to reduce greenhouse gas emissions and to diversify domestic energy supplies. In order to meet the targets and goals established by state initiatives such as the Renewable Portfolio Standard which has a 33% target for electricity generation from renewable sources by 2020, it is essential to develop and implement more advanced technologies to convert various renewable feedstocks, including biowaste, to renewable energy. UCR/CE-CERT has developed the Steam Hydrogasification Reaction (SHR) process to produce Synthetic Natural Gas (SNG) with high methane content from biomass and biowaste. SHR is a thermo-chemical process to convert carbonaceous matters to methane in a hydrogen rich environment. One of the benefits of this process is that it can handle wet feedstocks like wastewater sludge. Given that the fraction of solid wastes with high moisture content, such as food waste, wastewater sludge and green waste that can pose more environmental issues in proper disposal, has increased over the years, SHR can provide a viable option to process such wastes more efficiently. Another key benefit of this process is that the use of steam increases the rate of methane formation significantly with high carbon conversion efficiency compared to other gasification technologies. In addition, the SHR process does not require an expensive oxygen plant, therefore reducing considerable capital costs, which can be a critical factor for smaller production facilities.

The purpose of this project was to conduct a bench scale demonstration for the SHR process to produce natural gas from green waste and biosolids. Pine sawdust and wastewater sludge from Riverside Waste Water Treatment Plant were used as feedstocks and pretreated in a hydrothermal reactor to make pumpable slurry with 40% solid loading. In this demonstration project, pretreated feedstock is fed to a pressurized rotating kiln type SHR reactor, in which carbons in the feedstock reacts with hydrogen to produce methane. Some CO and CO₂ are also created in the process but the amounts are much smaller in



Figure 17: Bench Scale SHR-WGS System

comparison to typical oxidation gasification processes. A new Water Gas Shift (WGS) unit was developed to convert CO in the product gas to hydrogen with steam over iron based catalyst in order to meet the hydrogen demand in the SHR reactor. Once hydrogen is separated and recycled, the process is left with methane rich SNG as a final product.

The total project cost was approximately \$210,000 including \$100,000 SCAQMD funding. Viresco Energy provided the rest in both monetary and in-kind contributions. This project, which was completed in March 2011, has demonstrated that the SHR process is capable of achieving as high as 69% carbon conversion rate and producing Synthetic Natural Gas with 90% mass methane content. Based on these results, production of SNG with HHV of 13.9 GJ/day (13.2 MMBTU/day) is estimated at a feedstock flow rate of 1 BDT/day. Furthermore, a feedstock availability assessment conducted by UCR/CE-CERT projected that 15.4 billion CF of SNG, approximately 5% of the total annual natural gas production in CA, can be annually produced using this process from available green waste and biosolids in the South Coast Air Basin.

Table 6: Projects Completed between January 1 & December 31, 2011

Contract	Contractor	Project Title	Date
<i>Infrastructure and Deployment</i>			
06029	Clean Energy	Upgrade CNG Fueling Station at SoCalGas Santa Monica Facility	Dec-11
06030	Clean Energy	Purchase & Install CNG Fueling Station at Foothill Transit's Pomona Facility	Dec-11
06042	UCLA Fleet & Transit Services	Upgrade Existing CNG Public Access Station with Dispenser & Card Reader	Dec-11
06043	County Sanitation Districts of Los Angeles	Purchase & Install CNG Fueling Station at Joint Water Pollution Control Plant in Carson City	Dec-11
06074	City of Sierra Madre	Purchase & Install New Public Access CNG Fueling Station at City Yard	Dec-11
06082	Clean Energy	Purchase & Install New 24-Hour Public Access CNG Fueling Station at SoCalGas's Canoga Park Facility	Dec-11
06139	Lake Elsinore Unified School District	Purchase and Install New Public Access CNG Fueling Station at Maintenance Yard	Dec-11
08033-1	California Air Resources Board	Demonstrate LPG Stop-Fill Unit	Jun-11
10181	BAF Technologies	Demonstrate Natural Gas-Powered Police Vehicle	Mar-11
<i>Fuels/Emission Studies</i>			
07181	California Air Resources Board	Physical, Chemical & Toxilogical Assessment of the Semi-Volatile & Non-Volatile Fraction of PM	Apr-11
08033-2†	California Air Resources Board	Test Particulate Measurement Device for In-Use Vehicles	Jun-11
08263	University of California Riverside/CE-CERT	Evaluate Emissions Impacts from Diesel Biofuel & Biofuel Blends	Dec-11
10693	West Virginia University Research Corporation	Provide Transportable Laboratory Testing to Quantify Emissions from SCR Technology	Aug-11
11519	University of California Riverside	Evaluate Protocols for Measuring Emissions from Cleaning of Application Equipment & Surfaces	Jun-11
<i>Emission Control Technologies</i>			
08033-3†	California Air Resources Board	Demonstrate Retrofit SCR System for NO _x Emission Reduction Using Crystalline Matrix Storage for Ammonia	Jun-11
08068	Johnson Matthey Inc.	Develop & Demonstrate SCR Technology for NO _x and PM Emissions	Jan-11
08261	Community Recycling & Resource Recovery, Inc.	Showcase: Demonstrate NO _x & PM Emissions Control Technology on Diesel-Powered Construction Equipment	Mar-11
10125	University of California Riverside	Demonstrate Projects for Renewable Feedstock to Energy and Fuel Technologies	Mar-11

Table 6: Projects Completed between January 1 & December 31, 2011

Contract	Contractor	Project Title	Date
<i>Emission Control Technologies (cont'd)</i>			
11655	California State University Long Beach Foundation	CSULB CEERS Student Education Study to Assess the Effects of an Exhaust Scrubber on Diesel Emissions	Dec-11
<i>Electric/Hybrid Technologies</i>			
09017	U.S. Environmental Protection Agency	Develop & Demonstrate Hydraulic-Hybrid Shuttle Bus	Oct-11
09023†	ISE Corporation	Develop & Demonstrate a Battery Electric Transit Bus	May-11
09360†	BMW of North America LLC	Lease of Five Mini-E Electric Vehicles	Dec-11
09427	City of Santa Monica	Demonstrate Battery Electric Class 4 Utility Truck	Dec-11
<i>Engine Systems</i>			
08192	Westport Power, Inc.	Develop & Demonstrate 2010 Compliant LNG Heavy-Duty Truck	Jun-11
10041	McNeilus Truck and Manufacturing	Develop Prototype Natural Gas-Powered Concrete Mixer Truck and Demonstrate Performance and Emissions	Jun-11
<i>Mobile Fuel Cell Technologies</i>			
11656	Bevilacqua-Knight, Inc.	Participate in California Fuel Cell Partnership for Calendar Year 2011 & Provide Support for Regional Coordinator	Dec-11
<i>Hydrogen Infrastructure</i>			
05165	Air Products and Chemicals Inc.	Install & Demonstrate Three Electrolyzers (in Burbank, Riverside & Santa Monica) and Two Mobile Fuelers (in Santa Ana & Ontario)	Jun-11
10149	NextEnergy Center	Cosponsor Feasibility, Design & Development of 70 MPa Hydrogen Home Fueling Appliance	Nov-11
<i>Health Impacts Studies</i>			
08033-4	California Air Resources Board	Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort	Jun-11
08033-5	California Air Resources Board	Extended Analysis of Air Pollution & Cardiopulmonary Disease in the California Teachers Study Cohort	Jun-11
<i>Stationary Clean Fuels Technology</i>			
05027	SolSource Energy	Install an 80 kW Solar Panel System at SCAQMD Headquarters	Jun-11
10114	Orange County Sanitation Districts	Retrofit Digester Gas Engine with Fuel Gas Clean-Up and Exhaust Emission Control Technology	Sep-11

Table 6: Projects Completed between January 1 & December 31, 2011

Contract	Contractor	Project Title	Date
<i>Outreach and Technology Transfer</i>			
02311†	Cole, Jerald A.	Technical Assistance for Development, Outreach & Commercialization of H2 Infrastructure & Reforming Technology	Jun-11
02333†	University of California Riverside	Technical Assistance on Clean Fuels, Hydrogen, Fuel Cell & Natural Gas Technologies	Jun-11
04146†	Gross, Tom	Technical Assistance for Hydrogen & Fuel Cell Technologies	May-11
05121†	Sullivan, Cindy	Technical Assistance for Development, Analysis & Technology Implementation of Incentive Programs	Mar-11
05171†	Hazelton, James	Technical Assistance on AB 1222 Advisory Group	Mar-11
07130†	Burnett & Burnette	Technical Assistance with CNG Technology	Dec-11
09184†	University of California Riverside	Technical Assistance on Advanced, Low- and Zero-Emission Technologies and Implementation Activities	Aug-11
10716†	California Hydrogen Business Council	Platinum Membership Renewal	May-11
11156†	Gladstein, Neandross & Associates LLC	Cosponsor the ACT "Alternative Clean Transportation" Expo 2011	Jul-11
11207†	Coordinating Research Council, Inc.	Cosponsor the CRC Mobile Source Air Toxics Workshop	May-11
11563†	Western Riverside Council of Governments	Cosponsor 12 th Annual WRCOG's Advancing the Choice Event	May-11
11565†	Community Partners FBO Move LA	Cosponsor the Move LA "We Love LA" Events Series	Aug-11
11591†	Better World Group, The	Outreach & Planning Assistance for MSRC's 20 th Anniversary Workshop & Retreat	Sep-11
11618†	Coordinating Research Council, Inc.	Cosponsor the CRC Life Cycle Analysis Workshop of Biofuels	Dec-11
11622†	Three Squares, Inc.	Cosponsor the Women in Green Forum	Nov-11
11678†	University of California Davis-Institute of Transportation Studies	Cosponsor the Asilomar 2011 Conference on Transportation and Energy	Dec-11

†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 2012 PLAN UPDATE

Technology Funding Priorities for 2012

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 and the latest progress in the state-of-the-technology. The past few years have been especially difficult for technology partnering due to the dramatic global economic downturn, which has shifted national research and development priorities and opportunities. The challenge for the SCAQMD continues to be how to identify project or technology opportunities in which its available funding can accelerate the commercialization and deployment of progressively cleaner technologies in the Basin.

The overall strategy is based in large part on technology needs identified in the 2007 AQMP for the Basin and the SCAQMD Board's directives to protect the health of residents of Southern California. The 2007 AQMP is the long-term "blueprint" that defines the basin-wide emission reductions needed to achieve ambient air quality standards by 2014 and 2023, the regulatory measures to achieve those reductions, the timeframes to implement these proposed measures and the technologies or types of technologies required to meet these future federal standards. As previously identified, the NO_x and VOC emission sources of greatest concern are heavy-duty on-road and off-road and light-duty on-road vehicles.

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.

In recent years, it has become increasingly clear that the importation of goods 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 two years on developing zero and near-zero emissions goods movement technologies, such as electric trucks, plug-in hybrid trucks with all-electric range, trucks operating from wayside power and even electric locomotives. The prioritization of these types of projects as well as potential technologies which assist with their further development and deployment are emphasized in the 2012 Plan Update.

This 2012 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 2007 AQMP and to address the increasing challenges this region is facing to meet air quality standards, including new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches. The scope of projects in the 2012 Plan Update also needs to remain sufficiently flexible to address requirements in the 2012 AQMP as they are identified during development of this AQMP update.

Within each technical area, 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.

- Technology *development* projects are expected to begin during 2012 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 2014. 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 2015 or later.
- More mature technologies, those ready to begin field *demonstration* in 2012, are expected to result in a commercial product in the 2013-14 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, one of government's roles is to support and offset any incremental cost 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.

Technical Priorities

The SCAQMD program maintains flexibility to address dynamically evolving technologies incorporating the latest 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 2014 PM_{2.5} and 2023 8-hour ozone standards, the areas of zero- and near-zero emission technologies need to be emphasized and this effort can be seen in the following sections and in the proposed funding distribution in Figure 1. The major technical program areas are identified below with specific project categories discussed in more detail in the following sections. The 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 areas will be funded, due to cost-share constraints, focus on the control measures identified in the 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. In fact, the AQMD historically has leveraged its funds \$1 for every \$4 of total project costs.

It should be noted, however, 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. As such, these technical areas are not listed by priority but rather based on proximity to commercialization and large-scale deployment.

Infrastructure and Deployment

The importance of 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 of public and private infrastructure investments, 2) expand the network of public-access and fleet fueling stations and charging sites 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.

CNG and LNG refueling stations are being positioned to support 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 ICTC network.

Active participation in the development of NFPA fire and safety codes and standards, 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 synthetic gas to be converted into renewable natural gas;
- Deployment of natural gas home refueling appliances for light-duty vehicles;
- Investigation and enhancing safety of and emission reduction for 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 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 emissions. These studies showed that biofuels, especially biodiesel, 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, the SCAQMD has recently 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.

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 and cellulosic biomass plays an important role in this regard. In this regard, the SCAQMD funded a research project in 2011 to identify regional cellulosic biofuel feedstocks best suited for a large scale production in California. This project utilizes a newly developed robotic system capable of handling a large number of samples to determine their sugar yields and potentials as biofuel feedstocks.

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 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; and
- lifecycle energy and emissions analyses to evaluate conventional and alternative fuels.

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 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 gas 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 particulate traps and selective catalytic reduction catalysts);
- development and demonstration of low-VOC and PM lubricants for diesel and natural gas engines; and
- development and demonstration of advanced air pollution control equipment.

Electric and Hybrid Technologies

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 widescale 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.

The development and deployment of zero emission goods movement systems remains one of top priorities for the SCAQMD to support a balanced and sustainable growth in the port complex. In addition to collaborating with the Ports of Los Angeles and Long Beach to identify promising technologies for such systems, the SCAQMD released a Request for Information in November 2011 to seek information on viable zero- and near-zero emission locomotive technologies such as dual-mode locomotives using wayside power like catenary or third rail, battery tender cars, maglev, linear motor systems, fuel cell and other applicable technologies. The information provided will be used to better understand technology options and associated requirements in preparation for potential future development and deployment initiatives. Another notable action the SCAQMD has taken in support of zero-emission goods movement systems is the release of a Request for Proposal in December 2011 for a prototype zero-emission linear motor goods movement system. The project selected in this program shall be funded from the Advanced Technology Goods Movement Fund which has been established to facilitate the development and deployment of low- and zero-emission goods movement technologies.

There also remains high interest by the major automobile manufacturers for hybrid-electric technologies in light-, medium- and heavy-duty applications as well as off-road equipment. In particular, diesel- and gasoline-fueled hybrid-electric vehicles and specialty light-duty pure electric vehicles have entered the commercial market. 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. Opportunities to develop and demonstrate technologies that could enable expedited widespread use of electric and hybrid-electric vehicles in the Basin include the following:

- evaluation and demonstration of light-, medium- and heavy-duty plug-in hybrid electric vehicles;
- demonstration of full performance and niche application battery electric vehicles;
- demonstration of advanced energy storage technologies;
- 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 and demonstration of hybrid and electric technologies for goods movement, e.g., linear inductive motors and series hybrids with all electric range trolley trucks on catenary wayside power;
- 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/hybrid-electric vehicle fleets currently on the roads or soon entering the market.

Engine Systems

The use of alternative fuels can provide significant reductions in NO_x and PM emissions, especially in heavy-duty diesel engines for on-road, off-road and marine applications. Natural gas engines have shown significant promise, with the greatest benefit coming from heavy-duty diesel truck and bus replacement with new natural gas vehicles in urban areas.

In order for alternative fuel heavy-duty engines to achieve commercial acceptance and market penetration, their performance, durability and cost-effectiveness, in addition to emissions reduction, must be demonstrated to the end user. Future projects will support the development, demonstration and certification of alternative fuel engines using an optimized systems approach to broaden their application and availability. Specifically, these projects are expected to target the following:

- continued development and demonstration of alternative fuel medium-duty and heavy-duty engines and vehicles;
- development and demonstration of clean alternative fuel engines for off-road applications;
- development and demonstration of hybrid electric technologies for off-road applications;
- evaluation of alternative engine systems such as compressed air propulsion and hydraulic plug-in hybrid vehicles; and
- development and demonstration of engine systems that employ advance fuel or alternative fuels, engine design features, improved exhaust or recirculation systems, and aftertreatment devices.

Hydrogen Infrastructure & Fuel Cell Technologies

The SCAQMD supports hydrogen infrastructure and fuel cell technologies as one option in our technology portfolio and is dedicated to assisting the federal and state governments in commercializing fuel cell vehicles by supporting the required refueling infrastructure.

SCAQMD has supported many efforts for fuel cell demonstration and deployment in the South Coast district. Stationary fuel cells offer base-load power solutions that can operate 24/7. To combine power generation, hydrogen infrastructure and renewable energy within a single technology advancement would present a unique opportunity to produce clean renewable energy. The SCAQMD has partnered with federal and state agencies, industry and universities to develop a stationary fuel cell that operates on biogas to produce heat, power and hydrogen. An SCAQMD project demonstrating this technology is in progress at a wastewater sanitation district in the Basin. This project could advance SCAQMD's goals for clean distributed generation, hydrogen infrastructure and renewable energy. Going forward the technology is being refined and tested with the goal to apply it to other sites where biogas is a byproduct that can be utilized.

Hydrogen use as a vehicle fuel offers an attractive combination of benefits including zero-tailpipe emissions, petroleum displacement and greenhouse gas emissions reduction, with long driving range and short refueling times compared to other zero-emissions vehicle technologies. While technical hurdles have kept fuel cell vehicles from quickly advancing to commercial deployment, they are now emerging in fleets that will be significantly deployed in the south coast region of California. In particular, the production of hydrogen from renewable sources is of interest, either using photovoltaics and electrolyzer technologies or biomass feedstocks and reformation technologies, due to the potential for lower greenhouse gas emissions compared to conventional fuels. Such renewable energy projects would provide data to help understand and benchmark critical parameters for enabling these technologies.

Considerable research, development and demonstration efforts are already underway to address these issues by some of the largest automobile manufacturers and fuel suppliers. Yet more work is needed to improve the performance and range of these vehicles, reduce costs, develop a viable fueling infrastructure and obtain public acceptance for a new technology in everyday applications.

The SCAQMD has sponsored the development and deployment of fuel cell bus technologies because these heavy-duty vehicles have zero tailpipe emissions, help establish hydrogen infrastructure and provide outreach potential through ridership. The SCAQMD is currently supporting the development of advanced fuel cell transit bus applications to commercialize the technology and make it available for federal funding. The American Fuel Cell Bus Project is a program to create a purpose built fuel cell bus platform with components that are sourced in the U.S. This successful project will open up FTA funding for future transit purchases of the clean zero emission bus technology. Work continues on supplier development and manufacturing integration.

The SCAQMD is actively working with the California Fuel Cell Partnership and the California Hydrogen Highway Network to further the commercialization of fuel cells and install the required hydrogen refueling infrastructure. Calendar Years 2015-2017 is a critical timeframe for the introduction of fuel cell vehicles. Since stations need one to two years lead time for permitting and construction, plans for stations need to be initiated now. 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.

The 2012 Plan Update identifies key opportunities consistent with both organizations while clearly leading the way for pre-commercial demonstrations of OEM vehicles. Future projects may include the following:

- development and demonstration of hydrogen-natural gas vehicles for medium- and heavy-duty vehicle applications as well as stationary power applications;
- continued development and demonstration of distributed hydrogen production and refueling 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; and
- demonstration of fuel cell vehicles in controlled fleet applications in the Basin.

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 combustion 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 steam hydrogasification process to produce natural gas from biomass and biosolids (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 WGS reactor can produce substituted natural gas containing up to 90% methane.

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; and
- evaluation, development and demonstration of advanced control technologies for miscellaneous stationary sources.

Target Allocations to Core Technology Areas

below presents the potential allocation of available funding, based on SCAQMD projected program costs of \$16.2 million for all potential projects. The expected actual project expenditures for 2012 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 2012 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.

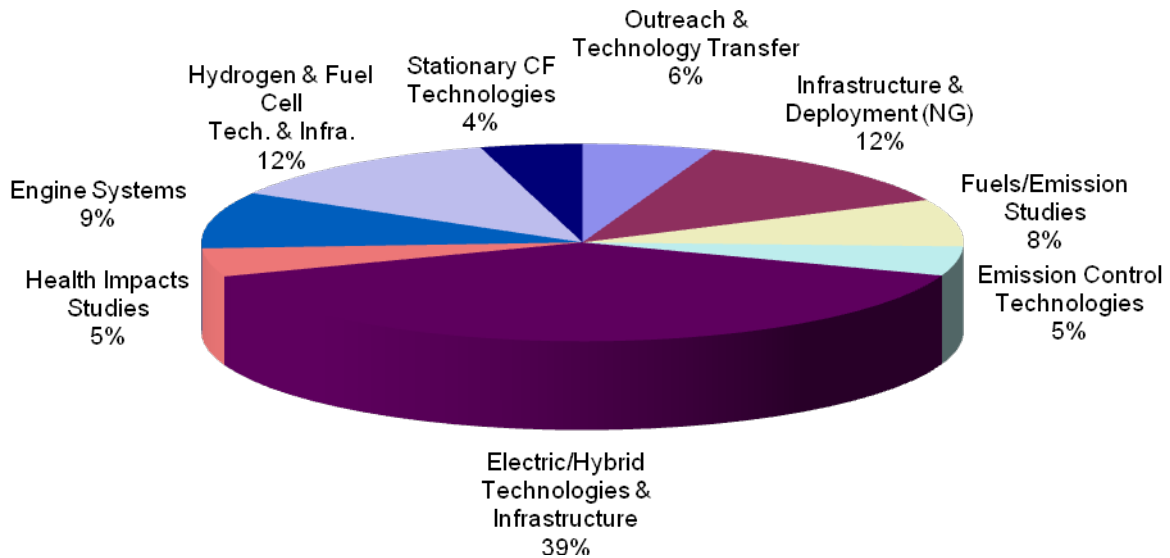


Figure 18: Projected Cost Distribution for Potential SCAQMD Projects 2012 & Beyond (\$16.2M)

PROGRAM PLAN UPDATE FOR 2012

This section presents the Clean Fuels Program Plan Update for 2012. The proposed projects are organized by program areas and described in further detail, consistent with the SCAQMD budget, priorities and the best available information. 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 7 summarizes potential projects for 2012 as well as the redistribution of AQMD costs in some areas. The relative shift in funding allocation are a result of the continued but increasing focus on zero and near-zero emission technologies as well as awards over the last year to other technology areas. For the past two years the SCAQMD has emphasized electric and hybrid-electric technologies and the urgency now is to develop and demonstrate heavy-duty all electric fuel cell, plug-in hybrid and hybrid technologies with all electric range for zero and near-zero emission goods movement applications, including the infrastructure for such technologies.

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 7.

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 7: Summary of Potential Projects

Proposed Project	Expected SCAQMD Cost \$	Expected Total Cost \$
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Infrastructure and Deployment

Deploy Natural Gas Vehicles in Various Applications	500,000	2,000,000
Develop, Maintain & Expand Natural Gas Infrastructure	1,000,000	2,000,000
Demonstrate LNG Manufacturing and Distribution Technologies Including Renewables	500,000	7,000,000
Subtotal	\$2,000,000	\$11,000,000

Fuels/Emission Studies

In-Use Emissions Studies for Advanced Technology Vehicle Demonstrations	750,000	1,000,000
Conduct Emissions Studies on Biofuels and Alternative Fuels	100,000	1,300,000
Identify and Demonstrate In-Use Fleet Emissions Reduction Technologies & Opportunities	400,000	2,000,000
Subtotal	\$1,250,000	\$4,300,000

Emission Control Technologies

Develop and Demonstrate Advanced Aftertreatment Technologies	525,000	5,000,000
Demonstrate On-Road Technologies in Off-Road and Retrofit Applications	250,000	1,000,000
Subtotal	\$775,000	\$6,000,000

Electric/Hybrid Technologies

Demonstrate Light-Duty Plug-In Hybrid & Battery Electric Vehicles and Infrastructure	1,000,000	2,000,000
Develop and Demonstrate Medium- and Heavy-Duty Hybrid Vehicles and Infrastructure	4,000,000	8,000,000
Demonstrate Alternative Energy Storage	300,000	2,000,000
Develop and Demonstrate Electric Container Transport Technologies	1,000,000	5,000,000
Subtotal	\$6,300,000	\$17,000,000

Engine Systems

Develop and Demonstrate Advanced Alternative Fuel Medium- and Heavy-Duty Engines and Vehicles	1,000,000	20,000,000
Develop and Demonstrate Alternative Fuel and Clean Conventional Fueled Light-Duty Vehicles	500,000	1,500,000
Subtotal	\$1,500,000	\$21,500,000

Table 7: Summary of Potential Projects

Proposed Project	Expected SCAQMD Cost \$	Expected Total Cost \$
Hydrogen Infrastructure & Fuel Cell Technologies		
Develop and Demonstrate Distributed Hydrogen Production and Fueling Stations	1,750,000	6,000,000
Develop and Demonstrate Fuel Cell Vehicles	250,000	4,000,000
Subtotal	\$2,000,000	\$10,000,000
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
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	\$800,000	\$1,200,000
TOTALS FOR POTENTIAL PROJECTS	\$16,175,000	\$77,550,000

Technical Summaries of Potential Projects

Infrastructure and Deployment

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 the SCAQMD AQMP as well as the state's Alternative Fuels Plan as part of AB1007 (Pavley).

Proposed Project: Develop, Maintain & Expand Natural Gas Infrastructure

Expected SCAQMD Cost: \$1,000,000

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 NO_x, 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 LNG Manufacturing and Distribution Technologies Including Renewables

Expected SCAQMD Cost: \$500,000

Expected Total Cost: \$7,000,000

Description of Technology and Application:

Lack of 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 the significant penetration of zero- and low-emission vehicles in the South Coast Basin to attain federal clean air standards by 2014. 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: \$750,000

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 the AQMD's air quality goals.

Proposed Project: Conduct Emissions Studies on Biofuels and Alternative Fuels

Expected SCAQMD Cost: \$100,000

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. With an anticipated increase in biofuel use, it is the objective of this program 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.

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 AQMD 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: \$400,000

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, which is included in Chapter 4 of the 2007 AQMP as a potential control strategy.

Emission Control Technologies

Proposed Project: Develop and Demonstrate Advanced Aftertreatment Technologies

Expected SCAQMD Cost: \$525,000

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 air ports.

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 emissions 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.

Electric/Hybrid Technologies

Proposed Project: Demonstrate Light-Duty Plug-In Hybrid and Battery Electric Vehicles and Infrastructure

Expected SCAQMD Cost: \$1,000,000

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 small internal combustion engine, battery pack and electric drive motors to improve fuel economy (e.g., Honda Insight) or performance (e.g., Lexus RX400h).

The SCAQMD has long supported the concept of using increased batteries 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 “blended” 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 will enable vehicles to charge from 120V (Level 1) or 240V (Level 2) using a common conductive connector overnight or in a few hours. Japan has adopted a Fast DC charging standard that could charge a passenger car in 30 minutes or less, and demonstrations will help provide data to adopt a recommended practice in the U.S.

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.

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; and 7) support for local government outreach and charging installation permit streamlining.

Potential Air Quality Benefits:

The 2007 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 near-zero and 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: \$4,000,000

Expected Total Cost: \$8,000,000

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 2007 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 li-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 2007 AQMP. This program is expected to develop hybrid 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: \$1,000,000

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 the berm of or elevated above existing river flood control channels. 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 AQMD is considering is the Linear Synchronous Motor (LSM) technology developed by General Atomics to transport cargo containers with zero tailpipe emissions using electromagnetic propulsion system. The LSM system is derived from the maglev technology without its levitation component and is estimated to move a fully loaded 40-ft container at a top speed of 50 mph for approximately 3 kw-hr of electricity per mile. This LSM technology can be potentially adapted to trucking operations where an electric truck with the container on a trailer is moved by linear motors embedded in the road. In addition to the LSM technology, there are other technology options for electric container applications such as dual-mode locomotives or trucks using wayside power, e.g., a third rail or catenary, hybrid electric technologies with battery storage, a battery tender car, magnetic levitation, and fuel cell propulsion system. 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 2007 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: \$1,000,000

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-duty and heavy-duty vehicles;
- 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: \$500,000

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, gas-to-liquid (GTL), bio-diesel and ultra low-sulfur diesel. 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; and
- assessment of “clean diesel” vehicles, including hybrids and their ability to attain SULEV standards.

Other fuel and technology combinations may also be considered under this category.

Potential Air Quality Benefits:

The 2007 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.

Hydrogen Infrastructure & Fuel Cell Technologies

Proposed Project: Develop and Demonstrate Distributed Hydrogen Production and Fueling Stations

Expected SCAQMD Cost: \$1,750,000

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, 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.

Potential Air Quality Benefits:

The 2007 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 Fuel Cell Vehicles

Expected SCAQMD Cost: \$250,000

Expected Total Cost: \$4,000,000

Description of Technology and Application:

This proposed project would support the demonstration of promising fuel cell technologies for applications using direct hydrogen in proton exchange membrane (PEM) fuel cell technologies. 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.

With the implementation of the California Hydrogen Highway Network, supplemented by the existing and planned hydrogen refueling stations in the Southern California area, pre-production vehicles are planned for demonstration in controlled fleets, such as local cities, transit authorities and airports. Some of these pre-production vehicles include light-duty trucks as well as small to full size transit and shuttle buses. 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. 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. This category may include projects in the following applications:

On-Road:

- Light-Duty Vehicles
- Transit Buses
- Shuttle Buses
- Medium-Duty Trucks (Utility or Other)

Off-Road:

- Vehicle Auxiliary Power Units
- Construction Equipment
- Lawn and Garden Equipment
- Cargo Handling Equipment

Potential Air Quality Benefits:

The 2007 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 widescale 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.

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 program, 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, etc. These tests may also include comparisons with the application of particulate matter retrofit traps. This program 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 Air Quality Management Plan 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 other areas of interest to conduct ambient air monitoring, conduct the emissions monitoring, analyze the data and assess the 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.

The measurement of organic compounds as tracers from specific sources is a technique that has been used in numerous source apportionment studies and published within the scientific literature. The resulting data on levels of tracers can be evaluated using Chemical Mass Balance Models and other source apportionment techniques, such as Positive Matrix Factorization, to estimate source contributions to particulate matter. The resulting estimates of ambient diesel particulate matter can then be used to assess potential health risks.

It is anticipated that in CY 2012 MATES IV related studies and assessments will be initiated. Additionally, other related studies may be conducted, 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. A more technical approach might 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:

The 2007 AQMP indicates that in 2010 stationary sources, i.e., stationary engines, boilers, heaters, furnaces and ovens, will account for about 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 dairy 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; 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 2007 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.

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 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 incentives program, 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

Tom Cackette/Bob Cross	California Air Resources Board
Martin Schlageter	Coalition for Clean Air
Dr. Blair Folsom.....	Independent Consultant in Combustion Technology
James Uihlein.....	Chevron
John D. Harper, Jr.	Small Business Coalition
Philip J. Hodgetts	Clean Air Now
Patrick Davis.....	U.S. Department of Energy
Tim Olson.....	California Energy Commission
Lee Wallace/R. Steve Simons	Sempra Energy
Ed Kjaer/Jordan Smith	Southern California Edison

SB 98 Clean Fuels Advisory Group*

Martin Schlageter	Coalition for Clean Air
Dr. Blair Folsom.....	Independent Consultant in Combustion Technology
Dr. John Froines	UCLA Center for Occupational and Environmental Health/UCLA School of Public Health
Dr. Fritz Kalhammer	Independent Consultant in Energy and Process Technology
Dr. Melanie Marty.....	Office of Environmental Health Hazard Assessment
Dr. Wayne Miller	Center for Environmental Research and Technology University of California, Riverside
Dr. Vernon Roan	Center for Advanced Studies in Engineering University of Florida
Dr. Scott Samuelsen	Combustion Laboratory/National Fuel Cell Research Center/University of California, Irvine
Dr. George Sverdrup	National Renewable Energy Laboratory
Dr. Nicholas Vanderborgh	Independent Consultant in Fuel Cell Technologies
Michael Walsh	Independent Consultant in Motor Vehicle Pollution Control

*Two appointments pending

Appendix B

Open Clean Fuels Contracts as of January 1, 2012

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	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	04/30/14	\$203,137	\$833,333
06028	Consolidated Disposal Service, LLC	Purchase & Install CNG Fueling System at Long Beach Waste Transfer Station	11/23/05	07/31/14	222,038	740,127
06031	R.F. Dickson Company, Inc.	Upgrade CNG Station at Bellflower Facility	04/13/06	12/31/12	211,148	703,828
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	12/31/13	150,000	450,000
06237	Whittier Union High School District	Upgrade Existing Public Access Station with New Dispenser and Card Reader	10/02/06	12/31/12	15,921	31,842
06238	Gas Equipment Systems Inc.	Purchase & Install New CNG Fueling Systems at City of San Fernando Public Works Dept Yard	12/15/06	12/31/12	73,200	410,000
07051	City of Pasadena	Purchase & Install New Public Access CNG Fueling Station	12/28/06	12/31/12	165,000	550,000
07149	City of San Bernardino	Purchase & Install New Public Access LNG-L/CNG Station at City of San Bernardino Municipal Service Yard	06/25/07	12/31/12	164,861	1,399,110
07151	Menifee Unified School District	Purchase & Install New Public Access CNG Station	01/25/07	12/31/12	75,000	414,500
07152	Newport-Mesa Unified School District	Purchase & Install New Limited Public Access CNG Station	05/16/07	12/31/12	150,000	375,000
07153	Foothill Transit	Purchase & Install New Public Access CNG Refueling Station in Irwindale	11/02/09	12/31/12	250,000	3,350,000
07243	City of Commerce	Purchase & Install New Public Access L/CNG Station	05/16/07	12/31/12	250,000	1,300,000
07244	SunLine Transit Agency	Upgrade Existing Public Access CNG Stations in Thousand Palms & Indio	04/04/07	12/31/12	90,000	180,000
07245	USA Waste of California, Inc., dba L.A. Metro	Purchase & Install New LNG Production Facility using Landfill Gas from Altamont Landfill in Livermore	07/11/08	12/31/13	300,000	13,000,000
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	12/31/13	200,000	440,000
07320	Orange County Transportation Authority	Install New CNG Station in the City of Santa Ana	12/21/07	12/31/12	350,000	5,841,729
08043	University of California Los Angeles	Public Access CNG Refueling Station Upgrade for UCLA Transportation	05/02/08	12/31/13	140,000	350,000

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	Project Total \$
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Infrastructure and Deployment (cont'd)

08044	Beaumont Unified School District	Install Limited Access CNG Refueling Station	03/05/09	12/31/13	288,000	615,994
08098	Redlands Unified School District	Purchase & Install New CNG Refueling Station	01/25/08	12/31/13	525,000	700,000
08101	Pupil Transportation Cooperative	Upgrade Existing Public Access CNG Station	01/04/08	12/31/13	187,154	300,000
08271	Los Angeles Unified School District	Purchase & Install New CNG Refueling Station	06/03/08	12/31/13	617,480	1,747,000
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
09348	AFV Fleet Services	Demonstrate Two Natural Gas Powered Police Vehicles	04/03/09	03/18/12	75,000	75,000
09364	Rim of the World Unified School District	Construct & Install a CNG Fueling Station	12/30/10	12/31/14	257,000	425,000
10034	California Cartage Company	Install LNG Fueling Station at the Ports	01/26/10	11/01/14	532,500	1,065,000
10054	Applied LNG Technologies Inc.	Upgrade & Perform Emergency Repairs of L/CNG Refueling Facility	10/30/09	12/31/14	113,359	226,719
10055	Waste Management Collection & Recycling	New Public Access CNG Refueling Station in Santa Ana	12/11/09	12/31/14	250,000	1,622,558
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
10640	Yellow Cab of Greater Orange County	Conversion of 45 Taxicabs to Natural Gas Power for Deployment as Airport Ground Transportation	04/23/10	06/01/12	337,500	675,000
11559	Ace Parking Management	Purchase Six Natural Gas-Powered Cutaway-Type Shuttle Vans	05/06/11	07/31/13	96,200	600,950
11561	Supershuttle International	Purchase and Convert 20 Gasoline-Powered Passenger Vans to CNG-Powered Passenger Shuttle Vans	06/01/11	07/31/13	320,600	954,600
12135	Placentia-Yorba Linda Unified School District	Upgrade CNG Fueling Station	11/18/11	11/30/17	60,000	60,000

Fuels/Emission Studies

08320	University of Denver	Remote Sensing Measurements of On-Road Emissions from Heavy-Duty Diesel Vehicles	02/06/09	01/31/13	161,041	161,041
09290	University of California Riverside	Evaluate Emissions Impacts from Natural Gas Blends on Vehicle Emissions	01/30/09	09/30/12	50,000	450,000
10066	National Renewable Energy Laboratory	CRADA – Loan of 70 MPa Hydrogen Quality Sampling Apparatus to AQMD	11/02/09	12/30/15	0	0

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	Project Total \$
Fuels/Emission Studies (cont'd)						
10095	University of California Davis-Intelligent Transportation Systems	Cosponsor Sustainable Transportation Pathways Program	06/29/10	07/31/12	120,000	2,310,000
10722	University of California Riverside/CE-CERT	Re-Establish Testing Facility & Quantify PM Emission Reductions from Charbroiling Operations	08/06/10	03/31/12	60,000	60,000
11611	West Virginia University Research Corporation	In-Use Emissions Testing and Demonstrate Retrofit Technology of On-Road Heavy-Duty Engines	07/08/11	10/07/12	734,742	894,647
11612	University of California Riverside	In-Use Emissions Testing and Demonstrate Retrofit Technology of On-Road Heavy-Duty Engines	07/08/11	10/07/12	689,742	708,524

Emission Control Technologies

07236	National Renewable Energy Laboratory	Investigate the Role of Lubricating Oil on Particulate Matter Emissions from Vehicles	03/23/07	12/30/15	100,000	446,887
08246	Griffith Company	Showcase: Demonstrate NO _x & PM Emissions Control Technology on Diesel-Powered Construction Equipment	5/14/08	12/31/12	191,450	297,450
08252	City of Culver City	Showcase: Demonstrate NO _x & PM Emissions Control Technology on Diesel-Powered Construction Equipment	07/08/08	03/31/12	38,900	138,475
08318	ServoTech Engineering Inc.	Showcase: Demonstrate NO _x & PM Emissions Control Technology on Diesel-Powered Construction Equipment	07/08/08	12/15/12	320,000	990,420
08321	Environmental Systems Products	Remote Sensing Measurements of On-Road Emissions from Heavy-Duty Diesel Vehicles	08/12/08	01/31/12	38,000	38,000
09000	Shimmick Construction	Demonstrate NO _x & PM Emissions Control Technologies on Diesel Powered Construction Equipment	09/11/09	03/31/12	38,900	38,900
10069	Johnson Matthey, Inc.	Develop & Demonstrate SCRT for NO _x and PM Emissions Control	06/18/10	10/13/13	300,000	1,480,000
10696	Johnson Matthey, Inc.	Optimize & Demonstrate SCRT for NO _x and PM Emissions Control	07/09/10	03/31/12	300,000	2,818,449
10697	Johnson Matthey, Inc.	Optimize & Demonstrate SCCRT for NO _x and PM Emissions Control	07/09/10	03/31/12	300,000	2,818,449
10112	Sanitation Districts of Los Angeles County	Showcase: Retrofit Select Catalytic Reduction System & Diesel Particulate Filters on Off-Road Construction Equipment	02/26/10	02/21/12	116,450	116,450
11136	ServoTech Engineering	Demonstrate NO _x and PM Emissions Control Technology on Diesel-Powered Construction	10/15/10	05/31/12	132,000	432,000
12113	Southern Counties Terminals dba Griley Air Freight	Retrofit Three Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/13/11	03/31/14	15,000	45,000
12114	South Bound Express, Inc.	Retrofit Three Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/13/11	03/31/14	15,000	54,623

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	Project Total \$
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Emission Control Technologies (cont'd)

12118	National Ready Mixed Concrete	Retrofit 13 Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/13/11	03/31/14	65,000	239,806
12120	Standard Concrete Products	Retrofit 40 Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/13/11	03/31/14	200,000	596,665
12121	Challenge Dairy Products, Inc.	Retrofit Three Heavy-Duty Diesel Trucks with Diesel Particulate Filters	11/18/11	03/31/14	15,000	46,845
12122	Bear Trucking, Inc.	Retrofit One Heavy-Duty Diesel Truck with Diesel Particulate Filter	10/14/11	03/31/14	5,000	13,555
12123	RRM Properties	Retrofit 107 Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/06/11	03/31/14	535,000	1,481,067
12124	Gaio Trucking, Inc.	Retrofit Nine Heavy-Duty Diesel Trucks with Diesel Particulate Filters	09/28/11	03/31/14	45,000	165,669
12125	Spragues Ready Mix	Retrofit Four Heavy-Duty Diesel Trucks with Diesel Particulate Filters	10/14/11	03/31/14	20,000	62,953
12175	RRM Properties	Retrofit Seven Heavy-Duty Diesel Trucks with Diesel Particulate Filters	12/08/11	03/31/14	35,000	84,812
12186	Pipeline Carriers Inc.	Retrofit 25 Heavy-Duty Diesel Trucks with Diesel Particulate Filters	12/16/11	03/31/14	125,000	455,750

Electric/Hybrid Technologies

99109	Toyota	Lease Two Toyota RAV4 Electric Vehicles for CY 2011	04/04/99	02/01/11	7,902	7,902
05260	Energy Control Systems Engineering, Inc.	Conversion of Light-Duty Vehicle to Plug-In Hybrid Vehicles	09/09/05	03/31/12	215,000	940,000
08063	Quantum Fuel Systems Technologies Worldwide, Inc.	Develop & Demonstrate 20 Plug-In Hybrid Electric Vehicles	01/22/08	12/15/14	2,095,613	2,815,266
08067	Calstart	Demonstrate Hydraulic-Hybrid Shuttle Bus	10/30/07	03/31/12	250,000	1,210,000
08219	A123Systems Inc.	Develop & Demonstrate Ten Plug-In Hybrid Electric Vehicles	06/05/09	06/04/15	622,667	962,667
09345	South Bay City Council of Governments	Demonstrate Medium-Speed Electric Vehicles	06/19/09	04/30/13	178,825	178,825
09360	BMW of North America LLC	Lease of Five Mini Cooper Electric Vehicles for CY 2011	05/05/09	12/25/12	51,063	51,063
10738	Foothill Transit	Demonstrate Quick-Charge Infrastructure for Electric Buses	10/29/10	06/28/13	290,000	6,790,000
11204	AC Propulsion	Develop & Demonstrate Electric Drive Conversion for Fleet Vehicles	12/24/10	10/30/12	300,000	755,767
11205	Calstart	Implement Hybrid Truck and Bus Voucher Incentive Program	12/02/10	03/31/12	1,500,000	1,500,000

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	Project Total \$
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Electric/Hybrid Technologies (cont'd)

11606	Odyne Systems, LLC	Develop and Demonstrate Plug-In Hybrid Electric Drive System for Medium- and Heavy-Duty Vehicles	07/08/11	07/07/13	494,000	2,599,000
11725	Puente Hills Nissan	Lease of Three Nissan Leaf Vehicles for 39 Months	05/27/11	08/26/14	60,222	82,722
12024	ECotality North America	Install Electric Charging Infrastructure	11/04/11	05/03/13	70,000	70,000
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

Engine Systems

11485	Waste Management Collection & Recycling, Inc.	Demonstrate Refuse Truck Retrofitted with Cummins ISL-G Natural Gas Engine	03/18/11	01/31/12	75,000	300,876
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Mobile Fuel Cell Technologies

10501	American Honda Motor Company, Inc.	Lease a Clarity Fuel Cell Vehicle for Three Years	01/21/10	01/20/13	24,001	24,001
10650	SunLine Transit Agency	Demonstrate Advanced Fuel Cell Bus (American Fuel Cell Bus)	06/04/10	06/03/13	400,000	10,214,843
10714	University of California Irvine	Develop Fuel Cell Gas Turbine Hybrid System for On-Board Locomotive Applications	12/02/11	12/01/13	78,000	156,000
11656	Bevilacqua-Knight, Inc.	Participate in California Fuel Cell Partnership for Calendar Year 2011 and Provide Support for Regional Coordinator	01/01/11	12/31/11	137,800	1,632,600

Hydrogen Technologies and Infrastructure

04011	Air Products and Chemicals, Inc.	Install & Demonstrate an Industrial Pipeline-Supplied Hydrogen Fueling Station in Torrance	08/03/05	02/28/12	489,051	944,761
04185	Quantum Fuel Systems Technologies Worldwide	Develop & Demonstrate Hydrogen Internal Combustion Engine Vehicles	10/18/04	08/31/12	2,182,851	3,328,631
10046	Air Products and Chemicals Inc.	Develop & Demonstrate Renewable Hydrogen Energy and Refueling Station	12/21/09	05/31/13	750,000	8,436,735
10061	Hydrogenics Corporation	Maintenance & Data Management for the AQMD Hydrogen Refueling Station	10/30/09	06/30/12	238,000	238,000
11150	Hydrogen Frontier, Inc.	Maintenance & Operation of City of Burbank Hydrogen Fueling Station	11/24/10	01/24/15	200,000	1,060,000
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

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	Project Total \$
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Health Impacts Studies

09307	California Air Resources Board	In-Vehicle Air Pollution Exposure Measurement & Modeling	09/01/08	06/28/12	250,000	500,000
11527	University of Southern California	Conduct Study on Sources, Composition, Variability and Toxicological Characteristics of Ultrafine Particles in Southern California	07/24/11	07/24/14	470,969	470,969

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
09304	Solar Integrated Technologies Inc.	Install Turnkey Rooftop 40 kW Building Integrated Photovoltaic System	12/20/08	12/19/14	390,695	390,695

Outreach and Technology Transfer

00069	Walsh Consulting	Technical Assistance Relating to the Use of Alternative Fuels in Mobile Sources	02/17/00	02/28/12	35,000	35,000
02308	Sperry Capital, Inc.	Evaluate Financial Stability of Potential Contractors	06/25/02	12/31/13	50,000	50,000
04049	Engine, Fuel & Emissions Engineering Inc.	Technical Assistance for Alternative Fuels Engine Technology	11/21/03	04/30/13	120,000	120,000
05126	St. Croix Research	Development, Outreach & Commercialization of LNG, CNG and Hydrogen Fuels	03/15/05	03/31/13	25,000	25,000
05127	Protium Energy Technologies	Development, Outreach & Commercialization of Hydrogen and Fuel Cell Technologies	03/14/05	03/31/12	60,000	60,000
05128	Mid-Atlantic Research Institute LLC	Development, Outreach & Commercialization of Advanced Heavy-Duty and Off-Road Technologies	08/08/05	03/31/11	40,000	40,000
05198	Don Stedman	Technical Assistance for Remote Sensing Programs for Light-Duty Vehicles and Locomotives	05/30/05	11/30/12	25,000	25,000
07059	Dowling Associates, Inc.	Technical Assistance Related to Air Quality Impacts of Regional Goods	12/19/06	11/30/12	68,000	68,000
07060	Don Breazeale and Associates, Inc.	Technical Assistance Related to Air Quality Impacts of Regional Goods Movement	11/15/06	11/30/12	58,000	58,000
07062	The Tioga Group, Inc.	Technical Assistance Related to Air Quality Impacts of Regional Goods	12/19/06	11/30/12	58,000	58,000
07129	Breakthrough Technologies Institute, Inc.	Technical Assistance with Fuel Cell Technology	12/01/06	03/31/12	40,000	40,000
07314	Engine, Fuel and Emissions Engineering, Inc.	Technical Assistance with Advanced Heavy-Duty and Off-Road Technologies	06/25/07	12/31/13	60,000	60,000

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	Project Total \$
Outreach and Technology Transfer (cont'd)						
08210	Sawyer Associates	Technical Assistance on Mobile Source Control Measures and Future Consultation on TAO Activities	02/22/08	02/28/12	25,000	25,000
08254	Maria Robles, R.N.	Administrative Assistance in Organizing Two Air Quality & Health-Related Conferences	05/02/08	07/31/12	149,760	149,760
08311	CALSTART	Technical Assistance with Development, Outreach, and Commercialization of Advanced Technology to Transit, Port & Other Activities	07/11/08	05/31/12	75,000	75,000
09183	Gary Full	Technical Assistance on Remote Sensing Measurement Technologies as Applied to Auto, Heavy-Duty Diesel and Other Mobile Sources	02/20/09	06/30/12	20,000	20,000
09185	Clean Fuel Connection Inc.	Technical Expertise on the CARB EMFAC Mobile Emissions Model and Other Related Mobile Source Issues	05/08/09	06/30/12	50,000	50,000
09252	JWM Consulting Services	Technical Assistance with Review & Assessment of Advanced Technologies, Heavy-Duty Engines, and Conventional & Alternative Fuels	12/20/08	06/30/12	30,000	30,000
09253	Nexant, Inc.	Technical Assistance on Alternative Fuels Life-Cycle Analyses	01/02/09	06/30/12	20,000	20,000
09255	Stan Lisiewicz	Technical Assistance with Caltrans	01/29/09	12/31/12	10,000	10,000
09337	Mark Weekly, CPA	Follow-Up Assessment of AQMD's Compliance with Special Revenue Funds	03/03/09	01/31/13	35,000	35,000
10056	Advanced Transportation Technology & Energy, San Diego Community College District	Enhanced Training Technology Program	05/27/10	12/31/13	500,000	500,000
10062	TIAX LLC	Technical Assistance for Implementation of Proposition 1B Goods Movement Program and Truck Replacement Program	11/13/09	12/31/21	200,000	575,000
10700	TIAX LLC	Technical Assistance for Advanced, Low- and Zero-Emissions Mobile & Stationary Source Technologies	07/23/10	05/31/12	120,000	120,000
10662	Gladstein, Neandross & Associates	Technical Assistance for Implementation of Proposition 1B Goods Movement and Truck Replacement Program	05/12/10	12/31/13	175,000	175,000
10663	Clean Fuel Connection	Technical Assistance for Implementation of Proposition 1B Goods Movement Program	05/12/10	12/31/12	250,000	350,000

Contract	Contractor	Project Title	Start Term	End Term	AQMD \$	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	12/31/12	40,000	40,000
11117	Clean Fuel Connection, Inc.	Technical Assistance for Alternative Fuels, Renewable Energy and Electric Vehicles	09/17/10	12/31/12	50,000	50,000
11144	San Diego Community College District on behalf of Advanced Transportation Technology and Energy	Natural Gas-Powered Vehicle Training and Safety and Fuel Cylinder Inspection Program	12/10/10	05/31/13	130,000	130,000
11148	Joseph C. Calhoun, P.E. Inc.	Technical Assistance for Development, Outreach & Commercialization of Advanced Low-Emission Vehicle	10/08/10	12/31/12	35,000	35,000
11182	Tech Compass	Technical Assistance with Alternative Fuels, Fuel Cells, Emissions Analysis & Aftertreatment Technologies	11/19/10	12/31/12	75,000	75,000
11484	Gladstein, Neandross & Associates, LLC	Develop and Implement Two Customer Centers to Provide Education and Outreach to Truck Owners and Operators	01/27/11	05/31/12	150,000	150,000
12104	Three Squares, Inc.	Development, Initiation & Implementation of a Clean Vehicle Outreach Project	09/23/11	09/22/12	100,000	100,000

Appendix C

Final Reports for 2011

SCAQMD Contract #06029

December 2011

Upgrade CNG Fueling Station at SoCalGas Santa Monica Facility

Contractor

Clean Energy

Cosponsor

South Coast Air Quality Management District
(SCAQMD)

Project Officer

Larry Watkins

Background

This contract provided funding to offset the capital costs of equipment to upgrade the CNG station at 1701 Stewart Street in Santa Monica. Total station cost was approximately \$604,941; the SCAQMD's cost share represented approximately 30% of the total project cost.

Project Objective

The intention of this award was to upgrade the existing publicly accessible CNG facility and fueling station at 1701 Stewart Street, Santa Monica through the addition of a new compressor and dispenser.

Technology Description

The facility is comprised of:

- ◆ Two IMW compressors rated at 700 scfm (standard cubic feet per minute);
- ◆ Cascade storage system (28,500 scf at 4,800 psi (pound-force per square inch));
- ◆ One dual-hose Greenfield dispenser with a Multiforce CRIND (cardreader in dispenser) with one hose providing 3,000 psig fueling and the other providing 3,600 psig fueling; and
- ◆ One regenerative dryer capable of keeping fuel moisture content at or below 0.5 lbs/MMscf (million scf).

Status

Construction began during the week of September 19, 2005. The station was commissioned on March 6, 2006. On average, this facility is dispensing approximately 200 gallons of fuel per day. Currently, the station is providing fuel to Santa Monica/Malibu Unified School District, Yellow Cab, Beverly Hills Cab, City Cab, Super Shuttle, City of Los Angeles Parking Enforcement and residents living/traveling in West Los Angeles. Verizon plans to fuel over 80 CNG vans at the site and the City of Santa Monica utilizes the station as a redundant backup fueling site to their private station.



Results

The goal of this project was to increase the throughput and reliability of this facility. This was achieved through the installation of a significantly larger compressor and bank of storage vessels. This facility has demonstrated the ability to reliably fuel its current users, as well as helped enable the anticipated addition of the Verizon fleet.

Benefits

As a fueling station, this facility does not provide any direct emission reduction benefits; however, indirect benefits do result from a strategically located station such as this facility in Santa

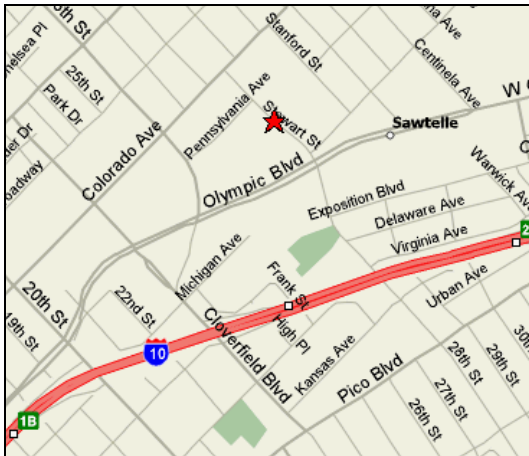
Monica. The benefits resulting from this facility derive from the vehicles that are able to continue to operate and the additional vehicles that are capable of being deployed because there is a reliable source of natural gas fuel available. Thus far, an average of 200 gallons of petroleum fuel has been displaced on a daily basis due to the construction of this facility. We anticipate an increase in this amount as the station's fueling base increases.

Project Costs

Total station cost is approximately \$604,941; SCAQMD's cost share of \$181,482 represents 30% of the total project cost. At the time of proposal, the projected station cost was listed at \$634,500, so the project came in under budget.

Commercialization and Applications

Clean Energy recognizes the benefits of using natural gas as a vehicle fuel relative to the emission reduction goals of the SCAQMD and believes that reliable and easily accessible infrastructure is key to making natural gas fuel usage a reality.



SCAQMD Contract #06030

December 2011

Purchase & Install CNG Fueling Station at Foothill Transit's Pomona Facility

Contractor

Clean Energy

Cosponsors

Clean Energy
South Coast Air Quality Management District
(SCAQMD)

Project Officer

Larry Watkins

Technology Description

The existing compression equipment is comprised of (3) dual compressors with a total capacity of over 2,000 gallons per hour; 60,000 standard cubic feet (SCF) of ASME high pressure storage vessels; and a regenerative dryer capable of meeting SAE J1616 moisture requirements. New equipment installed includes one (1) dual-hose dispenser capable of providing 3,000 and 3,600 psi fill pressure with an anticipated afterflow rate of no less than 4 gallons per minute.

Background

Air quality in the South Coast Air Basin is negatively affected by the vast numbers of conventionally fueled vehicles that travel daily on area highways and surface streets. The deployment of natural gas vehicles as replacement vehicles for gasoline or diesel is key to reducing harmful tailpipe emissions. However, for many potential drivers, the proximity of fueling infrastructure relative to home or work is problematic. The purpose of this project was to construct a new public-access CNG facility at the Foothill Transit base facility at 200 South East End Avenue in Pomona.

Project Objective

Foothill Transit currently operates a fleet of natural gas buses; however, the existing station did not include public-access fueling. The goal of this project was to carve out space for a public-access fueling dispenser for third-party natural gas vehicle operators to fuel at the Foothill Transit, Pomona facility without infringing on the operation or security of the Foothill Transit fleet. The public access dispensers will be tied into the existing compression equipment with necessary upgrades being made to ensure fast, reliable fueling for all users.

Status

The public access carve-out commenced fueling operations on November 27, 2006. Since inception, this facility has displaced 6,963 gallons of fuel.



Results

Emission reductions are achieved by vehicles deployed as a result of a reliable source of low-emission fuel. Assuming an equal distribution of natural gas taxis and shuttles over the 5-year life of the contract, based on current fuel consumption, emission reductions achieved as a result of this facility are approximately five (5) tons of NO_x annually. Vehicles that fuel with natural gas achieve the same fuel economy as their gasoline counterparts; however, due to the cleaner nature of the fuel being used, generally natural gas vehicles require less maintenance. The decreased maintenance and fuel costs are key selling points for these vehicles when marketing to fleet managers.

Benefits

As noted above, fueling stations do not directly create emission reductions; however, their existence is necessary to ensure the continued use and deployment of natural gas vehicles, a direct source for quantifiable emission reductions. It is conservatively estimated that five (5) tons of tailpipe emissions will be reduced annually as a result of the fuel dispensed from this station. As additional vehicles are deployed, tailpipe emissions will be further reduced. The presence of public-access CNG facilities, such as the one commissioned as a result of this funding, is a key factor in convincing fleet operators to consider natural gas vehicles during their annual procurement schedules.

Project Costs

Prior to the start of construction of the public-access carve-out, Clean Energy had invested over \$3 million in the construction of private-access fueling for Foothill Transit, Pomona. A wall was constructed to ensure the security of Foothill Transit's operations and the new public access dispenser was tied into the existing compression equipment. Total public access cost was \$396,677. The cost share provided by this SCAQMD contract represents 23% of the total budget or \$92,506. Clean Energy provided the remaining capital or \$304,171.

Commercialization and Applications

Clean Energy staff continue to market the benefits of using compressed natural gas to fleet operators throughout the South Coast Air Basin. Additionally, their employee base includes a staff member whose focus is to educate the public on the economic benefits of the natural gas Honda Civic GX. All fueling stations are listed on Clean Energy's website and in its natural gas fueling directory which is produced biannually. The Clean Energy Team is charged with reminding consumers that natural gas is here today and that in addition to being a viable solution to reaching emission reduction goals, it is also a stepping stone to hydrogen, often referred to as the fuel of the future.

SCAQMD Contract #06042

December 2011

Upgrade Existing CNG Public Access Station with Dispenser & Card Reader

Contractor

University of California, Los Angeles (UCLA),
Fleet & Transit Services

Cosponsor

South Coast Air Quality Management District
(SCAQMD)
MSRC / AB2766 Discretionary Fund

Project Officer

Larry Watkins

Technology Description

Station construction included the installation of a Greenfield compressor with a minimum capacity of 175 SCFM (standard cubic feet per minute), a 4500 psi storage vessel, a split priority panel, a Greenfield video dispenser, and a catwalk around the compressor enclosure. Station start-up processes occurred in early August and included the fueling of test vehicles.

The completed facility meets all required codes and passed a Fire Marshall safety inspection prior to the public opening.

Background

UCLA was an early adopter of compressed natural gas (CNG) as a fleet fuel. The station selected for upgrade under the terms of Contact #06042 was a first-generation system, installed in 1993. The original set-up of the station included public use; however, its primary user was the UCLA fleet.

Project Objective

UCLA now operates 62 CNG fleet vehicles, including 14 CNG campus shuttle buses. To meet growing fuel demands of the UCLA fleet and public users, the facility required a system upgrade. UCLA was awarded \$15,921 from the South Coast Air Quality Management District (SCAQMD) and matching funds of the same amount from the Mobile Source Air Pollution Reduction Review Committee (MSRC) to replace the existing dispenser and card reader located at the CNG Fueling Station at Fleet Services. UCLA was subsequently awarded \$140,000¹ from SCAQMD to replace the entire CNG Fueling Station at Fleet Services in partnership with Clean Energy Fuels, Inc. The proposed upgrade would bring this first generation system to the fueling capacity and reliability level found in the state-of-the-art CNG systems installed today.

¹ SCAQMD will pay 'once' on the dispenser and card reader replacement costs; therefore the award amount is net of the \$15,921 initially awarded.



Figure 1. UCLA's new station provides 24/7 public access.

Status

Station construction commenced in May 2008 with the Grand Opening ceremony taking place on August 28, 2008. The final report was submitted to the SCAQMD for consideration on December 12, 2008.

Results

Fueling infrastructure does not provide direct emission reduction benefits or improved air quality on its own. Those benefits are achieved

from the natural gas vehicles that fuel at reliable stations such as this. The UCLA CNG station provides the UCLA fleet and private West Los Angeles users with a reliable source of fuel for their vehicles.

We believe this project to have been a success as the station was effectively upgraded from its original first-generation equipment to new state-of-the-art equipment. Since completion of the facility upgrade, the UCLA station has displaced an average of 2,500 gallons of fuel per month. The facility is technically capable of reaching the throughput requirement of 150,000 GGE (gasoline gallons equivalent) annually by its third year of operation.

Benefits

The upgraded facility located at 741 Charles Young Drive is now technically capable of reaching the throughput requirement of 150,000 GGE annually by its third year of operation, a milestone beyond the capacity of the original station.

Clean Energy provides its customers with turn-key solutions for natural gas transportation fuel. As a result, station construction and upgrade is able to be standardized. Adjustments are easily managed by a team of engineering professionals.

Project Costs

At the time of contracting, the project budget was estimated at \$350,000 with the SCAQMD contributing \$140,000, or 40% of the project cost. At the close of construction, the total project cost was \$397,152. The \$140,000 contributed by the SCAQMD represents 35% of the total budget (less than the 40% as originally considered).

Commercialization and Applications

Compressed natural gas as a vehicle fuel is commercially available on a limited basis throughout the South Coast Air Basin. This project expanded the fueling capacity of an existing CNG station to allow greater user access, thus expanding the viability of this alternative fuel in the West Los Angeles area.

Clean Energy recommends that the SCAQMD continue to support and fund natural gas fuel projects as a strong network of publicly accessible

infrastructure which will help to support the capacity of CNG as an alternative fuel in the South Coast Air Basin. At present, natural gas is the cleanest available fuel technology and provides its users and the communities in which they travel with improved air quality via reduced tailpipe emissions.

Purchase & Install CNG Fueling Station at Joint Water Pollution Control Plant in Carson City

Contractor

County Sanitation Districts of Los Angeles County

Cosponsor

South Coast Air Quality Management District (SCAQMD)
MSRC / AB2766 Discretionary Fund

Project Officer

Larry Watkins

Background

The Los Angeles County Sanitation Districts (LACSD) has always been in the forefront of implementing advanced technology for improving air quality relating to their landfill operations. The LACSD began their alternative fuel program in 1993 and are now aggressively pursuing the integration of alternative fueled vehicles into their fleet. This fueling facility is located at the LACSD's Joint Water Pollution Control Plant (JWPCP) in the City of Carson close to a busy freeway and major cross streets. The location of the fueling station is ideal for fueling of the Sanitation Districts' fleet and for other fleets in the area. The number of vehicles that travel through the area and easy freeway access makes the JWPCP an ideal location for a fueling station.

Project Objective

The project objectives of constructing a CNG fueling facility at the LACSD's Joint Water Pollution Control Plant (JWPCP) under this grant program are:

- An integrated fueling infrastructure to fulfill demands of the LACSD's fleet.
- A convenient fueling location for local fleets and public access.
- Improve air quality in the SCAQMD region by eliminating extra trips for fueling.
- Promote and support purchase of alternative-fuel vehicles for local fleets who cannot

afford to build their own fueling infrastructure.

Technology Description

The station is designed with two GreenField Model C3U209, skid-mounted, electric-driven compressors. Both compressors have a rated flow capacity of 300 SCFM (standard cubic feet per minute) with a supplied gas pressure of 116 psig (pound-force per square inch gauge). Combined, the compressors can provide a total rated flow capacity of 600 SCFM. This design along with three pressure storage vessels (10,000 scf each) will more than meet the needs of the LACSD's fleet of compressed natural gas (CNG) vehicles as well as other local fleet operators.

The major equipment used for this station is:

- Two GreenField, Model C3U209, electric-driven compressors
- One electronic buffer/ESD priority panel
- One Xebec inlet model STR20NGX-AutoDew dryer (regenerating)
- Three 10,000 scf ASME high-pressure buffer storage vessels
- Two dual-hose dispensers with card readers

Status

The station construction was completed in October 2006. This project started with a Notice to Proceed in September 2005 and groundbreaking took place in April 2006. The station equipment was delivered on-site early May 2006. Electrical and gas lines were installed during most of June, July and August. Southern California Edison and the Los Angeles County Fire Department inspected the station during August and September. The start-up activities took place during the early part of October. The station officially opened on October 26.

On-site personnel receive at least one day training on the basic operations and maintenance of the compressors, dryers, dispensers, and storage vessels, including the monitoring and warning systems.



Results

The goal of this project is to provide CNG fuel to the LACSD's CNG vehicles and other local fleets. For the first seven weeks after the station opened, the station dispensed over 10,000 gallons gasoline equivalent (gge) of CNG. This usage will increase once the public is aware of the station.

To promote use of the station, Clean Energy will continue to contact local fleets. A Grand Opening event was also being planned which will also help the marketing strategy.

Benefits

This project will benefit the environment of the South Coast Air Basin in several ways, especially in the reduction of diesel particulate emissions and the increased efficiency of having a CNG fueling facility on-site and near this major traffic area. The location of the fueling station is ideal for fueling of the Sanitation Districts' fleets and other major fleet operators such as City of Carson, local disposal haulers, local Yellow Cab company, and the Palos Verdes Peninsula Transit Authority (PVPTA). The PVPTA operates shuttle buses and has been one of the major users of the station.



This station will benefit many fleet operators and will help enhance the market for CNG vehicle purchases.

Project Costs

The total cost of this turnkey project is \$1,182,298, which is higher than the projected cost of \$850,000 as listed in the proposal. The official bid price received was \$1,170,000. Two change orders for painting walls around the station and sealing asphalt were issued in the amount of \$12,298.

The other sponsor for funding this project is the MSRC at \$150,000. LACSD is funding the balance of the project cost at \$782,298.

Purchase & Install New Public Access CNG Fueling Station at City Yard

Contractor

City of Sierra Madre

Cosponsors

South Coast Air Quality Management District (SCAQMD)
Los Angeles County Metro Transit Authority (LACMTA)

Project Officer

Larry Watkins

Technology Description

The City of Sierra Madre installed two (2) 50 SCFM (standard cubic feet per minute) compressors for a total rating of 100 SCFM at 20psig. The project also included the installation of a FuelMaker FM 350A 12 gallon fast-fill module, one regenerative dryer, and two (2) dual-hose time fill posts. This equipment and associated installation complied with various codes, regulations, and testing including the California Code of Regulations (Title 8), NFPA 52, NFPA 60 and NFPA 70, ASME Boiler and Pressure Vessel Code, ASME B31.3, Uniform Building Code, and various other State and Federal Regulations.

Background

In 2001, the 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 (NO_x) emissions.

These rules and regulations prompted the City of Sierra Madre staff to explore the alternative fuel market and the City began to purchase CNG fueled vehicles when replacements to the aging fleet were necessary.

Project Objective

The objective of this project was to construct a limited-access facility to support clean natural gas power vehicles and equipment for the Cities of Sierra Madre, Arcadia and Monrovia, the School Districts of Arcadia and Pasadena and Foothill Transit vehicles to utilize the facility for fueling their fleet vehicles. The location of the station is 621 E. Sierra Madre Blvd., Sierra Madre, California.

Additionally, it was the objective of this project to assist the cities, school districts and Foothill Transit to comply with regulations as they provide vital services for the general public. Finally, the effort was undertaken to promote the use of alternative fuels for the universally recognized benefits of area air quality.



CNG Station Full View



CNG Fast-Fill Module

Status

The project was completed and the CNG fueling infrastructure became operational in the summer of 2008. All necessary permits and documents are in place.

The new equipment has been observed to be relatively problem-free. One equipment failure was noted in late 2010 when the electric motor that operates the compressor stopped working and had to be replaced. The use of the station by agencies other than the City of Sierra Madre has been inconsistent and less than hoped for, as additional stations have been built that are more convenient for those agencies.

Results/Benefits

The City of Sierra Madre has replaced six (6) vehicles with CNG fueled new vehicles since 2008. This includes two (2) heavy-use community transportation vans. The new fueling station has resulted in significant cost savings in staff and contractor time that would have been needed for off-site CNG fueling, as well as mileage associated with off-site fueling and the cost of the fuel.

The City of Sierra Madre was also able to purchase a CNG fueled Vac-Con Sewer cleaner/vacuum vehicle that incorporated the first CNG fueled chassis built by industry leader Freightliner Trucks.

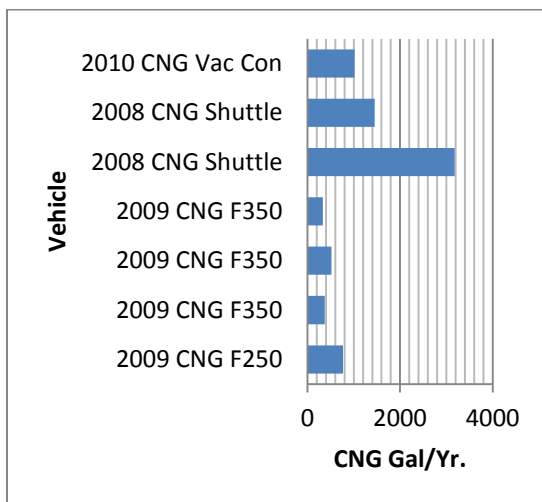
mobility services for seniors, disabled, and youth in the community.

Project Costs

The project expenditures totaled \$311,733, of which \$73,776 came from local matching funds from the SCAQMD. The remainder of the funding was from Federal sources.

Commercialization and Applications

The City of Sierra Madre plans to operate this facility for many years. As the existing aged fleet comes up for replacement considerations, City policy dictates that CNG be incorporated into all new vehicle purchases wherever possible. Recently, staff has been following the technical developments in the field, and is exploring the possibility of expanding the CNG consideration to public safety vehicles (police vehicles, fire trucks, ambulances, etc.) as well.



Of the seven vehicles that have converted to CNG, a total of 7,630 gallons were obtained at the fueling facility by Sierra Madre vehicles. Shuttle consumption was the highest and represents the highest benefit of the project. These shuttles are used 6 days a week and provide important

Purchase & Install New 24-Hour Public Access CNG Fueling Station at SoCalGas's Canoga Park Facility

Contractor

Clean Energy

Cosponsors

South Coast Air Quality Management District
(SCAQMD)
MSRC / AB2766 Discretionary Fund
Southern California Gas Company (SoCalGas)

Project Officer

Larry Watkins

- ◆ One dual-hose Greenfield dispenser with a Multiforce CRIND (card reader in dispenser) capable of supplying no less than four gallons of fuel per minute with one hose providing 3,000 psig fueling and the other providing 3,600 psig fueling;
- ◆ One regenerative dryer capable of keeping fuel moisture content at or below 0.5 lbs/MMscf; and
- ◆ A canopy to protect station users and equipment from the sun and inclement weather.

Background

This contract provides \$250,000 to offset the capital cost of equipment for a new, publicly accessible compressed natural gas (CNG) fueling station at 7711 Canoga Avenue, Canoga Park (base of the Southern California Gas Company). Total station cost is approximately \$868,387; thus the SCAQMD's cost share represents 29% of the total project cost.

Project Objective

The intention of the award is to expand the network of natural gas fueling stations throughout the South Coast Air Basin. This station, located in the San Fernando Valley will increase and advance the visibility of natural gas for current and future users in the area. This project followed a standardized procedure for constructing natural gas fueling stations in the South Coast Air Basin, transitioning smoothly between engineering, permitting and construction.

Technology Description

The facility is comprised of:

- ◆ Two IMW compressors rated at 350 scfm (standard cubic feet per minute) each;
- ◆ Three ASME high pressure storage vessels capable of providing 30,000 scf of high pressure storage;

Overall, the planning, permitting and construction of this facility ran smoothly. A delay was encountered during the permitting phases due to concerns raised by the Los Angeles County Fire Department regarding safety and fire issues. Our engineering team addressed their concerns by educating key personnel about the use of natural gas as a vehicle fuel. This education session assuaged their concerns and the project was allowed to move forward. This delay is not viewed as unusual and typically does not create a significant change in cost or the project schedule.

Status

Construction began in early August 2005 and was completed on November 23, 2005. In the first few months of operation, this facility is dispensing approximately 200 gallons of fuel per day. We expect that these volumes will increase significantly as more NGV users become aware of this station and begin accessing it. At the time of the grant application, we had received fueling commitments from SuperShuttle and City Cab. These fleet users had deemed the station as an integral part of their San Fernando Valley operation and are excited to have access to fuel in this part of the Valley.



Commercialization and Applications

Clean Energy recognizes the benefits of using natural gas as a vehicle fuel relative to the emission reduction goals of the SCAQMD and believes that reliable and easily accessible infrastructure is key to making natural gas fuel usage a reality.

Results

The goals of the project are met in that infrastructure has increased with the commissioning of this publicly accessible fueling station. Further, this project will provide indirect air quality results when clean burning, natural gas vehicles are deployed and operated throughout the area.

Benefits

As a fueling station, this facility does not provide any direct emission reduction benefits; however, indirect benefits do result from a strategically located station such as this facility in Canoga Park. The benefits resulting from this facility derive from the vehicles that are able to continue to operate and the additional vehicles that are capable of being deployed because there is a reliable source of natural gas fuel available. Thus far, an average of 200 gallons of petroleum fuel has been displaced on a daily basis due to the construction of this facility. We anticipate an increase in this amount as the station's fueling base increases.

Project Costs

Total station cost is approximately \$868,387; thus the SCAQMD's cost share of \$250,000 represents 29% of the total project cost. At the time of proposal, the project station cost was \$842,050. This increase in cost from proposal date (12/2003) to project completion date (11/2005) can be attributed to the increasing cost of equipment and labor.

SCAQMD Contract #06139

December 2011

Purchase & Install New Public Access CNG Fueling Station at Maintenance Yard

Contractor

Lake Elsinore Unified School District (LEUSD)

Cosponsors

South Coast Air Quality Management District (SCAQMD)
Lower Emission School Bus Program AB 923
Carl Moyer Program AB 923

Project Officer

Larry Watkins

Background

LEUSD operates over 90 transit and special needs buses in the Elsinore Valley, which encompasses the communities of Lake Elsinore, Wildomar, Canyon Lake, and portions of the outlying communities of Perris, Corona, Murrieta, and Temecula. LEUSD provides home-to-school transportation for qualified students as well as transportation for extracurricular activities such as field and sports trips. Last year the District clocked 1.6 million miles transporting students.

Faced with record growth, an aging fleet, and compliance with SCAQMD Rule 1195, LEUSD adopted a long-term plan to ultimately replace the existing diesel fleet with cleaner burning CNG school buses. This decision would benefit the health of students and help to decrease toxic diesel emissions in the valley.

Project Objective

In order to realize the goal of a CNG school bus fleet, LEUSD decided that infrastructure for CNG would be necessary, as the closest fueling station was beyond a 20 mile radius from the transportation facility. The infrastructure project would be done in two phases: phase one would accommodate fueling 30 CNG buses total. Phase two would be built to accommodate future expansion of the CNG bus replacement program, and to offer CNG fueling to neighboring school districts for CNG vehicles.

The development and expansion of both the CNG infrastructure and fleet are paramount to LEUSD's goal of providing pupil transportation that is both beneficial to student health and is environmentally responsible within the South Coast Air Basin.

Technology Description

LEUSD went out for bid on Phase One of the infrastructure project and accepted the proposal from Gas Equipment Systems, Inc. (GESI) as this particular bid included the desired state-of-the-art technology paired within the financial parameters set forth by the District.

The LEUSD CNG fueling facility installed by GESI includes:

- 2X60 SCFM 40 HP Ingersoll Rand Compressors skid mounted with a fueling capability of 1 dge/minute (diesel gallon equivalent);
- Five fill posts with dual filling hoses mounted on k-rails with one fuel post set-up for a quasi fast-fill. Phase one k-rails are built to expand as the diesel fleet is replaced by CNG vehicles.
- Southern California Gas Company provided and installed the main gas supply line to accommodate both phases of infrastructure operation.
- A fast fill storage tank is planned for installation in phase two.

Status



GESI and Southern California Gas Company, working closely with LEUSD personnel, completed the CNG fueling infrastructure project in September 2005 and the equipment was put to work immediately fueling the newly acquired

seven 84-passenger CNG school buses. The fueling facility runs efficiently and is utilized on a daily basis by Transportation staff. LEUSD has contracted a preventative maintenance agreement with GESI to insure that if problems occur, minimal down time will result.

Benefits

The infrastructure project has produced immediate benefits for LEUSD and it is anticipated that the long-term benefits of the project will be substantial not only to the District, but to the community at large.

The most obvious immediate benefit of the CNG project has been the cost savings from CNG vs. diesel. Although the infrastructure has only been completed and running since September 2005, estimates are that approximately 2000 gallons of diesel fuel are displaced monthly; seven diesel buses have been removed from operation through this program, and have been replaced with cleaner burning CNG at lower fuel and operating costs. Additionally the NO_x and HC emissions are decreased as is particulate matter caused by the burning of diesel fuel. This is of particular importance in the Riverside County area as air quality in this region is often unhealthy during the warmer months of May to October due to local/regional industry and transportation.

The long-term benefits of a CNG school bus fleet would be the expectation of significantly reducing toxic air pollutants in the South Coast Air Basin, and also to have a positive impact on student health. The EPA cites health concerns in connection to diesel exhaust, and students transported on diesel powered buses would have greater exposure to diesel emissions.

LEUSD is the pioneer in southwest Riverside County with its CNG project and invites any school district in the Southland to visit its facility to observe its operation and to discuss the transition.

Project Cost

The total cost of the CNG infrastructure project as of September 2005 was \$367,420. The cost includes: consultant services, bid advertisements, design and installation, electrical subcontractors, and final testing of equipment.

The allocated SCAQMD grant funds for the CNG infrastructure totaling \$128,000 cover 42%

of the project cost. An additional grant in the amount of \$35,000 was funded by SCAQMD from the Clean School Bus Program. All additional cost exceeding grant funding was paid for by LEUSD.

Vehicle Operating Cost

Savings to LEUSD will come from two main sources while operating CNG school buses:

- Reduced fuel costs
- Reduced maintenance and repair costs

The District has already realized a cost savings benefit as the sharp rise in diesel prices has kept pace with the spiraling price of gasoline. Although natural gas prices spiked following the Katrina disaster, comparatively speaking CNG remained the more affordable energy source to diesel as diesel prices, along with gasoline, were affected by the hurricane as well.

Reduced maintenance and repair costs are anticipated from the CNG fleet as well because CNG is a cleaner burning fuel, thus requiring less frequent engine service.

Recommendation

LEUSD is excited about being pioneers with CNG school bus operation in southwest Riverside County. The District takes great pride in the accomplishments in bringing together a functioning CNG fueling station and the acquisition of seven new 84- passenger CNG school buses.

For school districts throughout California, the availability of monetary grants through agencies such as SCAQMD, MSRC, and the EPA make alternative fuel programs viable and even attractive when considering long-term financial and environmental goals.

Through partnership with SCAQMD, MSRC, and consultant Herbert Burnett, LEUSD has been able to secure the necessary funding, technology, and assistance needed to move forward with a plan that would not have been possible without being awarded grant funds. Therefore, it is recommended that these grant programs continue so that interested school districts throughout the South Coast Air Basin have an opportunity to receive the financial backing necessary to implement alternative fuel programs for their vehicle fleets.

Demonstrate LPG Stop-Fill Unit

Contractor

California Air Resources Board (CARB)

Cosponsors

CARB
South Coast Air Quality Management District (SCAQMD)

Project Officer

Larry Watkins

Background

The Maximus™ (SFI) is an innovative stop-fill instrument using cutting-edge acoustic sensing to reduce emissions and conserve valuable energy resources during the filling of LP Gas tanks. This solution gives the LP Gas industry a cost effective, simple-to-use and reliable tool that will improve the way tanks are filled. The Maximus™ technology grew out of work done at Los Alamos National Laboratory (LANL), to measure liquid levels of hazardous liquids. Adept Science & Technologies, LLC (ASCENT) adapted the technology to develop and utilize a proprietary acoustic method to non-invasively detect the presence of either liquid or gas at a specific point in an LP Gas tank. (US: 6,286,370 B1). As liquid reaches a predetermined maximum fill point, the acoustic signal received by the sensor changes indicating the presence of liquid on the other side of the tank wall and that refueling should be stopped.

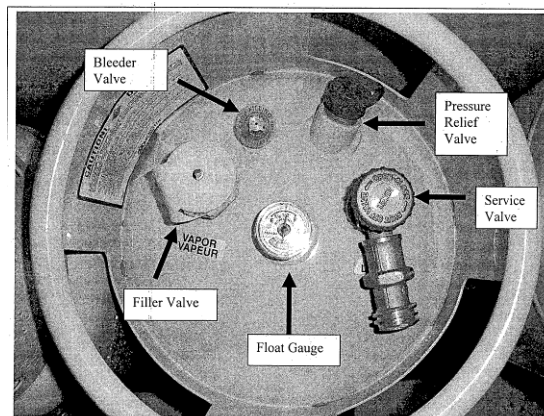
Project Objective

This project was to adapt and develop an acoustic sensing instrument that could significantly reduce the amount of hydrocarbon emissions during LP Gas cylinder refills. During the course of the project, different acoustic sensing methods were developed to cope with the particular challenge of determining liquid position while filling. The project included extensive work to measure and determine gas and liquid phase LP Gas emissions through a fixed maximum liquid level gauge which typically are released to ambient during filling of LP Gas cylinders. Finally, the project included field testing and collection of feedback from LP Gas filling personnel and the LP Gas

industry to make the product user-friendly and commercially viable.

Technology Description

Prior to the ICAT project, field tests proved one sensing aspect of the Maximus™ technology (e.g. its ability to detect the presence of liquid or gas on the other side of the cylinder wall) to work effectively in bus fleet re-filling applications. Commercialization of the Maximus™ for this purpose was underway. One of the main goals of the ICAT project was to confirm emissions estimates via on-site source testing by SCAQMD personnel. Another goal was to show the Maximus™ device's effectiveness to the targeted end-users through hands-on demonstrations and to educate the industry and the public about this technology.



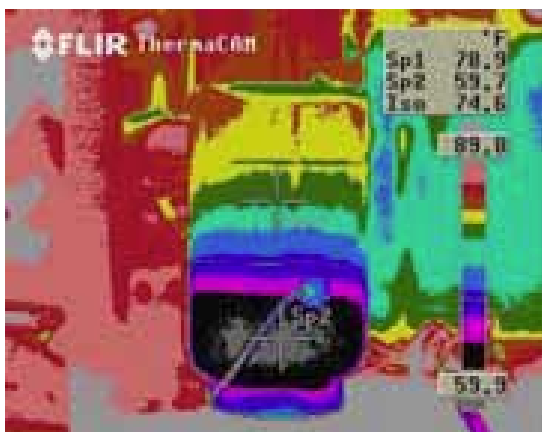
Status

AQMD staff conducted emissions estimates for total emissions impact in the South Coast Air Basin. These estimates indicate that the emissions impact is on the order of several tons per day. Testing verified the emission rates to be used for these calculations for the gaseous and liquid venting portions of these filling events in units of grams per second of total hydrocarbons and VOC emissions less methane and ethane.

Total hydrocarbon emissions to atmosphere during propane tank gravity filling were determined in two parts. First, the displaced gas from the open bleeder valve was measured by a calibrated flow meter. From the outlet of the flowmeter the gas was collected in a canister and

speciated in the laboratory to determine molecular weight for mass emission calculations.

For the second part of the test, liquid propane from the bleeder valve was vaporized into a gas. The gas flow was then measured and analyzed as in part one of the test.



Results/Benefits

VOC emission results for the test runs during the gaseous emission phase of tank filling varied between 1.62 and 2.53 g/sec. It is thought that the variation was caused by variations in pressure and temperature of the large tank filling the forklift tank.

Once the forklift tank was full by gravity filling, an average of 8.94 g/sec total hydrocarbon mass emissions was measured by AQMD. During previous testing by the Adept Group and witnessed by the AQMD, it was determined that 10.9 g/sec of total hydrocarbon emissions was measured during pressure filling.

Depending on the sources used for determining a total population of forklift LP tanks within the SCAB, the annual daily mass release of LP gas may range from 16.94 to 18.50 tons per day.

Project Costs

The project expenditures totaled \$550,900, of which \$25,000 came from local matching funds from the SCAQMD. The remainder of the funding was from ICAT (\$202,000), Propane Education Research Council - PERC (\$274,200) and ADEPT Group, Inc. (\$74,700) the project proponent.

Commercialization and Applications

The public health concerns and economic costs of evaporative emissions through outage gauges are a growing concern for air quality regulators and the LP Gas industry. Due to the lack of reliable level-sensor technology, green-house gas (GHG) and regulated VOC emissions (including a significant amount of reactive gases) are released every time a residential LP Gas tank is re-filled. These significant emissions present both environmental and economic challenges. Not only are end-users charged for a product they never get, but the State of California loses a valuable clean energy resource. Each ton of VOC emissions reduced in California by the Maximus™ instrument will cost \$22/ton. This is a very low price to pay for each eliminated ton of VOCs. Use of the Maximus™ will make LP Gas a more desirable commodity by lowering the health and safety risks inherent in its delivery.

In summary, by eliminating ~98% of LP Gas emissions generated while refueling tanks, the Maximus™ stop-fill technology will provide significant environmental benefits to California while enhancing health, safety and economic well-being.

SCAQMD Contract #10181

March 2011

Demonstrate Natural Gas Powered Police Vehicle

Contractor

BAF Technologies Inc

Cosponsors

South Coast Air Quality Management District
(SCAQMD)

Project Officer

Lori Berard

Background

Further progress in the attainment of air quality goals depends upon the commercial availability of alternate-fueled vehicles and fueling infrastructure. One way to advance this goal is for public fleets to lead by example, including having law enforcement agencies within SCAQMD's geographic jurisdiction purchase and place CNG-powered patrol vehicles (that are CARB SULEV certified) into service.

Project Objective

Past efforts to place CNG-powered patrol vehicles into service have largely been unsuccessful due to unsatisfactory performance of older-generation CNG-powered vehicles under extreme police pursuit conditions. In order to demonstrate that these issues have been overcome with currently available CNG vehicle technology, the SCAQMD contracted with BAF Technologies, Inc. to convert a Crown Victoria Police Interceptor to operate on CNG. This vehicle was then evaluated by the Los Angeles County Sheriff's Department for use as a patrol vehicle.

Technology Description

The current generation of CNG-powered vehicles provides a clean alternative to a comparable gasoline-powered vehicle. Unlike previous CNG-powered vehicles, current CNG conversions provided by BAF Technologies and its authorized upfitters are fully integrated into the vehicle engine control systems, and feature sequential fuel injection for improved drivability and full on-board diagnostics (OBD-II) compliance. BAF's

CNG conversions are only available on vehicles equipped with Ford's "Gaseous Fuel Capable" engines, which, unlike previous generation CNG vehicles, allow for the same factory warranty as a comparable gasoline-powered vehicle. The test vehicle also included several suspension and braking upgrades. These upgrades were intended to compensate for the increase in vehicle weight and change in weight distribution that occurred when the vehicle's original gasoline tank was removed and replaced with CNG cylinders during the conversion process.

Status

The project was considered to be completed on March 31, 2011 with submission of BAF Technologies' Final Report to the SCAQMD. A photo of the finished vehicle is shown below (at left):



A brief summary of project milestones is presented below:

- January 19, 2010 – Contract awarded to BAF Technologies
- April 1, 2010 – Gasoline-powered Crown Victoria Police Interceptor made available to BAF for conversion by Los Angeles County Sheriff's Department
- April 19, 2010 – Vehicle CNG conversion complete at A1 Alternative Fuel Systems
- August 3, 2010 - Vehicle handling modifications complete at JBA Performance
- November 18, 2010 - The CNG-powered vehicle with upgraded suspension participates in the Los Angeles County Sheriff's Department's Law Enforcement

Vehicle Test and Evaluation Program for the 2011 model year (the “Program”)

- March 30, 2011 - The Los Angeles County Sheriff’s Department issues its report of the 2011 model year

Results

The excellent handling, braking and subjective performance results exhibited by the test vehicle during the Vehicle Test and Evaluation Program indicated that there is definite potential in the use of CNG-powered police patrol vehicles. The CNG-powered test vehicle satisfactorily completed all portions of the Program, finishing near the top of all vehicles tested in braking performance and ahead of the Chevrolet Tahoe (which has been used as a patrol vehicle throughout the United States for several years) in the High Speed and Pursuit sections of the Program. The CNG-powered vehicle also successfully completed the Heat, Serviceability, Communications and Ergonomics portions of the Program. Unfortunately, the CNG-powered vehicle did not perform as well in the Acceleration portion of the Program, as tested in 0-60 mph and ¼-mile acceleration. The CNG-powered vehicle was able to successfully complete the Acceleration portion of the program however, in that the vehicle did reach 100 MPH during the test. These results seem inconsistent with subjective comments made during earlier portions of the test Program, indicating a possible calibration issue with the test vehicle.

Benefits

The goal of this project was met in that the CNG-powered vehicle did successfully demonstrate that natural gas could be an acceptable fuel for police pursuit vehicles. While not specifically addressed as a result of this project, benefits of CNG-powered vehicles as compared to their gasoline-powered counterparts are well documented. CNG-powered vehicles emit much less carbon dioxide than equivalent gasoline-powered vehicles, resulting in a 25-30% lower carbon footprint. In addition, 98% percent of all natural gas consumed in the United States is produced in North America, which has the potential to greatly reduce foreign oil imports and support energy independence. Also, natural gas is typically much less costly than gasoline on an energy equivalent basis.

Project Costs

Total project cost was \$30,872. The individual expenditures related to this project are summarized below:

- CNG conversion costs = \$14,814
- Vehicle handling and braking upgrades = \$10,058
- Report preparation and analysis = \$6,000

Original project costs had been estimated at \$34,000. The main difference between estimated and actual costs is that the scope of the vehicle handling and braking modifications was reduced to not include upgraded wheels and tires.

Commercialization and Applications

As noted previously, this project does help demonstrate that a natural gas-fueled vehicle is a viable choice for law enforcement patrol use. Accurate estimates of a production cost for a CNG-powered Crown Victoria Police Interceptor are not possible due to the cancellation of this vehicle by Ford Motor Company. However, construction of a CNG-powered law enforcement version of an appropriate new vehicle can be roughly estimated at the same ~\$14,800 encountered during this project. Should additional modifications be deemed necessary in order to make the vehicle appropriate for law enforcement use, these would have to be estimated separately. For planning purposes, it is estimated that the cost of replicating the handling and braking improvements made to the test vehicle would be approximately \$7,000 in a fleet volume setting.

Physical, Chemical, and Toxicological Assessment of the Semi-Volatile and Non-Volatile Fraction of PM from Heavy-Duty Vehicles

Contractor

California Air Resources Board (CARB)

Cosponsors

CARB
South Coast Air Quality Management District
(SCAQMD)

Project Officer

Jean Ospital

Technology Description

This study assessed the PM-related oxidative activity from a variety of diesel vehicles with and without advanced PM emission control technologies. Different driving cycles were investigated, since engine operation is known to affect the concentration, relative amounts and chemical composition of the nucleation and accumulation PM modes emitted. Three driving cycles, i.e. steady state cruise (50mph), transient [EPA urban dynamometer driving schedule (UDDS)] and idle were tested to simulate various real-world driving conditions. The test vehicles comprised four heavy-duty diesel vehicles in seven configurations. A heavy duty diesel vehicle (HDDV) 1998 Kenworth truck served as a baseline vehicle, without any emission control technology. The same Kenworth truck was also tested with three different control technologies: a Continuously Regenerating Technology [CRT], consisting of a diesel oxidation catalyst (DOC) followed by an uncatalyzed trap; CRT in combination with a selective catalytic reduction system [Zeolite (Z-SCRT) or vanadium based (V-SCRT) Selective catalytic reduction system (SCRT)] for NO_x emissions control. The other three test vehicles were a diesel hybrid electric bus fitted with a catalyzed continuously regenerative trap (CCRT), a school bus fitted with an electric particle filter (EPF), and a truck fitted with a DPX particle filter. Detailed physical, chemical and toxicological characteristics of emitted PM were measured for each vehicle and driving cycle. These included physical properties (e.g. PM mass and size distribution), chemical (EC, OC, organic compounds, trace elements, inorganic ions) and toxicological [dithiothreitol (DTT) and macrophage reactive oxygen species (ROS) assays] characterization of the collected PM samples.

Background

Current emissions control technologies for particulate matter effectively remove the non-volatile, or solid, fraction of emissions. However, they may not be as effective in removing the volatile precursors for ultrafine particles. In fact, some studies have indicated that the removal of the solid portion of emissions can increase the concentration of the volatile fraction and enhance the formation of ultrafine particles from condensation of the more volatile fraction. There is growing evidence that ultrafine particles may have a higher toxicity than larger particles, and this project will provide information on the toxicity of ultrafine particles from motor vehicles.

Project Objective

The objective of this project was to assess the physical, chemical, and toxicological properties of semi-volatile and non-volatile fractions of particulate matter from heavy vehicles operating with and without advanced emission control technologies.

This is among the first research projects that combine an assessment of the chemical and physical properties of particle emissions with biological outcomes that are relevant to health effects.

Status

This project has been completed. The final report (Sioutas, C. Physicochemical and Toxicological Assessment of the Semi-Volatile and Non-Volatile Fractions of PM from Heavy- Duty Vehicles Operating With and Without Emissions Control Technologies, 2011) is available at <http://www.arb.ca.gov/research/apr/past/05-308.pdf>.

Results

Substantial reduction in PM mass emissions (>90%) was accomplished for the HDDV operating with advanced emission control technologies. This reduction was not observed for particle number concentrations under cruise conditions, with the exceptions of the Hybrid-CCRT and EPF vehicles, which were efficient in controlling both mass and number emissions. In general, significant nucleation mode particles (<50nm) were formed during cruise cycles in comparison with the UDDS cycles, which emit higher PM mass in the accumulation mode. The nucleation mode particles (<50nm) were mainly internally mixed, and evaporated considerably between 150 to 230° C.

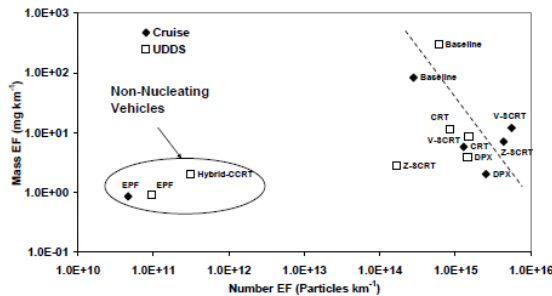


Figure Number and mass emission factors

Significant reductions in the emission of major chemical constituents (TC, OC, EC, and organic compounds) were achieved by the introduction of retrofits. V-SCRT and Z-SCRT effectively reduced PAHs, hopanes and steranes, n-alkanes and acids by more than 99%, and often to levels below detection limits for both cruise and UDDS cycles. The CRT technology also showed similar reductions with SCRT for medium and high molecular weight PAHs, acids, but with slightly lower removal efficiencies for other organic compounds. Sulfate dominated the PM composition in vehicle configurations (V-SCRT-UDDS, ZSCRT- Cruise, CRT, DPX) with

considerable nucleation mode and TC was dominant for the configurations with less (ZSCRT-UDDS) or insignificant (CCRT, Horizon) nucleation.

An increase in the intrinsic activity (both DTT and ROS, per PM mass basis) of exhaust PM with use of most control technologies was observed. However, the overall activity when expressed per km or per hr was substantially reduced for retrofitted configurations compared to the baseline vehicle. Significant reduction in DTT activity (by 50-100%) was observed for thermally-denuded PM from vehicles with retrofitted technologies (PM with significant semi-volatile fraction). On the other hand, Chelex treatment of undenuded PM samples removed a substantial (≥70 %) fraction of the ROS activity. Correlation analysis performed between measured activity and the chemical constituents showed that DTT activity is strongly associated (R=0.94) with the water soluble organic carbon (WSOC), while the ROS activity was mostly driven by the Fe content of the PM samples.

Benefits

This project provides information on the relative emissions and toxicity of fine and ultrafine particles from conventional and advanced technology vehicles. This data will allow a determination of the emissions reduction and health benefits of using advanced technologies the South Coast Air Basin. Motor vehicles are a major source of ultrafine particles, and the highest levels have been found on or near busy roadways. Southern Californians can spend up to 2 -3 hours per day exposed to high levels of ultrafine particles during their daily commutes.

Project Costs

The total cost of this project was \$677,950, of which \$338,975 was provided by CARB and \$338,975 provided by SCAQMD.

Evaluate Emissions Impacts from Diesel Biofuel Blends

Contractor

University of California, Riverside
Bourns College of Engineering—Center for Environmental Research and Technology (UC Riverside, CE-CERT)

Cosponsors

South Coast Air Quality Management District (SCAQMD)

Project Officer

Brian Choe

Technology Description

The testing included engine dynamometer testing of heavy-duty, on-highway engines and off-road engines, and chassis dynamometer testing of heavy-duty, on-highway vehicles. The full test matrix included testing on 2 heavy-duty engines, 4 heavy-duty vehicles, and 2 off-road engines. The testing included a baseline CARB ultralow sulfur diesel (ULSD) fuel, two biodiesel feedstocks (one soy-based and one animal-based) tested on blend levels of B5, B20, B50, and B100, a biomass-to-liquid (BTL) or renewable diesel, and a gas-to-liquid (GTL) diesel fuel tested at 20%, 50%, and 100% blend levels. For the on-highway engine and chassis dynamometer testing, several test cycles were also utilized to evaluate the impact of biodiesel on emissions under different operating conditions and loads.

Status

This project was completed in October of 2011. The results for the first of several publications have been submitted for publication in a peer review journal.

Results

A 2006 Cummins ISM and 2007 MBE4000 engine equipped with a diesel particle filter (DPF) were tested at CE-CERT. For both the 2006 Cummins engine and 2007 MBE4000 engine, the average NO_x emissions show increasing trends with increasing biodiesel blend level. The NO_x increases for biodiesel ranged from 1.5% to 6.9% for B20 blends, from 6.3% to 18.2% for B50, and from 5.3% to 47.1% for B100, with a few fuel/cycle combinations showing no statistically significant increase. The magnitude of the effects did differ between the different biodiesel feedstocks. The soy-based biodiesel blends showed a higher increase in NO_x emissions for essentially all blend levels and test cycles in comparison with the animal-based biodiesel blends. Soy-based biodiesel blends showed increases of NO_x emissions ranged from 2.6% to 47.1%, while animal-based biodiesel showed

Background

California currently has several legislative initiatives that promote increased use of alternative fuels to reduce oil dependency, greenhouse gases, and air pollution. Biodiesel is an alternative diesel fuel that has the potential to reduce greenhouse gas emissions, other pollutants, and can partially offset our use of petroleum-based fuels. Although biodiesel has been studied extensively over the past 20 years, knowledge gaps still exist and further research is needed to fully characterize the impact biodiesel has on oxides of nitrogen (NO_x) emissions and the effects various feedstocks have on various emissions. To develop regulations relating to biodiesel, a technical evaluation of the emissions impacts was needed. This program was a comprehensive emissions study comparing biodiesel, and to a lesser extent renewable diesel fuels, to California Air Resources Board (CARB) diesel fuel.

Project Objective

The paper describes a major collaborative study between CARB, UC Riverside, UC Davis, SCAQMD, and other institutions that is one of the most comprehensive studies of biodiesel to date. The focus of this research study is on understanding and, to the extent possible, mitigating any impact that biodiesel has on NO_x emissions, and also understanding the impacts of biodiesel on toxic emissions.

increases of 1.5% to 39.4%, through all the engines and cycles. For the 2006 Cummins engine, the trends for other emissions components were similar to those from previous studies, with biodiesel providing reductions in THC and PM. The CO emissions results on this engine showed consistent reductions for the animal-based biodiesel, but not for the soy-based biodiesel. For the 2007 MBE4000, the PM, THC, and CO emissions were all well below certification limits and the emissions levels for the 2006 engine due to the DPF, and generally did not show strong fuel impacts. CO₂ emissions showed a slight increase of 1-5% for B100 and some B50 combinations. Fuel consumption increased with increasing levels of biodiesel, with increases of 5-10% for the B100 blends.

For the renewable and GTL diesel fuels in the 2006 Cummins, the results showed a steady decrease in NO_x emissions with increasing levels of renewable/GTL diesel fuel. For the renewable diesel fuel, these reductions ranged from 2.9% to 4.9% for R20, 5.4% to 10.2% for R50, and 9.9% to 18.1% for R100 through all the cycles. For the GTL fuel the reductions were 5.2% and 8.7%, respectively, for GTL50 and GTL100 for the FTP cycle. In comparison with the biodiesel feedstocks, the levels of NO_x reduction for the renewable and GTL fuels are less than the corresponding increases in NO_x seen for the soy-based biodiesel, but are more comparable to the increases seen for the animal-based biodiesel blends. This suggests that the renewable and GTL diesel fuel levels need to be blended at higher levels than the corresponding biodiesel in order to mitigate the associated NO_x increase, especially for the soy-based biodiesel blends. The renewable and GTL fuels also provided reductions in PM and CO emissions, with the GTL fuel also providing reductions in THC. The renewable and GTL fuels provided a slight reduction in CO₂ emissions at the higher blends, with a slight, but measurable, increase in fuel consumption.

Several NO_x mitigation formulations were evaluated on the 2006 Cummins engine, including those utilizing renewable and GTL diesel fuels, and additives. Successful formulations included those with higher levels of renewable diesel (R80 or R55) with a B20-soy biodiesel. Blends of 15% renewable or GTL diesel were also found successful in mitigating NO_x for a B5 soy blend, giving a formulation more comparable to what might be implemented with the Low Carbon Fuel

Standard. A 1% di tertiary butyl peroxide (DTBP) additive blend was found to fully mitigate the NO_x impacts for a B20 and B10 soy biodiesel, while 2-ethylhexyl nitrate (2-EHN) blends had little impact on improving NO_x emissions. It was found that the level of renewable or GTL diesel fuels needed for blending can be reduced if a biodiesel fuel with more favorable NO_x characteristics, such as animal-based biodiesel, is used, or if an additive with more favorable NO_x characteristics, such as DTBP, an additive evaluated in this study, is used. For the MBE4000, only two blends were tested, CARB80/R15/B5-S and B-5 soy with a 0.25% DTBP additive. Of these two, only the B-5 soy with a 0.25% DTBP additive provided NO_x neutrality. Overall, it appears that different strategies will provide mitigation for different engines, but that the specific response varies from engine to engine.

Benefits

The information obtained from this program will be very valuable in evaluating and mitigating any potential air quality impacts from the increased use of alternative fuels, and in particular 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 at the same time meeting goals for petroleum displacement and reductions in greenhouse gases.

Project Costs

Total funding for this project was \$200,000 from the SCAQMD.

Commercialization and Applications

This research will have important implications for the expanded use of biodiesel in commercial vehicles, and what impacts this might have vehicle performance. Currently, there is insufficient information available to allow the widespread use of biodiesel in diesel vehicles to meet the Low Carbon Fuel Standard.

Provide Transportable Laboratory Testing to Quantify Emissions from SCR Technology

Contractor

West Virginia University Research Foundation

Cosponsor

South Coast Air Quality Management District (SCAQMD)

Project Officer

Adewale Oshinuga

Background

Heavy-duty diesel engine manufacturers have been required to meet more stringent emissions standards during the last decade. As standards have tightened, manufacturers have not been able to meet these requirements using in-cylinder combustion control techniques. This has created demand for newer aftertreatment technologies to be implemented into vehicle fleets in order to meet U.S. EPA compliance criteria. One solution has been the combination of a Diesel Particulate Filter (DPF) coupled with Selective Catalytic Reduction (SCR). This combination of technologies has also been implemented as a retrofit for legacy vehicles in order to reduce their regulated emissions production. Presented herein are the results from a study that was conducted in order to quantify the difference in NO_x reduction between freshly de-greened and aged SCRT systems implemented as retrofit applications.

Project Objective

The objective of the study is to assess the performance of an SCRT retrofit aftertreatment system in controlling emissions of particulate matter (PM) and oxides of nitrogen (NO_x) from a legacy diesel engine. Specific objectives included the evaluation of the differences in performance of a new and an aged SCRT system in order to understand the effect of aging on the performance of the aftertreatment system.

Technology Description

The SCRT system developed by Johnson Matthey is a combination of a diesel oxidation catalyst (DOC), catalyzed DPF and a Urea SCR system. The catalyzed DPF is capable of passive regeneration and the urea injection for NO_x reduction in the SCR system is active for temperatures over 250 Deg C.

The system is designed to work as a retrofit unit on legacy diesel engines and hence consists of an independent control unit capable of monitoring key aftertreatment parameters and control of SCR operation.

Status

The project was completed in October 2010 and the final report dated April 13, 2011 has been submitted.



Figure 1. Test Vehicle during chassis dynamometer testing.



Figure 2. SCRT system installed on the test vehicle.

Results

The study was conducted in three phases, namely baseline (without retrofit system), with aged SCRT system and with new SCRT system. The vehicle was tested over the UDDS and a 30 MPH steady state cycle.

Figure 3 shows the NO_x emission comparison of the different exhaust configurations. Over the transient Urban Dynamometer Driving Schedule (UDDS) cycle a 70% reduction in NO_x emissions was observed with the new SCRT system and a 67% reduction in NO_x emissions by the aged SCRT system. Similarly, during the 30 MPH steady state the new and aged SCRT systems reduced NO_x emissions by 69% and 71% respectively.

Figure 4 shows the PM emission comparison of the different exhaust configurations. The PM filtration efficiencies were ranging between 87-96% for the new SCRT system and 98-99% for the aged SCRT system. The results showed a continuous increase in filtration efficiency for the new SCRT system during the course of the testing.

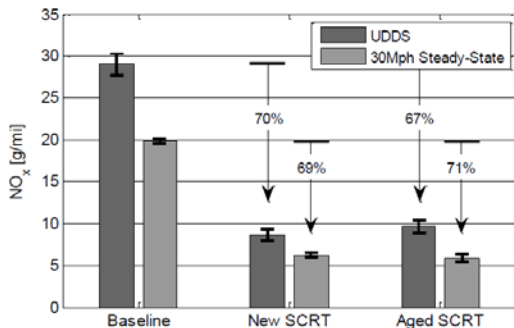


Figure 3. Results of NO_x emissions from baseline, new SCRT and aged SCRT configurations.

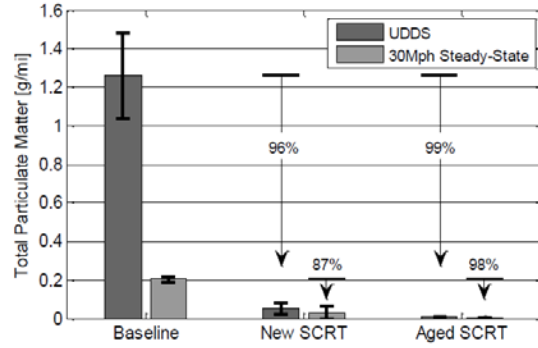


Figure 4. Results of TPM emissions from baseline, new SCRT and aged SCRT configurations.

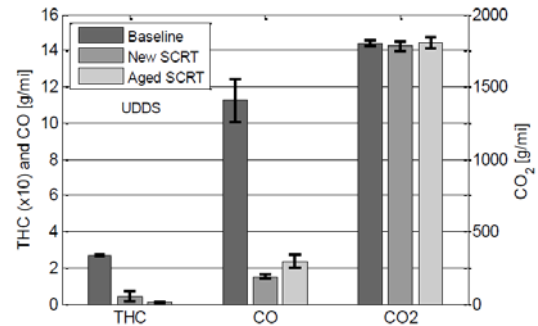


Figure 5. Regulated emissions comparison from different exhaust configurations over the UDDS cycle.

Results shown in Figure 5 show the effectiveness in the retrofit system in reducing emissions of THC and CO on an average by about 90%. The results also show a minimal impact on CO₂ emissions indicating no change in vehicle fueling as a result of the retrofit installation.

Benefits

The tested SCRT retrofit system was very effective in significant reductions in emissions of total particulate matter (TPM) and NO_x. This is a viable technology that can be implemented on legacy diesel engines and subsequently reduces fleet average emissions of NO_x and TPM from such vehicles.

Project Costs

SCAQMD provided full funding in the amount of \$76,000 for the SCRT testing.

Evaluate Protocols for Measuring Emissions from Cleaning of Application Equipment and Surfaces using Solvents

Contractor

University of California, Riverside
Bourns College of Engineering—Center for
Environmental Research and Technology
(UC Riverside, CE-CERT)

Co-sponsors

W.M. Barr Corporation
South Coast Air Quality Management District
(SCAQMD)

Project Officer

Naveen Berry

Technology Description

Draft protocols to measure VOC mass emission rates were written based on draft protocols supplied by WM Barr Company for brush and wipe cleaning. These were tested in the CE-CERT laboratory and the results were used to identify improvements. The protocols were revised based on comments from the SCAQMD and W.M. Barr staff. Brushes were weighed, used to apply paint, and then cleaned by rinsing separately in two different solvent containers containing the solvent being tested. They were then weighed again immediately after rinsing and again after drying for 24 hours. The solvent emitted was determined by weighing it before and after the cleaning and rinsing operation. The test was replicated five times with five different brushes.

A china marker was used to mark a grid with $\frac{3}{4}$ inch spacing on a dry erase board that served as the panel. Cotton cleaning cloths were weighed initially, soaked with 10 ml of solvent, used to wipe the panels clean, and weighed again. Additional cloths were used as necessary to remove the markings. The mass of solvent emitted was the difference between the mass of solvent placed on the cleaning cloths and the amount remaining on them. The test was replicated five times for each solvent tested.

The following solvents were used for measuring mass emission rates from both the paint brush and panel cleaning tests: Aromatic 200, acetone, Conosol, benzyl alcohol, methyl soyate, dipropylene glycol butyl ether (DnPB), and lacquer thinner. The reactivity of these solvents to form ozone was based on the MIR scale developed by researchers at the University of California, Riverside. The MIR units are in gO_3/gVOC .

Status

This project was completed as of May 5, 2011 and the final report is on file with complete technical details of the project. No unanticipated problems

Background

SCAQMD adopted Rule 1143 – Consumer Paint Thinners and Multi-Purpose Solvents in 2009 to address emissions of volatile organic compounds (VOC) from the use, storage, and disposal of these specific consumer products. This rule called for these solvents to have a VOC content of less than 25 g/L by January 2011. The cleaning of surfaces prior to painting and of paint application equipment are thought to be major uses of these solvents. There are, however, no data available on the relative amounts of emissions caused by these operations or the potential amount of ozone these VOCs may generate.

Project Objectives

One objective was to develop an approach to measure mass emissions from cleaning paint brushes and surface cleaning using five different low vapor pressure (LVP) solvents, as well as acetone and a commercially-available lacquer thinner formulated with 95% acetone and 5% methyl soyate. The other objective was to determine the relative amount of solvent used, and then calculate the total ozone formation potential of each solvent based on its established Maximum Incremental Reactivity (MIR) value.

were encountered during the project. Protocols were written, tested and revised prior to mass emission testing of solvents. The mass emission tests were independently conducted by two technicians independently to estimate the reliability of the method.



Results

The amount of solvent used in cleaning brushes is shown in Table 1 for each solvent. Each value is the average of ten tests, five replicates from each of two technicians. Except for acetone and lacquer thinner the emissions averaged between the two technicians was 1.9g with a standard deviation of 0.8g. The standard deviation is a measure of the precision of the method and therefore the amount measured is only twice the measurement uncertainty. For acetone and lacquer thinner the majority of the solvent evaporated by the time the brushes were weighed.

Table 1. Summary of the amount of solvent used in brush cleaning

	Aromatic		Benzyl		Methyl		Lacquer		Average	ST Dev
	200	Acetone	Conosol	Alcohol	Soyate	DnPB	Thinner			
Brush Cleaning	Wt, g	Wt, g	Wt, g	Wt, g	Wt, g	Wt, g	Wt, g	Wt, g		
Total Solvent Used: T-1	26.5	61.4	27.3	38.2	25.3	27.0	64.7	38.6	17.3	
Total Solvent Used: T-2	47.5	56.9	30.1	32.2	31.8	40.2	44.0	40.4	9.9	
Solvent Evap Before Drying (combined): T-1	0.6	53.4	0.7	-0.1	0.8	-0.5	51.4	15.2	25.4	
Solvent Evap Before Drying (combined): T-2	0.2	31.4	1.4	0.8	0.4	0.5	21.0	8.0	12.8	
Solvent Evap After Drying (combined): T-1	1.8	59.7	1.9	1.5	1.4	-0.1	62.3	18.3	29.2	
Solvent Evap After Drying (combined): T-2	3.0	59.4	3.3	2.8	1.6	1.5	40.9	16.1	23.9	
Total Solvent Used: Average	37.0	59.2	28.7	35.2	28.5	33.6	54.3	39.5	13.6	
Solvent Evap Before Drying (combined): Average	0.4	42.4	1.0	0.4	0.6	0.0	36.2	11.6	19.1	
Solvent Evap After Drying (combined): Average	2.4	59.6	2.6	2.1	1.5	0.7	51.6	17.2	26.5	

The amount of solvent used in cleaning panels is shown in Table 2 for each solvent. Each value is the average of ten tests, five replicates from each of two technicians. Except for acetone and lacquer thinner, only about two tenths of a gram was shown to be evaporated by the time cleaning cloths were weighed, the bulk remained in the cleaning cloths. Approximately half the mass of the acetone and lacquer thinner had evaporated by the time the cloths were weighed.

Table 2. Summary of the amount of solvent used in panel cleaning.

	Aromatic		Acetone	Conosol	Benzyl	Methyl	DnPB	Lacquer	Average	Average
	200, g	g	g	g	Alcohol, g	Soyate, g	g	Thinner, g	Wt, g	St Dev, g
Panel Wiping	200, g	g	g	g	Alcohol, g	Soyate, g	g	Thinner, g	Wt, g	St Dev, g
Weight solvent used in cleaning	9.85	8.10	16.38	10.33	17.57	9.06	8.27	11.37	0.11	
Weigh solvent in cleaning cloths (combined)	9.60	5.14	16.14	10.03	17.27	8.87	5.18	10.32	0.34	
Weigh solvent in cleaning cloths (separately)	9.48	5.13	16.10	10.04	17.27	8.88	6.15	10.43	0.27	
Weight Solvent Evaporated (combined)	0.25	2.96	0.24	0.30	0.31	0.19	3.10	1.05	0.36	
Weight Solvent Evaporated (separately)	0.37	2.97	0.28	0.29	0.31	0.19	2.12	0.93	0.27	

The ozone forming potential from cleaning brushes is shown in Table 3 for each solvent while that from cleaning panels is shown in Table 4. These values were obtained by multiplying the mass emission rates in Tables 1 and 2 by the MIR for each solvent.

Table 3. The maximum amount of expected ozone formation from brush cleaning.

	Aromatic	Acetone	Conosol	Benzyl	Methyl	DnPB	Lacquer
Brush Cleaning	200, g O₃	g O₃	g O₃	Alcohol, g O₃	Soyate, g O₃	g O₃	Thinner, g O₃
Total Solvent Used: Average	143.5	21.3	20.1	179.7	45.1	58.1	19.6
Solvent Evap Before Drying (combined): Average	1.5	15.3	0.7	1.9	0.9	0.0	13.0
Solvent Evap After Drying (combined): Average	9.3	21.4	1.8	10.9	2.3	1.2	18.6

Table 4. The maximum amount of expected ozone formation from panel cleaning.

	Aromatic	Acetone	Conosol	Benzyl	Methyl	DnPB	Lacquer
Panel Wiping	200, g O₃	g O₃	g O₃	Alcohol, g O₃	Soyate, g O₃	g O₃	Thinner, g O₃
Weight solvent used in cleaning	38.2	2.9	11.5	52.8	27.8	15.7	3.0
Weight Solvent Evaporated (combined)	1.0	1.1	0.2	1.5	0.5	0.3	1.1

Benefits

One benefit of this project was that standardized protocols for measuring evaporative emissions from cleaning brushes and panels were developed and evaluated. The other benefit is that emission rate data has been obtained for the first time for these procedures using a wide variety of solvents. These values can be used to estimate emission inventories and to estimate the cost/benefit of control measures, although additional information concerning the ultimate fate of the solvent retained on the brushes and cloths should also be considered.

Project Costs

Total project cost was \$47,425. This amount was split evenly between the SCAQMD and W.M. Barr Corporation.

Develop & Demonstrate SCR Technology for NO_x and PM Emissions

Contractor

Johnson Matthey Inc

Cosponsors

South Coast Air Quality Management District
(SCAQMD)

Project Officer

Adewale Oshinuga

Background

The during the development of the fleet emission limits for commercial vehicle operators in the State of California the use of retrofit technology was considered as a means of meeting the Fleet emission limits for Particulate Matter (PM) and Oxides of Nitrogen (NO_x). 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 option in the ARB fleet Rule.

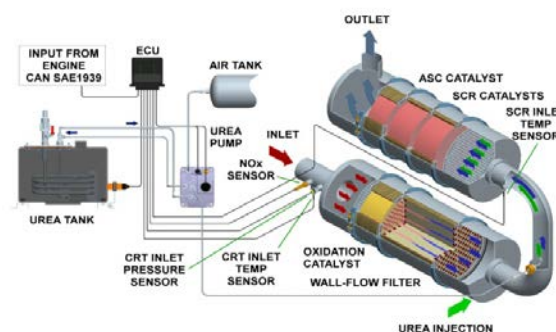
Project Objective

This project was undertaken to demonstrate the real world emission reduction performance possible with the use of a retrofit 4-way emission control technology. Since SCR based NO_x reduction is effected by exhaust temperature, special attention was paid to the relationship between system performance and exhaust temperature profile. Of secondary concern is the impact that such a technology will have on the operation of a fleet from an operation and maintenance standpoint.

Technology Description

Johnson Matthey 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.

JM Johnson Matthey SCRT® Retrofit System



The CRT was previously verified by ARB 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 SCR system uses NH₃, carried on the vehicle as urea, to reduce NO_x over a vanadium based catalyst. The precise air assisted injection of urea is performed using an OE dosing pump controlled by an ECU that was developed by JM.

Status

All but one of the project activities is complete. The Final report is still in draft form with a projected completion date of March 2012. The phases of this project that have been completed are:

- 14 systems were installed on trucks operating out of the Ralph's Grocery distribution center in Riverside California. The trucks were equipped with Caterpillar C12 or DDC Series 60 engines and built between 1998 and 2001.



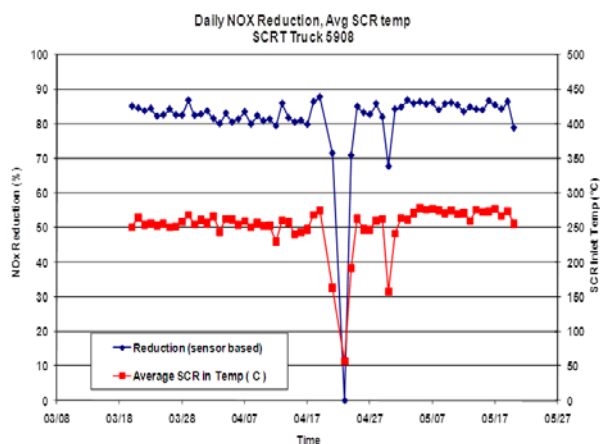
- The trucks were operated with the systems for periods ranging from one year to three years.
- Emission testing was conducted on two systems; one system with less than 30 hours of operation and a second system with more than 2500 hours of operation.

- 11 of the 14 systems have been removed and the trucks were returned to their original configuration.

There were some issues that caused delays in the program but none that caused a milestone to be abandoned. There was a delay in the delivery of the NO_x sensors used by the system to calculate the urea dose. And once they were delivered they were found to be configured incorrectly and had to be re-programmed before they could be installed in the vehicles.

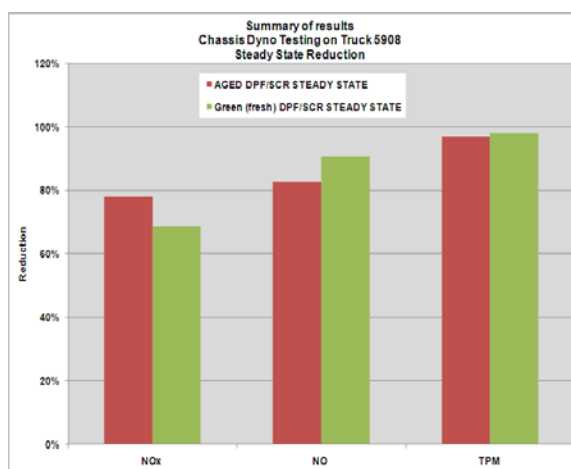
Results

Emissions data was gathered in two ways; using NO_x sensors to compare system out and engine out NO_x levels during actual operation and a chassis dyno to measure emissions over known cycles. The daily operational NO_x reduction was as high as 85% as seen below:



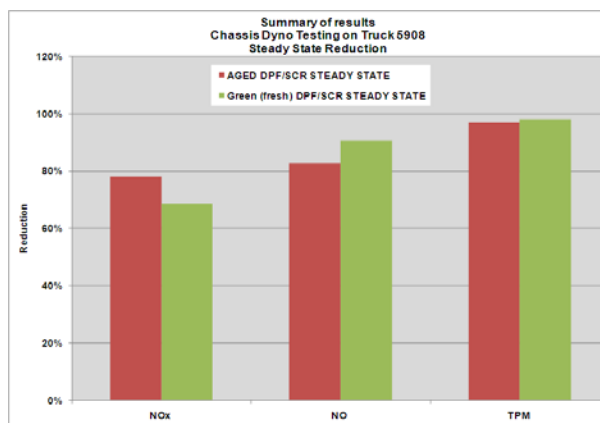
Daily NO_x reduction during SCRT durability trial

The emission testing was conducted over the UDDS cycle on a fresh and aged system. The system showed 67-70% NO_x reduction over the cycle.



SCRT emission test results UDDS cycle

The system also demonstrated 68-78% NO_x reduction during a 30 mph steady state test.



SCRT Emission test Results Steady State operation.

Other information generated by the project included:

- Verification that the temperature measured at the CRT inlet needs to be over 240°C for 40 % of the operating time if the system is to be expected to achieve 70% NO_x reduction.
- On engines with certified NO_x emissions of 4.0 g-bhp/hr the urea is consumed at a rate of 6% of fuel consumption – 6 gallons of urea is consumed for every 100 gallons of fuel used.
- The system had no measureable impact on the fuel use of the vehicle.

Benefits

Besides the percentage of NO_x reduction shown above, the data gathered during this program was able to show that that almost 1000 lbs of NO_x per truck could be removed by the system in 1500 hours of operation. That equated to 3.6 lbs of NO_x removed per day per truck.

Project Costs

Total project costs were \$731,500. Johnson Matthey and its partners contributed \$401,500 in-kind, SCAQMD provided \$254,000 in direct funding, and SCAQMD provided \$76,000 to West Virginia University to provide transportable laboratory testing for this project.

Commercialization and Applications

This demonstration program identified areas in the system that needed improvement like the wiring harness to increase the system reliability. It also highlighted a need for larger diameter catalysts to minimize the back pressure caused by the system. The customized nature of the system meant that it took months to design and build, which was seen as a barrier to wide spread use of the product. The system design has since been revised to be independent of the vehicle. This allowed for the system to be assembled with common parts and the price of the system to be lowered because the brackets can be purchased in large quantities. The improvements to the system that resulted from this program are being used by SCAQMD in three new programs funded by the EPA emerging technologies program.

Showcase: Demonstration of NO_x and PM Emissions Control Technology on Diesel-Powered Construction Equipment

Contractor

Community Recycling and Resource Recovery Inc

Cosponsors

South Coast Air Quality Management District (SCAQMD)

MSRC / AB2766 Discretionary Fund

Nett Technologies

Project Officer

Richard Carlson

Background

Off-road equipment represents an important source of emissions in the South Coast Air Basin. Based on the California Air Resources Board (CARB), there were approximately 68,600 diesel powered construction equipment in the Basin in 2006 which together produced approximately 120 tons per day of NO_x and 7.5 tons per day of PM emissions.

The Showcase is a cooperative program between the SCAQMD, MSRC and CARB as well as participating off-road equipment fleets and control technology providers to demonstrate the effectiveness and durability of emission control technologies for off-road construction equipment. On March 7, 2007, the MSRC issued an RFQ to manufacturers of emission control systems and a Program Announcement for owners of off-road diesel construction equipment. The MSRC subsequently awarded contracts to install non-verified control devices on 198 off-road vehicles. Some quotations were received for NO_x and PM control devices which SCAQMD agreed to fund using Clean Fuel funds.

On October 5, 2007, the SCAQMD Board awarded a contract to Community Recycling to participate in the "Showcase" demonstration of NO_x and PM control technologies. The original award to Community Recycling was \$363,250 for

nine off-road vehicles. Unfortunately, only two off-road vehicles could be retrofitted with devices due to their mechanical condition, configuration, or the withdrawal of selected device manufacturers from the Showcase.

Project Objective

The objective of this project was to demonstrate after-treatment DPF-SCR emission control systems for off-road construction vehicles. The control system consisted of a diesel particulate filter (DPF) for control of PM emissions and selective catalytic reduction (SCR) system for control of NO_x emissions. The demonstration included the following:

- Exhaust temperature measurements to confirm suitable exhaust temperatures.
- No interference with operator visibility, access or safety.
- Equipment performance and functionality equivalent to non-retrofitted configuration.
- Operation for a minimum of 1,000 hours with CARB monitoring.

Technology Description

A Caterpillar 330B excavator was equipped with the Nett Technologies BlueMax Plus SCR system with a passively regenerated DPF. A Kawasaki 95Z rubber-tired loader was equipped with a Nett Technologies BlueMax Ultra SCR system with an actively regenerated DPF. The SCR components were the same in both systems and consisted of a urea tank, a urea dosing pump and injection nozzle, a SCR catalyst, sensor for NO_x emissions, air flow, and exhaust temperature, a proprietary computer, and an auxiliary air pump. The passive DPF consisted of a DPF with catalyst coating and backpressure sensor. The active DPF consisted of a diesel fuel burner, controller, temperature and pressure sensors, a DPF with catalyst coating, and a computer to regulate the fuel burner. The burner operates at idle when regeneration is needed.



Figure 1. DPF and SCR Catalyst on Loader



Figure 2. DPF/SCR Components on Excavator

Status

The excavator was equipped with the BlueMax Plus SCR with passive DPF in December 2008. Over 6,000 hours were accumulated on the system although some components were replaced. At 3,000 hours, the DPF housing and mounting hardware showed fatigue cracking and was replaced. Standard plastic urea and fuel lines were replaced with steel lines after some lines failed during operation.

The rubber-tired loader was equipped with the BlueMax Ultra SCR with active DPF in October 2010. Over 2,000 hours were accumulated on the system. No significant operational problems have been encountered.

Results

The major components of the system demonstrated durability for considerably more than 1,000 hours. However, the demonstration also identified

deficiencies in the design of some components that were not rugged enough for off-road service. These design improvements were incorporated in subsequent systems installed in other fleets. No emission measurements were performed on these systems because CARB was unable to provide a portable emission measurement system as originally planned.

Benefits

This project has provided annual emission reductions from the two off-road vehicles of approximately 1.5 tons NO_x and 0.05 ton PM. In addition, valuable design and operating experience was obtained. There are significant potential emission reductions from future applications of these technologies to additional off-road equipment operating in the South Coast Air Basin.

Project Costs

Total Project	SCAQMD	Nett Technologies
\$104,590	\$77,700	\$26,890

Contract funds were paid by the contractor to the technology provider. No SCAQMD funds were retained by the Contractor. Nett provided a \$26,890 discount from commercial pricing. Additional non-monetary cost share was provided by the Contractor by providing the equipment used during this demonstration contract and by Nett for maintenance and upgrade of the systems.

Commercialization and Applications

CARB verification is required for commercialization. The technology provider is currently pursuing CARB verification for off-road equipment on stationary engine applications. A stand alone SCR system is verified by EPA for certain off-road engines.

SCAQMD Contract #10125

March 2011

Demonstrate Projects for Renewable Feedstock to Energy and Fuel Technologies

Contractor

University of California, Riverside
Bourns College of Engineering—Center for
Environmental Research and Technology
(UC Riverside, CE-CERT)

Cosponsors

South Coast Air Quality Management District
(SCAQMD)
Viresco Energy LLC

Project Officer

Joseph Impullitti

Status

The project was completed March 31, 2011. The final report is on file with complete technical details of the project.

The bench scale SHR gasifier, which had been previously used for a lignite study, was modified. In order to increase methane production, a new water gas shift reactor was developed, interfaced and operated.

Potential SNG production in California using available biomass and biosolid resources was estimated.

Background

To meet growing demand for natural gas as a clean transportation fuel, there is potential strategic value in diversifying supply and developing more sustainable sources of natural gas. Thermo-chemical production of Substituted Natural Gas (SNG) from renewable sources offers a viable solution for concerns of natural gas supply.

Project Objective

This project's objective was to demonstrate the technologies to develop a new thermo-chemical process based on Steam Hydrogasification Reaction (SHR) for producing Substituted Natural Gas (SNG) from the co-mingled feedstock of biosolids and biomass.

Technology Description

SHR, which has been developed at the University of California, Riverside to produce a various form of energy products from carbonaceous resources, can handle wet feedstock without drying, does not require expensive oxygen plants, and operates at lower temperature than any other conventional gasification processes. This technology has been demonstrated to be the most efficient and economic process compared to existing technologies.



Figure 1. Picture of SHR-WGS systems. SHR (left) was modified and new WGS (right) was added.

Results

Co-mingled feedstock of biomass and biosolids was pretreated to increase pumpability. Up to 46% of pumpable mixture of the feedstock slurry was demonstrated.



Figure 2. From left to right, Biomass, Biosolid, Mixture of biomass and biosolid, Formation of pumpable mixture of biomass and biosolid after the hydrothermal pretreatment (43% solid loading).

The SHR-WGS reactor can produce up to 90% concentrated SNG from the pumpable, co-mingled feedstock.

With these result, production of SNG with HHV of 13.9 GJ/day can be estimated at a feedstock flow rate of 1.0 ton/day.

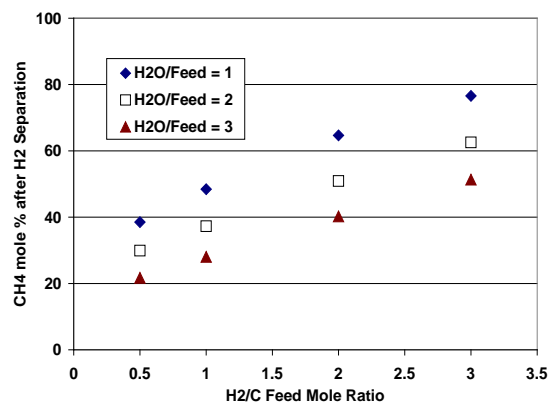


Figure 3. Methane concentration in final product gas. It can be seen that the final product gas contains significant quantities of methane, which is up to ~80 molar %, or up to ~90 mass % at the optimum process condition, which is 1:1 ratio of water to feedstock mass ratio.

Benefits

Estimates of green waste and biosolid resources in California that can be technically converted to SNG were performed. If the entire technical available portion of feedstock is used for SNG production via proposed technology, it can replace about 4.9% of the natural gas consumption in California.

Project Costs

The total project cost was \$101,369. Viresco Energy LLC provided the in-kind contribution via laboratory space and operating cost support for the gasifier.

Commercialization and Applications

A preliminary economic analysis model is established for a 3500 BDT/day (bone dry tons) SNG plant using biosolids and green waste as feedstock. Based on the analysis results, the SNG production cost is 4.39 \$/MMBTu with an internal rate of return (IRR) of 16.68% while feedstock cost and feedstock delivery cost are not taken into consideration.

For recommendation of a next phase, demonstration in the Bubbled Fluidized Bed (BFB) Reactor, which is currently developing with PIER funds is suggested. The size of the BFB reactor is 10 times bigger than the current Bench Gasifier (0.1 tons per day). SNG from the BFB will be coupled to a 5KW CNG generator to demonstrate electricity production from the renewable feedstock.

CSULB CEERS Student Education Study to Assess the Effects of an Exhaust Scrubber on Diesel Emissions

Contractor

California State University, Long Beach
Foundation (CSULB)

Cosponsors

South Coast Air Quality Management District
(SCAQMD)

Project Officer

Alfonso Baez

Project Objective

The present investigation focused on reducing PM emissions of diesel engines with an electrostatic fog. Initial investigation focused on a feasibility study of incorporating an electrostatic fog as part of an emission reduction system. Further development will include development of a system onboard the diesel engine that could use the exhaust heat for generating fog from distilled water and an effective electrostatic device for the generated fog and a collecting device for capturing the PM emissions.

Background

Air misting (e.g. wet scrubbing) has long been used to remove dust particles in the air. In general, fogging and air misting can reduce concentration of large particles of 2-10 microns but not smaller ones. One effective method for removing small particles is an electrostatic scrubber. In this method, the droplets entering the scrubber region are electrically charged, which results in attraction of the particles to the droplets and their sedimentations. Figure 1 shows a schematic of an electrostatic charging nozzle (Law [1978]).

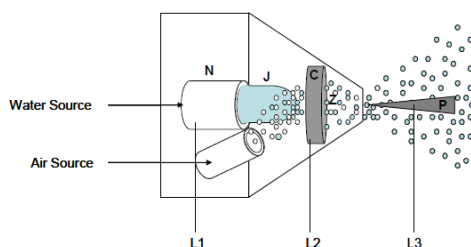


Figure 1. Schematic of electrostatic nozzle

Here, the supplied water is atomized using compressed air. L1, L2, and L3 are conductors and depending on how these conductors are connected to the voltage source, various charging phenomena (corona charging, contact charging, and induction charging) can be achieved. Electrostatic charging has been used extensively in painting and agricultural industries for quality painting and pesticide spraying of agricultural products.

Technology Description

A Vanguard 3-cylinder naturally aspirated liquid-cooled diesel engine connected to an electric dynamometer with a maximum output power of 20 bhp (brake horsepower) at 3600 rpm (revolutions per minute) was used for the proposed investigation. The emission measurements were performed with a Horiba PG-250 emission analyzer for gaseous emissions and a TSI Dustrak Model 8520 for PM measurements. Both equipment have up-to-date calibration to minimize measurement errors.

A small dilution tunnel was designed using PVC pipes. Figure 2 shows the experimental set-up. It constitutes a T-connector with 5.08 cm (2 inch) ID (inside diameter), followed by a 76.2 cm (30 inch) straight pipe of similar ID. The straight pipe was connected to a 12.7 cm (5 inch) diameter flexible steel pipe.



Figure 2. Experimental set-up

The intake of the tunnel was connected to the exhaust of the diesel engine, using a 5.08 cm (2 inch) ID high temperature flexible tube. The diesel exhaust volume flow rate was approximately 0.6 m³/min, which corresponds to an approximate mean velocity of 14.84 m/sec.

A Rosco fog machine Model 3000 with distilled water was used to generate the fog. The fog was generated at a liquid volume flow rate of 0.25 l/min. The exhaust nozzle was 1 mm diameter and was connected to the dilution tunnel via the T-connector, using a PVC adaptor. The fog was injected perpendicular to the direction of the exhaust.

The electrostatic charge was generated using an AC high voltage electrostatic rod placed downstream of the fog generator nozzle. The rod is 8.2 mm in diameter and tapered from the mid-section to a 2.7 mm diameter. It was inserted into the T-connector such that the tip is perpendicular to the generated fog at the midsection of the tube.

In order to capture the exhaust PM, six iron rods of 3.81 mm diameter were placed inside the straight tube spanning the inside diameter at 25.4 cm (10 inch) downstream of the T-connector. The rods were placed in a spiral format at 10 diameter spacing from each other. The distance between the T-connector and the rods allowed mixing of the electrostatic fog with the exhaust.

Status

The project has been completed and the final report was submitted on December 30, 2011.

Results

Table 1 shows the normalized averaged values of the exhaust gases and the PM with both conditions: with fog and with electrostatic fog. Here the exhaust values with fog (f) and with electrostatic fog (ef) have been normalized with the corresponding averaged values from the raw exhaust. Injecting fog only results in about 3% reduction in PM and 5-8% reductions in other exhaust gases. However, when electrostatic fog is injected, the reductions are increased to where the PM reduction is now just under 7% and the reductions in the other exhaust gases ranged from just over 15% to 19%.

It should be noted that our repeated measurements with this approach have resulted in variations in emissions reductions. Table 2 shows the normalized averaged PM from another series of

tests conducted which indicate significant PM reductions with both the injected fog and the electrostatic fog. The variation in PM reduction could be related to the method of generating electrostatic fog and possibly with the volume of the fog present in the exhaust. The magnetic field generated around this conductor is in the form of concentric circles and its effect decreases with distance away from the conductor. Thus with this device, it was difficult to generate a uniform magnetic field.

	PM	Nox	CO	CO2
(ppm-X)fog.avg/ (ppm-X)exh.avg	0.9768	0.9469	0.9135	0.9594
(ppm-X)fog+elc.avg/ (ppm-X)exh.avg	0.9329	0.8239	0.8026	0.8436

Table 1. Averaged normalized emission values

	PM
(ppm-X)fog.avg/ (ppm-X)exh.avg	0.6751
(ppm-X)fog+elc.avg/ (ppm-X)exh.avg	0.5549

Table 2. Averaged normalized PM

Benefits

Results of the present experiments have shown that the electrostatic fog is a viable option for reducing diesel engine PM emissions. However, further exploratory research is needed to develop an effective device that can produce a uniform magnetic field. Reduction of PM emissions could significantly improve air quality in the Los Angeles / Long Beach ports area and in the greater Southern California region.

Project Costs

The project was completed with funding from the SCAQMD in the amount of \$28,000. Cost-share contributions from CSULB were in the form of space and laboratory equipment and additional person-hours.

Commercialization and Applications

Further phases of the investigation should be completed before technology development and commercialization.

Develop & Demonstrate Hydraulic-Hybrid Shuttle Bus

Contractor

U.S. Environmental Protection Agency (EPA)

Cosponsors

National Automotive Center-U.S. Army; Navistar/IC Bus; Champion Bus; Delphi; Eaton; FEV; Southwest Research Institute; and South Coast Air Quality Management District (SCAQMD)

Project Officer

Jeff Cox

Background

Significantly reducing greenhouse gases (achieving very high fuel efficiency) from commercial hybrid vehicles operating in urban environments while meeting California's continuing need for lower criteria emissions is a major technical and engineering challenge. Series hydraulic hybrid technology coupled with advanced low emission technology has great potential as a cost-effective solution for clean commercial vehicles operating in California.

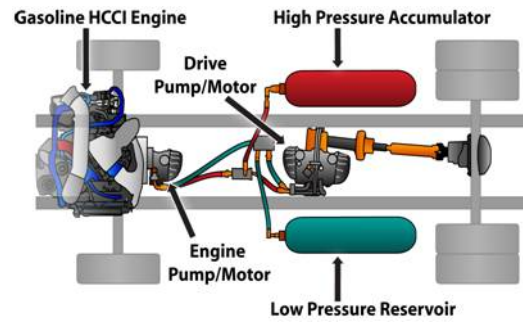
Project Objective

The project objective was to demonstrate real-world emissions reduction and significant fuel economy improvement benefits of combining series hydraulic hybrid and a gasoline full Homogeneous Charge, Compression Ignition (HCCI) engine technology in urban commercial trucks.



Technology Description

Using its unique series hydraulic hybrid technology, EPA has demonstrated improvements in city fuel economy of large vehicles by 35-150 percent (depending on driving conditions) and reduction of CO₂ greenhouse gas emissions by 25-50+ percent. Series hydraulic hybrid technology is able to maximize fuel efficiency by using high rates of regenerative braking (up to 70 percent energy recovery), by nearly always running the engine at its best efficiency, and by shutting the engine off when it is not needed.



HCCI, or Homogenous Combustion Charge Ignition, unlike conventional gasoline engines, relies on compression to cause ignition in the combustion chamber like diesel engines. However, it is unlike a diesel engine in that ignition does not occur from fuel being rapidly injected into the cylinder. The mixture of air and gasoline is calibrated such that combustion will occur at the apex of the compression cycle. This leads to a uniform burning of fuel and air, increasing efficiency and reducing emissions. The HCCI engine burns gasoline cleanly in a diesel-like cycle that controls engine-out NO_x emissions without costly NO_x and particulate matter aftertreatment.

Status

The innovative series hydraulic hybrid and gasoline HCCI engine technology used in the shuttle was designed, fabricated, installed and tested by EPA engineers at EPA's National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan. The EPA prototype series hydraulic hybrid components were installed in a

Navistar/IC Bus 3200 HC chassis with a shuttle body by Champion Bus. The gasoline HCCI engine adapted from a 2008 Navistar MaxForce 6.4 liter diesel engine, which also was the baseline engine for this project. The initial testing was complete in late 2011. The remaining project activities include some continuing research/optimization of the control system to improve fuel efficiency and reduce cold starting emissions, showcasing the shuttle to bus fleets and manufacturers, and completing the final report.

Results

As expected, the fuel economy improvement (mpg) varied by the intensity of the stop-go driving. The fuel economy improvement is very good for the city cycles when the engine is warm; suburban (EPA LA4 37%), city (EPA LA4 bag2 64%), transit bus (Manhattan Bus 137%), and connector shuttle (Denver Bus 182%).

Drive Cycle	Fuel Economy			Comment
	Stock 2008 Baseline Diesel Average FE	Gasoline HCCI Diesel-Equiv Avg FE	Hydraulic Hybrid FE Improvement	
HWFET	10.20	9.25	-9%	drivetrain optimized for city driving
cold LA4	7.36	9.46	28%	
cold LA4 bag 1	7.24	7.65	6%	cold start strategy not optimized yet
cold LA4 bag 2	7.48	12.06	61%	
warm LA4	7.51	10.35	37%	
warm LA4 bag 1	7.54	8.73	16%	
warm LA4 bag 2	7.48	12.35	64%	
Manhattan Bus	4.35	10.30	137%	
Denver Bus	3.16	8.92	182%	

The engine/hybrid calibration still needs some more refinement to improve the fuel economy when the engine is operating cold (or cool) such as with the cold LA4 bag 1 (6%). In this case the fuel economy was sub-optimal because we have not yet optimized the calibration of the engine's "warm-up" mode which uses spark plugs before switching to HCCI mode. More optimization was planned for a phase 2 of the project.

We expected the mpg improvement for the highway fuel economy test (HWFET -9%) to not show improvement over the baseline diesel because this gasoline HCCI engine and hybrid drivetrain were optimized for shuttle bus type city driving. We expect with more calibrating during a phase 2 should improve it some.

As anticipated, the NO_x measurements are 70-90% lower than those from the conventional pre-2008 standards diesel engine. The measurements are in line with 2010 emission standards for NO_x, but without the need for costly diesel aftertreatment. The engine startup strategy still needs a bit of refinement to improve the NO_x reduction when the engine is cold (or cool) as shown in the LA4 bag 1 tests (71%). We are

confident that the engine cold startup strategy can be improved during a phase 2 of the project.

Drive Cycle	NOx (gm/mi)		
	2008 stock	HCCI	change
HWFET	2.670	0.392	-85%
cold LA4	3.780	0.972	-74%
cold LA4 bag 1	4.593	1.320	-71%
cold LA4 bag 2	4.548	0.655	-86%
warm LA4	3.758	0.769	-80%
warm LA4 bag 1	2.968	0.864	-71%
warm LA4 bag 2	4.548	0.682	-85%
Manhattan Bus	8.176	0.830	-90%
Denver Bus	8.124	1.004	-88%

The CO emissions for the vehicle were well within 2010 standards. The HC emissions for the vehicle varied depending on operating conditions of the engine. When the engine was hot enough, the net increase in HC is small and within the 2010 standards for HC. However, when the oxidation catalyst was either cold (as in the cold LA4), or not hot enough to operate effectively (such as during bus cycles with slow speed and frequent engine shutoff) the HC measurements show an increase. We are confident that HC emissions calibration issues can easily be dealt with in a phase 2 of the project by installing a close-coupled resistively-heated catalytic system.

Benefits

The results clearly demonstrate that series hydraulic hybrid commercial vehicles powered by a gasoline HCCI engine can significantly reduce GHGs (by increasing fuel efficiency) while meeting 2010 emission standards without costly NOx and PM aftertreatment systems.

Project Costs

This first-of-its-kind technology assessment cost about \$2.0M with most of the funding coming from EPA (\$1.5M) and SCAQMD (\$0.5M).

Commercialization and Applications

The technology is suitable for application in many urban based vehicles including transit and shuttle buses, refuse trucks, delivery vehicles, school buses, work trucks, and vans. When produced in high volume, this technology can easily pay for itself using fuel savings in two to three years. Commercial sales of production HHVs has begun in the refuse truck sector and will soon begin in the delivery vehicle market. Gasoline HCCI engines need a pre-production trial to pilot its use before it can be commercialized.

Demonstrate Battery Electric Class 4 Utility Truck

Contractor

City of Santa Monica

Cosponsors

City of Santa Monica
South Coast Air Quality Management District
(SCAQMD)

Project Officer

Joseph Impullitti

Background

The City of Santa Monica (CSM) applied to the SCAQMD's Technology Advancement Program to request support for the deployment of one "zero emission" fully electric medium-duty truck with an advanced lithium ion battery pack. This utility vehicle will be used by the Water Resources Division of the Public Works Department for maintenance, repairs, and customer service visits throughout the city. CSM does not currently operate any medium-duty electric vehicles within its fleet and thus seeks to deploy an electric vehicle instead of a typical diesel replacement. This deployment will consist of one "Zero Truck" manufactured by ZeroTruck Corp (formerly Electrorides).

Project Objective

This project will allow CSM to evaluate the potential of converting an additional 10 medium-duty trucks to electric vehicles for similar applications, and evaluate the potential for other applications. With modifications, the ZeroTruck could eventually replace as many as 30 medium-duty vehicles in this fleet. CSM wishes to take on this project in an effort to further comply with local, state and federal mandates for NO_x & PM reduction in fleet operations and to further progress toward meeting the goals of switching municipal fleets to alternative fuels, increasing efficiencies, and reducing operating costs.

Technology Description

ZeroTruck solution has multiple applications and brings to market years of research, analysis, and

engineering expertise. ZeroTruck moves beyond the standard light-duty electric vehicle offerings to target medium-duty diesel replacements and offers the everyday fleet user a zero-emission vehicle with performance and operations comparable to a conventional medium-duty vehicle. Designed to eliminate emissions and create energy independence, the ZeroTruck, offered in low cab forward design, brings the latest in electric drive technology. Based on the industry-leading medium-duty Isuzu truck, features include: 350-400-volt lithium battery pack from Dow Kokam (2,500 cycle life batteries, 8-10 years) and high efficiency 100-kilowatt electric motor from UQM Technologies.



Figure 1: City of Santa Monica, Water Resources Division's ZeroTruck

Results

Overall performance, range, functionality was very positive. The fit and finish, layout of the systems all were professionally assembled. The trucks range of approximately 60-65 miles was sufficient to operate on all routes and locations (note the City is only 8 miles square). Performance of the truck when fully loaded was also sufficient to climb grades and accelerate at speed within the traffic flow. The truck was able to be plugged in overnight and be ready for use during the day with a standard 220v30a outlet.

Reliability was negatively affected due to these component failures as the truck was out of service for several months. The major failure was a gearbox failure. The supplier failed to respond in a timely manner and it was replaced by a completely new design with a new supplier. The charger failed and it was removed and replaced by a liquid cooled unit from a new supplier. The brake system vacuum pump valve failed and the crane on the service body

experienced two issues that took the crane out of service but not the truck.

A big challenge with this technology is the relative few suppliers of components and small number of parts manufactured. Having spare parts on hand would have reduced downtime and improved the overall experience for the operators of the vehicle.

Benefits

This project shows that medium-duty electric vehicles will do the same work and that they are a viable alternative to using an internal combustion engine powered vehicle. Environmental benefits include eliminating exhaust emissions, including NO_x, CO, NMOG, and HCHO, evaporative HC, as well as greenhouse gas (GHG) emission. Waste and expense are reduced by eliminating tune up parts, air filters, oil, oil filters and extended brake life because of regenerative braking.

Project Costs

	Planned	Actual
SCAQMD	\$87,205	\$87,205
CSM	\$102,205	\$102,205
EV Innovations	\$7,500	\$7,500
Velocity Group	\$5,000	\$5,000
ZeroTruck	\$9,000	\$59,000
Project Total	210,910	260,910

ZeroTruck's contribution was increased by \$50,000 due to having to re-design a second automatic transmission and other component failures. The costs did not increase for the CSM or other partners in this project.

Commercialization and Applications

The ZeroTruck can be outfitted with any style body used on this type chassis such as service/utility, dump body, box van, stake bed, tow, sweeper, and refuse. Airports, municipalities, college campuses and many private fleets are good candidates for ZeroTrucks. The market size is projected to be several thousand trucks in California alone. Advancements in the works include improving component supply chain and development of a CVT gearbox to increase the efficiency of the electric drive system and reduce costs.

The biggest barrier to commercialization is the initial cost of the technology.

While the electric technology has additional up-front costs over a typical diesel replacement vehicle, the long-term fuel savings, reduced maintenance and emissions reductions help balance these costs. Incentives that cover part of the incremental costs will help bring this technology to market faster.

AQMD Contract # 08192

June 2011

Development and Demonstration of 2010 Compliant LNG Heavy-Duty Truck

Contractor

Westport Power Inc

Cosponsors

California Energy Commission (CEC)
South Coast Air Quality Management District (SCAQMD)

Project Officer

Adewale Oshinuga

Background

In November 2006, the Ports of Los Angeles and Long Beach adopted a 5-year Clean Air Action Plan (CAAP) establishing several control measures and programs to reduce emissions from port-related operations. One such measure (HDV1) included the replacement of approximately 16,000 drayage trucks serving the ports to meet the clean truck standard, which was defined as the Environmental Protection Agency (EPA) 2007 on-road emissions standard, and included engines fueled by diesel and Liquefied Natural Gas (LNG). A portion of the drayage trucks could be replaced with LNG trucks powered by Westport Power low NO_x High Pressure Diesel Injection (HPDI) engines; the Westport Power model year 2007 HPDI engines were certified at a NO_x level of 0.8 g/bhp-hr.

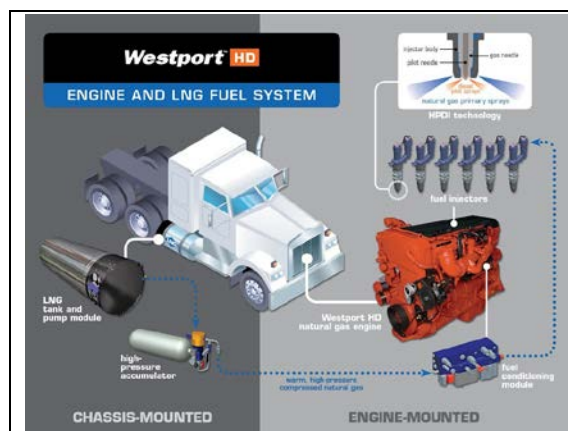
Project Objective

To develop, demonstrate and certify an LNG HPDI engine used in Class-8 heavy-duty truck applications at or below 0.6 g/bhp-hr NO_x and 0.01 g/bhp-hr PM in early 2008 (Project Phase 1), and 0.2 g/bhp-hr NO_x and 0.01 g/bhp-hr PM emissions in mid-2009 (Project Phase 2).

Technology Description

Westport HPDI technology uses natural gas as the primary fuel, with a small amount of diesel as a pilot ignition source. Compared to a conventional diesel truck, HPDI replaces up to 97% of the fuel

(by energy) with natural gas, depending on engine operating condition. On Class 8 trucks the natural gas is held as LNG in cryogenic tanks to achieve sufficient energy density for heavy-duty trucking.



Status

Phase 1 focused on calibration improvements using the existing engine hardware, as well as development of processes in conjunction with Kenworth Truck Company to make the LNG truck available as a Kenworth product. This included development of a new higher-volume production facility for Westport systems which opened in February 2007. Phase 1 was completed with the Kenworth truck offering in February 2009.

Phase 2 included the development of new 2010 system architecture leading to certification and on-road demonstration of the 0.2g NO_x solution. A draft version of the final report task was submitted to SCAQMD in December 2011 and the final version will be completed by the end of February 2012.

Results

Due to limitations of the engine hardware the sub-0.6 g/bhp-hr NO_x calibration developed during Phase 1 was considered not robust enough for certification and with the agreement of SCAQMD, a different (0.68g NO_x) calibration was introduced as a running change. This solution still offered benefits over the current product at that time,

including a 0.1g/bhph reduction in NO_x over the transient cycle representative of urban driving and a 3.3% fuel economy improvement over the steady-state cycle representative of highway driving.

For the 0.2g NO_x solution, the new system architecture and in particular the addition of the SCR to the aftertreatment system required wide-ranging calibration development. This included improving fuel system control algorithms and diagnostics and further fine-tuning of the Auxiliary Emissions Control Devices (AECs). Following extensive engine dynamometer and vehicle testing the system was certified at a third-party facility to the following emissions levels, comfortably exceeding the EPA regulations.

Regulated Emissions (g/bhp-hr)			
CO	NO _x	nmHC	PM
0.13	0.14	0.02	0.004

A six-month field trial of three trucks equipped with the 0.2g NO_x engine was completed in March 2011 and accumulated 167,000 miles. The vehicles selected as the demonstration fleet operated as port drayage trucks between the Port of Long Beach and locations within the Southern California Basin. The field trial offered the following benefits to the development of the product:

- early issue resolution
- collection of data on fuel economy and Diesel Exhaust Fluid (DEF) usage
- compilation of driver feedback
- study of fuelling and DEF refill practices

Benefits

Although it did not meet the original target for NO_x reduction, the advantages of the running change calibration are still noteworthy. Based on 1000 LNG trucks, and dependent on vehicle mileage, they are:

- NO_x reductions of between 112 and 206 tons/year compared to diesel. Of this, the running change provided 14 to 18 tons/year reduction (9% to 14% additional NO_x reduction over the previous LNG truck calibration).

- GHG (equivalent CO₂) reductions of between 18800 and 34000 tons/year. Of this, the running change provided 800 to 900 tons/year (3% to 4% additional CO₂ reduction over the previous LNG truck calibration).

The product delivered in Phase 2 of the project delivered significant further reductions in regulated emissions and met the EPA legislative requirements. In addition fuel economy and total GHG emissions were improved over the Phase 1 running change product. Emissions of ammonia and N₂O as a result of adding the SCR system were found to be negligible.

Westport continues to work with Kenworth Trucks and also with the Peterbilt Truck Company to deliver LNG trucks resulting from the development of the 2010 engine.

Project Costs

The initial proposed scope of work covered by this multiple phase project assumed joint funding from the SCAQMD and from the CEC. The project was structured so that the funding from the two sources covered separate deliverables. Whereas the original estimated spend, established at the beginning of 2008, was \$9.98 million; the project expenses concluded with a spend of \$12 million.

	AQMD Deliverables	CEC Deliverables	Total
Total Costs	\$11,084,000	\$916,000	\$12,000,000
Funding Share	\$1,750,000	\$421,000	\$2,171,000

Commercialization and Applications

With its launch in 2010, the Westport GX 15L engine in the Kenworth T800 became the first commercially available LNG-fuelled truck meeting the EPA2010 on-road heavy-duty emissions standards. As of January 2012, over three hundred of these trucks have been put into service in the US, surpassing the sales of the pre-2010 version developed in Phase 1. Sales are projected to increase in 2012 and the next few years as LNG fuelling infrastructure is expanded across the country. Westport continues to work on refinements and cost-reduction initiatives to further improve the product.

SCAQMD Contract #10041

June 2011

Develop Prototype Natural Gas-Powered Concrete Mixer Truck and Demonstrate Performance and Emissions

Contractor

McNeilus Truck and Manufacturing Company

Cosponsors

McNeilus Truck and Manufacturing Company
South Coast Air Quality Management District
(SCAQMD)

Project Officer

Phil Barroca

Background

There are an estimated 4,700 concrete mixer trucks operating in the South Coast Air Basin, accounting for 8% of this region's total heavy-duty vehicle inventory. These trucks are diesel-powered and represent 3% of the total vehicular NOx emissions and 4% of the total vehicular PM emissions in the South Coast Air Basin. The engine of a concrete mixer truck also turns the vehicle's mixer drum, an important requirement to maintain product viability. The concrete mixer truck industry estimates that these vehicles spend 36% of their operating time at idle (stationary) between loading and unloading concrete at the batch plant and job site, respectively, representing significant localized emissions.

McNeilus Truck Company developed a prototype CNG concrete mixer truck based on a Kenworth chassis and the Cummins-Westport ISLG CNG engine. McNeilus approached the AQMD in mid 2008 for funding to complete vehicle modifications with the objective of commercialization and to support demonstration of the vehicle to local fleet operators. Vehicle modifications included CNG fuel storage capacity and positioning, exhaust stack, and weight modifications. Vehicle demonstration included developing a "hands-on" program for fleet operators to use the vehicle under normal and varied working conditions including unpaved roads, freeways, hills and grades.

Technology Description

The technology used in this project is a dedicated CNG-fueled heavy-duty spark-ignited engine. The

engine is a 2008 Cummins-Westport ISLG; 8.9 liter displacement. It is rated at up to 320 horsepower (hp) and 1,000 lb.-ft. torque and is CARB certified at 0.1 g-NOx/bhp-hr and 0.009 g-PM/bhp-hr. To achieve these emission levels the ISLG uses cooled stoichiometric exhaust gas recirculation (EGR) combustion which allows for the use of a three-way catalyst (TWC). TWCs are simple, passive aftertreatment devices packaged as part of the muffler that provide consistent performance and are maintenance-free. The ISLG does not require active aftertreatment such as a diesel particulate filter (DPF) or selective catalytic reduction (SCR) to reach EPA 2010 emissions standards for PM or NOx, respectively. The vehicle was outfitted with Type III light-weight CNG storage tanks with a 53 diesel gallon equivalent (DGE) fuel capacity. Fuel tank placement and light weight fuel tank brackets were installed by AFV.

Status

Modifications, demonstration and emissions testing have been completed. The prototype vehicle continues to be demonstrated and McNeilus reports no significant problems with the vehicle. The vehicle is commercially available and to date at least five have been purchased by private companies.



Results

Vehicle modifications were completed prior to demonstration. A minimum of eight different local concrete batch plant companies demonstrated the vehicle from July 2008 through October 2009, all

with favorable comments on the vehicle's overall performance (the vehicle continues to be demonstrated both locally and nationally). The vehicle met or exceeded all vehicle operators' performance requirements. Vehicle operators averaged 65 miles per day and the vehicle averaged 2.6 miles per DGE; the miles-per-DGE range was 0.7 to 4.6 mpg. McNeilus noted that vehicle operators unfamiliar with CNG systems were uncomfortable with allowing the fuel tank to get below 1,000 psig or one-third full, out of concern for keeping the mixer drum turning. The vehicle consumed approximately 40% to 50% of its fuel in a stationary mode.

Emission Testing

Emission testing was performed on two stationary vehicles: the 2008 demonstration vehicle and a comparable 2005 diesel-powered concrete mixer truck, equipped with a diesel particulate filter (DPF). The diesel test vehicle was supplied by Robertson's Ready Mix Company and was considered representative of the inventory of concrete mixer trucks operating in the Air Basin. Stationary mode testing was selected because concrete mixer trucks spend up to 50% of their operating time in a stationary mode, and consume up to 40% of the fuel significant amount fuel, resulting in a significant amount of localized emissions. Emissions' testing was performed for NO_x, HC, CO, CO₂ and PM under the following four modes: idle, high idle, low idle with power-take-off (PTO) engaged on an unloaded and rotating mixer drum, and low and high idle with PTO engaged on a loaded and rotating mixer drum, using comparable loads in each vehicle's mixer drum. Preliminary results show the CNG powered vehicle having negligible PM emissions, significantly lower than the DPF equipped diesel vehicle. The CNG vehicle also had lower NO_x than the diesel vehicle in all test modes, including loaded and unloaded idling conditions. The total hydrocarbon emissions were higher for the CNG vehicle only due to methane inclusion. However, non-methane hydrocarbon emissions from the CNG vehicle were also very low as methane accounts for 90% of typical CNG fuel composition in this region.

Benefits

The benefits of this demonstration project include advancing the technology and expanding the commercial availability of alternative fuel heavy-duty vehicles, particularly in the private sector. During this project two heavy-duty chassis manufacturers, Kenworth and Peterbilt, began producing a Class 8 chassis with the Cummins Westport ISLG engine. The use of alternative fuel-

powered heavy-duty engines in the concrete mixer truck industry is important because of the significant amount of localized emissions generated from the vehicle during payload delivery, particularly in populated areas such as residential communities. This demonstration program has presented the concrete batch plant industry with a commercially available alternative means of complying with NO_x and PM emission schedules, and an alternative to dependency on petroleum based fuels.

Project Costs

The total cost for the project is \$380,000 with SCAQMD cost share not to exceed \$100,000. Costs for this project have not exceeded this amount.

Commercialization and Applications

The project has resulted in the commercial availability of a CNG-powered concrete mixer truck. McNeilus offers both Bridgemaster and Standard mixers on either the Kenworth W900 or T800 chassis. Other chassis manufacturers' CNG platforms are pending. Two factors impeding its deployment are the continuing economic conditions and company's hesitation to invest in new equipment. The local concrete mixer truck industry has reduced its inventory dramatically over the course of this project, in part due to the economy and in part due to regulatory requirements and meeting CARB DPF regulations. However, with economic recovery, the industry is expected to commence purchasing of new equipment and vehicles. The combination of economic recovery and continued low costs for CNG fuel can support industry to purchase CNG powered mixer trucks. The accompanying photo (below) is one of two CNG-powered McNeilus concrete mixer trucks purchased in 2011 by Ferrara Bros. Building Materials Corp., Flushing NY that have been deployed to the reconstruction efforts of the World Trade Center in New York, NY.



SCAQMD Contract #11656

December 2011

Participate in California Fuel Cell Partnership for CY 2011 & Provide Support for Regional Coordinator

Contractor

Bevilacqua-Knight Inc

Cosponsors

8 automakers; 2 energy providers; 6 government agencies; 1 technology provider; and 14 associate 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. for their portion of CaFCP administration. SCAQMD joined the CaFCP in April, 2000, and the CaFCP currently includes 31 organizations interested in demonstrating fuel cell vehicle and fueling infrastructure technology.

Project Objective

There were several goals for 2011:

- Establish and maintain a common vision for the market transition of FCV's in California;
- Facilitate the deployment of commercial fueling stations and coordinate with OEM vehicle plans;
- Support practical codes and standards development;
- Prepare communities for vehicles and fueling stations, and train first responders;
- Coordinate with other fuel cell vehicle demonstration programs worldwide; and
- Enhance public awareness and understanding through technology demonstrations and outreach.

Status

The members of the CaFCP intend to continue their cooperative demonstration efforts and have set goals through 2012, subject to a budget approved annually. This final report covers the SCAQMD contract 11656 for 2011 membership. This contract was completed on schedule in 2011.



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 Equinox, Honda's FCX Clarity, Hyundai's Tucson, Nissan's XTrail, Toyota's FCHV-ADV, and Volkswagen's HyMotion. The fuel cell transit buses include 12 placed at AC Transit (Van Hool buses with UTC fuel cells) and 3 placed at Sunline Transit (1 UTC/ISE, and 1 Ballard/New Flyer, and 1 Ballard/BAE). Proterra has also placed a battery dominant FC hybrid bus at the City of Burbank and Hydrogenics/BAE has placed one bus with SF MTA.

Results

Specific accomplishments include:

- Automotive members placed over 400 fuel cell passenger vehicles on California roads from 1999 through 2011, including the first retail customers starting in 2005;

- Transit agency members have demonstrated 13 fuel cell buses since 1999, with 4 still currently in operation (see technology description);
- There are now 6 open access hydrogen fueling stations in operation in California. There are also 15 additional private stations clustered in regional networks in northern and southern California;
- CaFCP staff and members continue to train local fire departments and work with emergency response organizations to coordinate with other state and national efforts;
- The CaFCP organized or participated in several ride & drive events, especially the AltCar Expo in Santa Monica.
- The CaFCP continued to upgrade its comprehensive up-to-date website focusing on efforts in California, participated in technical and educational conferences, and helped prepare for hydrogen station openings.

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 (CO₂).

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, 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.

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 2010-2012, CaFCP's goals relate to Building Market Foundations through coordinated individual and collective effort.

Install & Demonstrate Three Electrolyzers (Burbank, Riverside & Santa Monica) and Two Mobile Fuelers (Santa Ana & Ontario)

Contractors

Air Products and Chemicals Inc.

Cosponsors

South Coast Air Quality Management District
(SCAQMD)

Project Officer

Larry Watkins

Background

The implementation of zero-emission vehicles (ZEVs) is a key component in the effort to achieve healthful air quality in the South Coast Air Basin. Fuel cell vehicle (FCV) technology is emerging at an accelerated pace and may play a crucial role in this effort. CARB is promulgating revisions to the Clean Fuel Outlet Regulations requiring fuel vendors to provide hydrogen as FCV vehicle populations are met.

Project Objective

The SCAQMD allocated a total of \$3.9 million towards funding the Five Cities project for the installation and operation of a network of five hydrogen fueling stations throughout the Basin to support the operation of FCVs and electric-hybrid internal combustion engine vehicles converted to use hydrogen fuel, for up to five years. The CARB experimental permit for the hydrogen vehicles was later extended for 18 months until March 2012.

Technology Description

Air Products has designed, built, and installed stationary fueling sites supplied by an integral proton exchange membrane (PEM) electrolyzer system for Riverside, Burbank, and Santa Monica, and a self-contained, transportable fueling unit that can be refilled at an Air Products hydrogen production facility for Santa Ana and Ontario. These stations have been supplied in support of the SCAQMD program to

serve hydrogen ICE vehicles in the South Coast Air Basin.

Status

All of the stations under the “Five Cities” project have been completed. The following table summarizes the opening dates of the stations.

Station	Date Fully Operational
Santa Ana	January 11, 2006
Ontario	January 11, 2006
Riverside	January 17, 2006
Burbank	January 31, 2006
Santa Monica	June 15, 2006

Results

During the period of performance, the hydrogen fuel stations provided over 5,300 fills, dispensing 7,000 kilograms of hydrogen. Maintenance of the stations was manageable and rarely caused disruption to the users.

Benefits

This project is an important step toward the use of renewable energy sources, particularly hydrogen. The installation of the projects allowed SCAQMD to monitor the fueling patterns at each of the sites and provide practical outreach on how a hydrogen fueling station is run. The projects have successfully demonstrated the use of electrolysis, which if supplied with a renewable source of electricity, is a clean way to produce hydrogen.

Project Costs

The original contract value for the installation of the five stations plus the first year of hydrogen fueling was \$2,982,000. An amendment in 2008 added an additional \$903,332 for maintenance of the three electrolyzer stations and lease and fueling costs for the two mobile fueler stations, for a total contract value of \$3,885,332. Air Products completed the work under Tasks 1 through 4 for each of the three electrolyzer stations and two mobile fueler stations, and has

identified cost additions beyond the original scope of work related to station operation and maintenance. Contract scope changes required installation of flame and gas detection systems at Santa Monica and Riverside and underground piping associated with the Riverside installation.

Commercialization and Applications

The stations in the Five Cities program were all designed to support small fleets of vehicles (less than 10 cars). However, the mobile fuelers and the electrolyzer stations were available for commercial applications such as transit buses. As the number of hydrogen vehicles on the road increases, different products with larger capacities, such as liquid hydrogen or pipeline supply and larger compressors, would need to be installed. Consideration should also be given to the use of renewable electricity generation such as solar for the electrolyzers, due to the significant impact on operational costs and greenhouse gas emissions.

As part of a partnership with the Department of Energy, BP, and Daimler-Chrysler, BP built a 700 bar station using a steam methane reformer at Burbank. This station opened in 2009 and dispenses hydrogen at 350 bar and 700 bar. Once the program ended, BP transferred ownership of the station to Burbank. The SCAQMD, CARB, DOE and CEC provided combined funding of \$1 million to support operation and maintenance of the facility. Hydrogen Frontiers currently operates and maintains the Burbank station so that it can continue to provide fueling to hydrogen vehicles and fuel cell buses in the area.

Cosponsor Feasibility, Design and Development of 70 Mpa Hydrogen Home Fueling Appliance

Contractor

NextEnergy Center (NEC)

Cosponsors

U.S. Department of Energy (US DOE); National Renewable Energy Laboratory (NREL); South Coast Air Quality Management District (SCAQMD); ITM Power (ITM); Gas Technology Institute (GTI)

Project Officers

Larry Watkins

Background

Fuel Cell Vehicles (FCVs) are one of the cleanest options for zero emission vehicles (ZEVs), with energy efficiencies up to 60% compared with ~30% for internal combustion engine (ICE) vehicles, and emit only water. Auto manufacturers are introducing FCVs that use 70 MPa (megapascal) H₂ storage systems. In 2007, NEC was approached by several vehicle original equipment manufacturers (OEMs) to form a Steering Committee to provide technical oversight on the development of a 70 MPa (10,000 psi) small-scale H₂ fueling appliance (SHFA), urgently needed to: 1) Fill gaps in H₂ infrastructure; 2) Provide a pathway for H₂ fueling from distributed and/or renewable sources; and 3) Align with the intent of the Memorandum of Understanding (MOU) in 2009 by six OEMs to roll out FCVs by 2015. As part of NEC's Congressional Award (DE-AC36-99GO10337) by US DOE, the initial phases of the SHFA are underway.

Project Objective

The primary objective for Phase 2a is to design a high pressure (10,000 psi), scalable down (to 5,000 psi) H₂ fueling station that can be sited in a consumer's home garage and fulfills these functional objectives:

- H₂ Generation: nominally 5 kg/week.
- Storage: nominally 5 kg (scalable).
- Slow Fill—3-5 kg in 6-8 hours.

- Fast Fill—1-4.5 kg in 1-2 hours.
- Safety: Conform to all state and national codes, especially to Michigan and California.
- Adaptability: Able to be coupled with renewable energy sources in future designs.
- “Downgradable” compatibility with lower-pressure on-board vehicle storage in future.

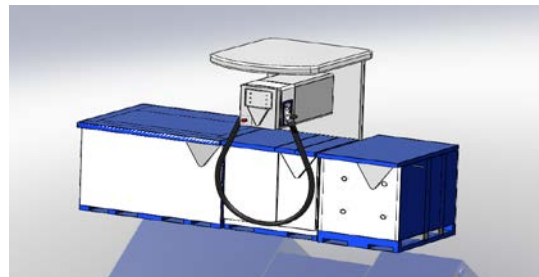
Technology Description

The main scenario requires the SHFA to dispense a full fill every week for a single light-duty vehicle (with maximum on-board storage of 5 kg) with the flexibility to dispense one kg at a time (i.e. more than enough to make an average daily commute), the full five kg overnight in 6-8 hours during a slow fill (i.e. Sun. night to have fuel for the week), or 1-4.5 kilograms in one to two hours for a fast fill. This is accomplished using an electrolyzer, a robust compressor and a combination of cascade refueling and bulk storage.

Status

The Phase 1 report – a Feasibility Study to determine if designing and eventually building a 70 MPa SHFA would be feasible and if so, which H₂ generation technology would be most ideal (steam methane reformation, electrolysis, etc.) – was accepted by SCAQMD in Jan. 2011. The Phase 2a work – designing a 70 MPa SHFA – was awarded to ITM Power and completed in June 2011 and is discussed here. Phases 2b through 5 (Alpha 70 MPa SHFA build out, testing, and validation thru Beta system testing, validation, and UL or equivalent certification) are currently unfunded.

Picture of Phase 2a 70/35 MPa SHFA Design



Results

Key Performance Characteristics

Characteristic	Initial Target	Final Target
Electrolyzer size	5kg/week	1kg/day generated over a 12hr period
Compression	70MPa	Unchanged
H ₂ Storage	Small or no storage	70MPa bulk H ₂ storage for partial cascade (fast) refueling
Fuelling profile	Slow direct fill via compressor	Combination of fast cascade then slow direct fill
Location	In or outside	Unchanged
Cost analysis of system	Not included within scope	To include target to 100,000 units

Public acceptance will depend mainly upon convenience and price. Until a reliable infrastructure for H₂ exists, there is a need for home-based refuelers; and, once the infrastructure is established, will still offer convenience. Acceptability could be adversely affected by high SHFA cost, especially in early adoption. Cost is dependent on: 1) those elements that can be improved upon by volume demand, such as mechanical components and labor, and 2) those controlled by commodity pricing, such as the platinum catalysts in the stack, reactor catalysts in the gas purification O₂ reactor unit, etc. The former will see improvement over time, as volume demand leads to improved manufacturing and economies of scale; the latter may be addressed by ongoing research into improved catalysts, and siting manufacture in the country of material origin.

Benefits

SHFA benefits are summarized below.

Benefits
Independence from imported oil (energy security)
Environmental credentials and compatibility with various renewable power in electricity networks
Ease of refueling
Long-term refueling solution under control of householder
Enables use of H ₂ vehicle if local refueler is not available
Affords opportunity to buy an FCV plus SHFA package

Additional benefits include:

- “Downgradable” with lower pressure on-board vehicle storage in future designs.
- Weather-resistant operation: frost protection of the electrolyzer and capability of functioning through heavy snow-storms.
- Compressor noise minimal with insulation.
- Internal system leakage dilution.

Project Costs

The project was estimated to cost \$417,600 originally in US DOE co-funding for Phase 1 and Phase 2a of the 70/35 MPa SHFA, with \$41,000 provided in other co-funding, excluding the SCAQMD co-funding commitment of \$63,400 (\$23,400 for Phase 1 plus \$40,000 for Phase 2a). The actual amounts spent for both US DOE co-funding and other co-funding exceeded these original estimates. The actual cost is \$578,718 in US DOE funding for both Phase 1 and Phase 2a combined. Of this, Phase 1 cost US DOE \$222,125, and Phase 2a cost US DOE \$356,593. Non-federal co-funding was provided by NEC, SCAQMD, and project partners in the amount of \$173,374 for *both* Phase 1 and Phase 2a. Of this, SCAQMD provided \$23,400 for Phase 1 and (upon acceptance of this final report) will provide an additional \$40,000 for Phase 2a. NEC and subcontractor GTI provided a total of \$54,391 in cost share for Phase 1. NEC and subcontractor ITM provided a total of \$55,583 in cost share for Phase 2a.

Commercialization and Applications

Various sources predict strong growth in FCV sales from 2015 to 2025 – with annual production rates over 1 million vehicles by 2020, assuming cost reductions on the order of 90% to 2020. With a few exceptions (Germany, Japan, California), few countries have made commitments to building H₂ infrastructures by 2015, potentially constricting early FCV sales and adopters from buying FCV. Although the initial costs will be high, the SHFA should be viewed as an enabler for building the FCV market. High net worth individuals (HNWIs) are expected to form a substantial proportion of FCV and SHFA purchasers in the early years after launch. There are 12 countries with high levels of HNWIs as prospective early adopters for FCV, and only Germany and Japan have committed to a large scale H₂ infrastructure; but several countries have FCV developers and increasing penetrations of renewable power sources, positive drivers for SHFA deployment.

Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort

Contractor

California Air Resources Board (CARB)

Cosponsors

CARB
South Coast Air Quality Management District
(SCAQMD)

Project Officer

Jean Ospital

Background

Fine particulate matter exposures are associated with a variety of adverse health effects, including increases in mortality rates. However, California specific studies have presented mixed results. One study of Southern California residents found higher health effects from exposure to particulate matter than studies using national cohorts, but another California study reported no effects on total mortality risks. This study, conducted by the University of CA, Berkeley, used a larger number of study subjects residing in major cities throughout the state in addition to those in Southern California from the previous study, to provide a larger study population and a longer study period.

Project Objective

The objective of this research project was to conduct an assessment of the health effects from particulate and gaseous air pollution on all-cause as well as cause-specific mortality in California based on a cohort recruited by the American Cancer Society ACS) for the Cancer Prevention Study (CPS-II).

Technology Description

This study followed more than 76,000 California subjects in the ACS cohort to serve as the study population. These subjects were widely distributed

across California, giving comprehensive coverage for much of the population of the state (i.e., 54 of 58 California counties have ACS subjects). The study subjects were recruited in 1982, and mortality was followed through 2000.

As a basis for exposure assessment, several approaches were utilized including interpolation estimates of air pollution levels measured at air quality monitoring stations, geostatistical kriging, advanced remote sensing coupled with atmospheric modeling, land use regression (LUR), and Bayesian models capable of assessing space-time patterns in exposure to improve exposure assignment. A comprehensive set of 20 individual risk factor variables similar to those used in previous studies was also employed. These variables control for lifestyle, dietary, demographic, occupational, and educational influences that may confound the air pollution-mortality association. Additional ecological variables in the neighborhoods of residence to control for “contextual” neighborhood confounding (e.g., unemployment) were used.

The study assessed the association between air pollution and several causes of death, including cardiovascular (CVD), ischemic heart disease (IHD), respiratory, lung cancer, and other causes, as well as all-cause mortality.

The association between air pollution and death was assessed using standard and multilevel Cox proportional hazards models. Control was also applied for residence in the five largest urban conurbations in the state, which potentially have different mortality rates than non-metropolitan areas. We also assessed spatial autocorrelation in the health effect estimates.

Status

The project has been completed, and the final report (Jerrett, M. Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort: Final Report, 2011) is available at

<http://www.arb.ca.gov/research/apr/past/06-332.pdf>.

Results

Key results are summarized below.

1. Cardiovascular disease (CVD) deaths, especially those from ischemic heart disease (IHD), are consistently and robustly associated with measures of fine particulate and traffic-related air pollution. The effects on CVD and IHD in California are virtually identical to those found in the national study of the CPS-II cohort.
2. All-cause mortality is significantly associated with PM2.5 exposure, but the results are sensitive to statistical model specification and to the exposure model used to generate the estimates. Only the model that applied control for residence in the largest urban conurbations, and employed the land use regression (LUR) model, were significantly elevated effects found on all-cause mortality. In the opinion of the researchers, this model specification with land use regression exposures and control for residence in the large conurbations is the most likely to produce scientifically valid results. Many of the other results presented were included to satisfy contractual requirements to investigate methodological issues of interest to the Air Resources Board. When the fully specified models were used, the effect sizes found were the same as those in the national study (see Table for a comparison).
3. The strongest and most consistent effects are observed when there is finer-scale spatial resolution in the exposure predictions. In models using the LUR estimate that serve as markers of relatively local variation in pollution, effects on all-cause mortality from NO2 and PM2.5 were found.

Table: Comparison of Relative Risk Estimates from the California and National American Cancer Society Cohorts for PM2.5 using a 10 µg/m3 Exposure Increment

	Hazard Ratio (95% CI)	
	California*	National Level**
All-cause	1.08 (1.001.15)	1.08 (1.041.11)
Cardiovascular Disease	1.15 (1.041.28)	1.17 (1.111.24)
Ischemic Heart Disease	1.28 (1.121.47)	1.29 (1.181.40)

* California study uses residential address with a Land Use Regression estimate of exposure with statistical control for individual and ecologic covariates and residence in the five largest conurbations in California.

**National level study uses metropolitan area of residence with the average of all PM2.5 monitors within the metropolitan area as the exposure estimate; source for the National estimate for all-cause and IHD from Krewski et al. 2009 Extended Analysis of the American Cancer Society Study of Particulate Air Pollution and Mortality. 2009, Health Effects Institute.

The results from this investigation indicate consistent and robust effects of PM2.5 and NO2 – a pollutant commonly found in the combustion-source mixture with PM2.5 – on deaths from CVD and IHD. We also found significant associations between PM2.5 and all causes of death, although these findings were sensitive to model specification and were statistically significant only for the model using Land Use Regression estimates of pollutant exposures.

Benefits

The results of this study provide a robust estimate of air pollution and mortality risk using a California specific population. The findings are directly relevant to determining the appropriate level of PM2.5 that will protect public health and will provide more specific estimates of the benefits of reducing emissions related to PM2.5.

Project Costs

The cost of this project was \$749,976. SCAQMD’s contribution was \$374,988, and the CARB contribution was \$374,988.

Extended Analysis of Air Pollution and Cardiovascular Disease in the California Teachers Study Cohort

Contractor

California Air Resources Board (CARB)

Cosponsors

CARB
South Coast Air Quality Management District (SCAQMD)

Project Officer

Jean Ospital

Background

The California Teacher Study is an ongoing cohort health study of over 100,000 female school teachers. Previous studies of this cohort have found associations of long-term exposure to PM_{2.5}, CO, and NO₂ with increased risk of heart attacks and stroke, and well as an association of PM_{2.5} with mortality.

Project Objective

The objective of this study, conducted by the California Department of Public Health, Environmental Health Investigations Branch, was to extend the previous analyses using different exposure periods, include additional disease categories, and examine associations of disease and death with specific components of PM_{2.5} such as elemental carbon, nitrates, and sulfates. In addition, the study assesses the relation of metrics related to traffic emissions and adverse health effects.

Technology Description

A statistical analysis was conducted using Cox proportional hazard regression models, adjusting for smoking status, total pack-years (for current and former smokers), body mass index, marital status, alcohol consumption, second-hand smoke exposure at home, dietary fat, fiber and calories,

physical activity, menopausal status, hormone use, and several Census-derived contextual (neighborhood) variables (income, income inequality, education, population size, racial composition, unemployment).

The exposure assessment in the PM_{2.5} constituents analysis was more limited than in the main analysis because there were only eight monitors available that were collecting data on PM_{2.5} mass and selected constituents as part of the U.S. Environmental Protection Agency's Speciation Trends Network (U.S. EPA 2008). These monitors went online at different times; the data for this analysis were collected once all were operative - from June 1, 2002 through July 31, 2007. Eight monitors were insufficient to create statewide pollutant exposure estimates. Therefore, monthly exposure values were assigned to each participant based on measurements taken at the monitor nearest the geocoded residential address. For these analyses our sample was restricted to women living within 30 km of one of the monitors.

Status

This project has been completed. The final report (Lipsett, M. Extended Analysis of Air Pollution and Cardiovascular Disease in the California Teachers Study Cohort, 2011) is available at <http://www.arb.ca.gov/research/apr/past/06-336.pdf>

Results

Selected highlights of the results follow.

Most point estimates of relative risks for PM_{2.5} exposure were greater than unity, however only that for ischemic heart disease (IHD) mortality was significantly elevated (HR = 1.20, 95% CI 1.02-1.41)

IHD mortality was significantly associated with NO_x (HR = 1.25, 95% CI = 1.00-1.55), and the risk of cardiovascular mortality was elevated with

a weaker association (HR = 1.13, 95% CI = 0.98-1.31). In contrast, the association between ozone and IHD mortality was of borderline significance (HR = 1.06, 95% CI = 0.99-1.14), with no corresponding increase in the HR for cardiovascular disease in toto. However, when the ozone analysis was restricted to summers only, the HR for IHD mortality was significantly elevated (HR = 1.09, 95% CI = 1.01-1.19).

In the PM2.5 analysis restricted to women who were post-menopausal at baseline, the results were similar to those for the cohort as a whole, except that the Hazard Ratio (HR) for stroke incidence increased and became statistically significant (HR = 1.19, 95% CI = 1.02-1.38).

For the PM2.5 constituents analysis, the pollutants (organic and elemental carbon, nitrate, sulfate, potassium, iron, silicon and zinc) were all strongly inter-correlated, with the majority of correlation coefficients greater than 0.7. Significant associations were observed for PM2.5 mass, sulfate and nitrate exposures in relation to cardiopulmonary mortality, with a more modest association for silicon. PM2.5 mass and all of its components were associated with mortality from IHD, while none was associated with respiratory mortality. For IHD, the largest effect estimates were observed for elemental carbon (EC) and sulfate, although estimates were fairly similar among all the constituents except silicon and organic carbon, which had somewhat lower Hazard Ratios.

The highest decile of traffic density was associated with all-cause, cardiopulmonary and cardiovascular mortality. For vehicle density, the 25th to 49th percentile category was associated with cardiovascular mortality, HR = 1.17 (95% CI = 1.01-1.37). The other traffic metrics showed no association with these outcomes.

This study provides evidence that long-term exposure to PM2.5, PM10, NOx, and ozone were all associated with increased risks for IHD mortality. However, the apparent increased risk of IHD mortality associated with long-term ozone exposure was most likely due to its correlation with particulate matter, while that for NOx was based on relatively small numbers of observations, and may also have been due to correlation with PM. That both PM measures were associated with incident stroke provides support for the notion that these pollutant mixtures may play an etiologic role in the development of circulatory disease.

Selected associations of pollutant exposures with relative risk of mortality are shown in the figure below.

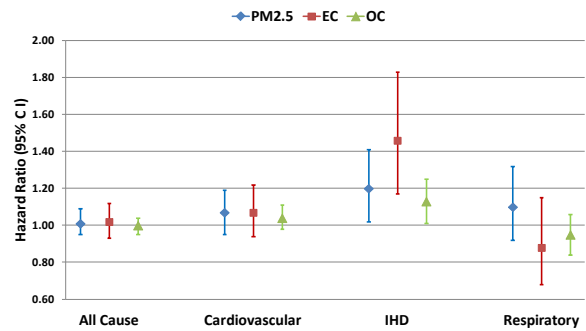


Figure: Association of Mortality with PM2.5 and selected constituents with relative risk of mortality for all cause (non-traumatic) and specific disease category causes. EC = elemental carbon, OC = organic carbon

Benefits

The results from this study can be used to assess the effects of air pollution on health in Californians, and can be used to assess the effects of components of PM2.5. This provides information useful for determining the benefits of emissions controls for PM2.5 and specific PM2.5 components.

Project Costs

Total funding for this project was \$284,652. The CARB share was \$142,326, and the SCAQMD share was \$142,326.

Install 80 kW Solar Panel System at SCAQMD Headquarters

Contractor

SolSource Energy

Cosponsors

South Coast Air Quality Management District (SCAQMD)
California State CPUC Self-Generation Incentive Program (SGIP)

Project Officer

Ranji George

Background

Solar technologies provide many benefits including: clean, renewable power generation, decreased consumption of electricity generated from fossil fuels, and insulation against rising electricity costs. Photovoltaic systems, in particular, can produce electricity with zero carbon dioxide (CO₂) emissions, zero VOC, NO_x, SO_x emissions and zero surface and ground-water discharges.

To demonstrate these benefits, SCAQMD has provided funds to encourage solar energy projects in the South Coast Air Basin by offering help to offset its initial cost of installation.

Project Objective

This project involved installing 80 kW of solar panels on top of the SCAQMD headquarters building in Diamond Bar, CA.

The objective is to harness the output from the solar system to provide partial power to an electrolyzer at the facility to generate hydrogen fuel. This hydrogen is dispensed, through SCAQMD's hydrogen refueling station, to refuel advanced fuel cell vehicles currently under demonstration at SCAQMD.

Over time, the system is expected to reduce electricity costs to the SCAQMD. Since conventional electricity costs are anticipated to rise in future, these cost savings are expected to grow with each year of operation.

Status

This SCAQMD 80 kW solar roof project has been completed.

On December 3, 2004, SCAQMD Board approved the release of RFP #2005-18. This RFP solicited bids for the detailed design and engineering, identification, and selection of code-compliant components, materials and equipment for the installation of an 80 kW AC turn-key solar photovoltaic (PV) system, at its facility located at 21865 Copley Drive in Diamond Bar, CA.

On April 1, 2005, the SCAQMD Board authorized the execution of a contract with the successful bidder, Sol Source Energy, to perform this task.

Before installation began, the SCAQMD roof was thoroughly examined in terms of weight, compatibility, and shading effects, if any. By March 2006, the solar panels were installed on top of the headquarters building.

The 80 kW installed system consists of 344 solar Schott Solar modules, made of semi-crystalline silicon. These modules are mounted on a non-penetrating, free-standing mounting system. Combiner boxes were installed at various points to collect and combine the DC energy of the individual rooftop modules, and feed this DC energy down to the main electrical room. Here, a DC-to-AC inverter was mounted to convert the DC energy into AC energy, which is then fed back into the main SCAQMD's electrical system.

SolSource Energy, jointly with the SCAQMD project officer, got the building permit, obtained approval of the interconnect agreement with Southern California Edison, and collected the CPUC rebate from the Gas Company.

SolSource Energy guaranteed that the installed system would produce 550,000 kWh of energy during its first five years of operation at the facility.



As an optional feature, a kiosk was installed by PermaCity in the lobby to monitor and publicize the performance of the solar panels. Below is an example of the display screen highlighting the electricity produced by the solar panels on a given day.



Results

The solar system has produced over 650,000 kwh in zero-emission electricity since its inception.

Project Costs

- Total Project Cost: \$709,947
 - CPUC Rebate: \$360,000
 - SCAQMD Cost: \$349,947
 - \$8.87/watt (Total Cost)
 - \$4.37/watt (SCAQMD \$)

SCAQMD estimates a return on investment in about 15 years. This payback period may be reduced if electricity prices go up. After the payback period of 15 years, this portion of the electricity will be free of cost to SCAQMD for another 10 years, assuming a panel lifetime of 25 years.

Commercialization

In a bid to encourage the market success of renewable energy, the CPUC offered substantial incentives in the early years of the Self-Generation Incentive Program. Since the cost of solar panels was expected to decline steadily, the program reduced these incentives over time, which meant early adopters received more incentives than later adopters.

Relative to 2002 prices, prices of individual solar panels have in fact substantially declined, mainly due to economies of scale associated with large-scale manufacturing of solar panels, reduced raw material costs, and the recent entry of solar panels made in China. Though state incentives have been sharply scaled back, the market is being sustained by these lowered panel prices. In the not too distant future, solar panels are expected to survive in the market without state incentives.

California has adopted an aggressive Renewable Portfolio Standard (RPS) that requires 33% of all electricity in 2020 to be generated from renewable energy. As prices steadily decline, in the years to come, solar and wind energy are expected to play a greater role to meet this RPS goal.

SCAQMD Contract #10114

September 2011

Retrofit Digester Gas Engine with Fuel Gas Clean-up and Exhaust Emission Control Technology

Contractor

Orange County Sanitation District

Cosponsors

Orange County Sanitation District
South Coast Air Quality Management District
(SCAQMD)

Project Officer

Alfonso Baez

Background

SCAQMD Rule 1110.2 - Emissions from gaseous- and liquid-fueled engines significantly reduces emission limits for NO_x, VOCs, and CO for internal combustion (IC) engines, effective July 1, 2012. The amended rule also requires biogas-fueled engines to meet lower emission limits. This rule applies to the digester gas-fueled IC engines at the two OCSO wastewater treatment plants, Plants 1 and 2. Since the SCAQMD Board recognized the new rule as technology-forcing, they directed assessments to be conducted to determine if cost-effective, commercially-available technologies exist to achieve the new lower limits. This pilot study was performed as part of this assessment.

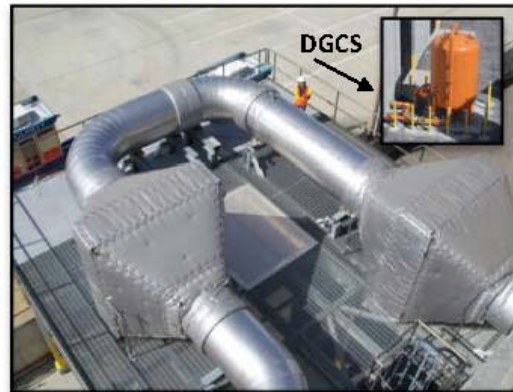
Project Objective

The SCAQMD Board approved a contract with OCSO in October 2009 to support a pilot test study at Plant 1 Engine 1 to evaluate the effectiveness of a combined catalytic oxidizer and selective catalytic reduction system (Cat Ox/SCR) along with a digester gas cleaning system (DGCS) in meeting the requirements of the amended rule.

Technology Description

Plant 1 has three 2.5 MW IC engines. Under the pilot study, Engine 1 at Plant 1 was equipped with a catalytic oxidizer at the engine exhaust to remove CO and VOCs, followed by an SCR

system with urea injection to remove NO_x (both supplied by Johnson Matthey). Due to space limitations at Plant 1, a platform was constructed 14 feet above an onsite access road to accommodate the catalytic oxidizer and SCR systems. Engine 1 is fueled primarily by digester gas, supplemented by natural gas. A digester gas cleaning system (DGCS) was installed (supplied by Applied Filter Technology) to remove contaminants known to degrade engines (e.g., siloxanes, sulfur compounds, and VOCs) from the digester gas prior to combustion. DGCS inlet and outlet concentrations of siloxanes, H₂S, VOCs,



OCSO Plant 1 Engine 1 Cat Ox/SCR System 1

and TRS were measured using industry standard and SCAQMD methods.

Catalytic oxidizer inlet and SCR outlet concentrations of CO, NO_x, and VOCs were measured using a portable analyzer and U.S. EPA and SCAQMD compliance methods to determine the potential reductions in emissions due to the Cat Ox/SCR system. Continuous emissions monitoring system (CEMS) data (15-minute averages) were collected at the engine exhaust (inlet to Cat Ox system) for NO_x and at the stack exhaust for NO_x, CO, and O₂. Sampling was performed for formaldehyde, acetaldehyde, and acrolein as required by the Research Permit for the study.

Status

The construction and installation of the study equipment began in October 2009. Data collection for the pilot testing began on April 1, 2010 and ended on March 31, 2011.

Results

1. The average NO_x concentration was approximately 7 ppmv, below the amended Rule 1110.2 11 ppmv emission limit. The lowest NO_x stack exhaust concentration consistently achieved under all valid conditions was 16 ppmv. However, there were 181 out of a total of 21,285 15-minute operating periods (approximately 5,321 hours) of valid NO_x stack exhaust excursions above 11 ppmv. These periods occurred during 61 separate events and accounted for 0.9% of the total measurement periods. Excursions were considered valid when they occurred during periods/events when the percentage of natural gas increased to above 5% of the fuel blend, when engine loads exceeded the loads mapped during the SCR system commissioning, or during periods/events not attributable to engine start-up or operational/system adjustments. An implication of these excursions is that the 11 ppmv limit is too conservative and may warrant a higher value and/or a specified percentage of allowable excursions.

2. SCR systems are commercially available for combustion units fueled by single-component fuels, such as natural gas. Although the SCR system did not consistently meet the 11 ppmv limit with the digester gas/natural gas fuel blend in the pilot study, it did demonstrate a significant reduction of NO_x emissions.

3. The free ammonia concentration at the stack exhaust was measured below 0.5 ppmv during all testing events using either SCAQMD Method 207.1 or Draeger® tubes.

4. The maximum CO concentration at the stack exhaust was 42.2 ppmv, well below the limit of 250 ppmv.

5. The maximum VOC concentration was 4.95 ppmv; well below the 30 ppmv limit.

6. The DGCS system removed siloxanes from the digester gas to below detection and significantly reduced sulfur compounds and VOCs, successfully reducing catalyst masking, which should lead to extended catalyst life. Additional benefits of the

contaminant removal were significantly improved engine maintenance requirements and lower O&M costs.

Benefits

The use of the combined Cat Ox/SCR system resulted in significant reductions in CO, VOC, and NO_x. CO and VOCs were determined to be well below the amended Rule 1110.2 limits. On average, NO_x concentrations were below the lower limits, with some NO_x excursions about the 11 ppmv limit using 15-minute block averaging. The DGCS system removed contaminants from the digester gas, thereby maintaining the performance of the catalyst.

Project Costs

The total capital cost (to design, procure, and install a DGCS to clean the digester gas for all Plant 1 engines and a Cat Ox/SCR system with auxiliary equipment for Engine 1) is estimated at \$2,300,000. The annual O&M cost for these systems at Plant 1 is approximately \$59,000. Assuming a 20-year lifespan, the total annualized cost (capital cost plus O&M) is \$227,000.

The cost effectiveness analysis (dollars per ton of NO_x and VOC emissions reduced) was developed for two scenarios: Scenario 1 assumed that the uncontrolled emissions were based on current permit limits, and Scenario 2 assumed that the uncontrolled emissions were based on the results from the 2011 Annual Compliance Test. Controlled emissions were based on the Rule 1110.2 limits of 11 ppmv for NO_x and 30 ppmv for VOCs. Under these assumptions, the cost effectiveness for Scenarios 1 and 2 are \$7,987 and \$17,585, respectively, per ton of NO_x plus VOCs reduced. Calculations for cost and emissions reduced were based on operating each engine for a maximum of 6,000 hours per year.

Appendix D

List of Acronyms

LIST OF ACRONYMS

AFRC—air/fuel ratio control	ICEV—internal combustion engine vehicle
APCD—Air Pollution Control District	ICTC—Interstate Clean Transportation Corridor
AQMD—Air Quality Management District	LCFS—Low-Carbon Fuel Standard
AQMP—Air Quality Management Plan	Li—lithium ion
ARB—Air Resources Board	LIMS—Laboratory Information Management System
ARRA—American Recovery & Reinvestment Act	LNG—liquefied natural gas
BACT—Best Available Control Technology	LPG—liquefied petroleum gas or propane
BSNO _x —brake specific NO _x	MATES—Multiple Air Toxics Exposure Study
CAAP—Clean Air Action Plan	MECA—Manufacturers of Emission Controls Association
CAFR—Comprehensive Annual Financial Report	MPFI—Multi-Port Fuel Injection
CARB—California Air Resources Board	MSRC—Mobile Source Air Pollution Reduction Review Committee
CCF—California Clean Fuels	MTA—Metropolitan Transportation Authority
CEC—California Energy Commission	NAFA—National Association of Fleet Administrators
CEMS—continuous emission monitoring system	NGV—natural gas vehicle
CFD—computational fluid dynamic	NMHC—non-methane hydrocarbon
CNG—compressed natural gas	NO _x —oxides of nitrogen
CO ₂ —carbon dioxide	NREL—National Renewables Energy Lab
CO—carbon monoxide	OBD—On-Board Diagnostics
CY—calendar year	OCTA—Orange County Transit Authority
DCM—dichloromethane	OEM—original equipment manufacturer
DDC—Detroit Diesel Corporation	PAH—polyaromatic hydrocarbons
DEG—diesel equivalent gallons	PbA—lead acid
DGE—diesel gallon equivalents	PCM—powertrain control module
DF—deterioration factor	PHEV—plug-in hybrid vehicle
DMS—Division of Measurement Standards	PM—particulate matter
DMV—Department of Motor Vehicles	PM _{2.5} —particulate matter ≤ 2.5 microns
DOC—diesel oxidation catalysts	PM ₁₀ —particulate matter ≤ 10 microns
DOE—Department of Energy	PPM—parts per million
DOT—Department of Transportation	RDD&D—research, development, demonstration, and deployment
DPF—diesel particulate filters	RTA—Riverside Transit Agency
DRI—Desert Research Institute	SCAB—South Coast Air Basin or “Basin”
ECM—emission control monitoring	SCAQMD—South Coast Air Quality Management District
EPRI—Electric Power Research Institute	SCE—Southern California Edison
ESD—emergency shut down	SCR—selective catalytic reduction
EV—electric vehicle	SI—spark ignited
FCV—fuel cell vehicle	SULEV—super ultra-low emission vehicle
FTP—federal test procedures	TC—total carbon
g/bhp-hr—grams per brake horsepower per hour	THC—total hydrocarbons
GC/MS—gas chromatography/mass spectrometry	TO—task order
GGE—gasoline gallon equivalents	U.S.EPA—United States Environmental Protection Agency
GHG—Greenhouse Gas	ULEV—ultra low emission vehicle
GTL—gas to liquid	VOC—volatile organic compounds
H&SC—California Health and Safety Code	WVU—West Virginia University
HCCI—Homogeneous Charge Combustion Ignition	ZEV—zero emission vehicle
HCNG—hydrogen-compressed natural gas (blend)	
HEV—Hybrid electric vehicle	
HPDI—High Pressure Diesel Injection	
ICE—internal combustion engine	

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Annual RECLAIM Audit Report for 2010 Compliance Year

March 2, 2012

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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LIST OF ABBREVIATIONS

ACEMS	Alternative Continuous Emissions Monitoring System(s)
APEP	Annual Permit Emissions Program
AQMD	South Coast Air Quality Management District
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
CEQA	California Environmental Quality Act
CEMS	Continuous Emissions Monitoring System(s)
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 Standard
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
SIP	State Implementation Plan
SOx	Oxides of Sulfur
SSC	Stationary Source Committee
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 (AQMD) 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 audit report for Compliance Year 2010 (January 1 through December 31, 2010 for Cycle 1 and July 1, 2010 through June 30, 2011 for Cycle 2 facilities).

Chapter 1: RECLAIM Universe

When RECLAIM was first 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, 2010, the overall changes in RECLAIM participants were 118 facilities included into the program, 70 facilities excluded from the program, and 158 facilities ceased operation. Thus, the RECLAIM universe consisted of 284 active facilities on July 1, 2010. From July 1, 2010 through June 30, 2011, three facilities were included into the RECLAIM universe (two facilities in both the oxides of nitrogen [NO_x] and oxides of sulfur [SO_x] universes and one in the NO_x universe only), no facility was excluded, and six NO_x only facilities shut down and are no longer in the active RECLAIM universe. These changes resulted in a net decrease of three facilities in the universe, bringing the total number of active RECLAIM facilities to 281 by June 30, 2011.

Chapter 2: RTC Allocations and Trading

On January 7, 2005, the Governing Board adopted amendments to RECLAIM that resulted in an overall 22.5% reduction in NO_x Allocations phased in from 2007 through 2011. For Compliance Year 2010, the cumulative NO_x RTC reduction was 19.8% since 2007. Additionally, the Compliance Year 2010 RTC supply increased by 16.2 tons for NO_x and decreased by 17.3 tons for SO_x due to allocation adjustments for clean fuel production pursuant to Rule 2002(c)(12). Therefore, NO_x and SO_x RTC supplies for Compliance Year 2010 were 10,053

and 4,282 tons, respectively. On November 5, 2010, the Governing Board adopted further amendments to RECLAIM that will result in an overall reduction of 5.7 tons/day (or 48.4%) in SOx Allocations with the reductions phased in from 2013 through 2019.

During calendar year 2011, there were 380 registered RTC transactions with a total value of \$12.9 million traded, excluding the values reported for swaps. Since the inception of the RECLAIM program in 1994, a total value of over one billion dollars has been traded in the RTC trading market, excluding swaps. In terms of volume traded in calendar year 2011, 3,432 tons of discrete NOx, 413 tons of discrete SOx RTCs, 498 tons of IYB NOx and 19 tons of IYB SOx RTCs were traded.

The average annual prices of discrete-year NOx RTCs traded during calendar year 2011 were \$693 per ton for Compliance Year 2010 RTCs, \$1,561 per ton for Compliance Year 2011 RTCs, and \$4,121 per ton for Compliance Year 2012 RTCs. The average annual prices for discrete-year SOx RTCs traded during the same period were \$779 per ton for Compliance Year 2010 RTCs and \$500 per ton for RTCs for Compliance Year 2011. Therefore, the average annual 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 AQMD Rule 2015, as well as the \$38,650 per ton of NOx and \$27,828 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 average annual price during calendar year 2011 for IYB NOx RTCs was \$56,708 per ton, and the average annual price for IYB SOx RTCs was \$102,366 per ton. Therefore, average annual IYB RTC prices did not exceed the \$579,757 per ton of IYB NOx RTCs or the \$417,425 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).

The role of investors in the RTC market remains significant. Based on both trading values and the number of trades with price, investors were involved in a significant portion of the trades recorded in calendar year 2011 (61% and 100% of total value and 63% and 100% of total volume for discrete NOx and SOx trades, respectively; 64% and 99% of total value and 64% and 91% of total volume for IYB NOx and SOx trades, respectively). Investors' holdings of IYB NOx RTCs was 4.8%, and IYB SOx RTCs was 0.5% at the end of calendar year 2011.

Chapter 3: Emission Reductions Achieved

For Compliance Year 2010, aggregate NOx emissions were below total allocations by 29% 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 2010. 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 has clearly achieved its targeted emission reductions.

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 2010, a total of 30 NO_x RECLAIM facilities had NSR NO_x emission increases due to expansion or modification, and four SO_x RECLAIM facilities had NSR SO_x emission increases due to expansion or modification. The consistent trend of surplus NO_x and SO_x RTCs over their respective emissions has allowed for expansion and modification by existing facilities.

RECLAIM is required to comply with federal NSR emissions offset requirements at a 1.2-to-1 offset ratio for NO_x emission increases and at least at a 1-to-1 offset ratio for SO_x emission increases on a programmatic basis. In Compliance Year 2010, RECLAIM provided an offset ratio of 34-to-1 for NO_x, demonstrating federal equivalency. RECLAIM inherently complies with the federally-required 1-to-1 SO_x offset ratio for any compliance year provided aggregate SO_x emissions under RECLAIM are lower than or equal to aggregate SO_x allocations for that compliance year. As shown in Chapter 3, there was no programmatic SO_x exceedance during Compliance Year 2010; in fact, there was a surplus of SO_x RTCs. Therefore, RECLAIM more than complied with the federally-required SO_x offset ratio and further quantification of the SO_x offset ratio is unnecessary. Compliance with the federally-required offset ratio also demonstrates compliance with the state NNI requirements for new or modified sources. In addition, RECLAIM requires application of Best Available Control Technology (BACT) for all new or modified sources with emission increases.

Chapter 5: Compliance

There were 284 NO_x and 32 SO_x active facilities in the RECLAIM program at the start of Compliance Year 2010. During Compliance Year 2010, two facilities were included into both the NO_x and SO_x universes, one facility was included only into the NO_x universe, no facilities were excluded, and six facilities in the NO_x universe shut down. Of these 287 NO_x RECLAIM Facility Permit holders during Compliance Year 2010, 265 facilities (92%) complied with their NO_x allocations, and all of the SO_x facilities (100%) complied with their SO_x allocations. The 22 NO_x facilities that exceeded their NO_x allocations had aggregate NO_x emissions of 374 tons and did not have adequate allocations to offset 51.3 tons (or 14%) of their emissions. This exceedance amount is small compared to the overall allocations for Compliance Year 2010 (0.5% of NO_x allocations). The exceedances from these 22 facilities did not impact RECLAIM emission reduction goals. The overall RECLAIM NO_x and SO_x emission reduction targets and goals were met for Compliance Year 2010 (*i.e.*, aggregate emissions for all active 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) report. The analysis focuses exclusively on job impacts at RECLAIM facilities and if those job impacts were directly

attributable to RECLAIM as reported by those facilities. There may be additional effects 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) and also factors other than RECLAIM (e.g., the current economic downturn), that impact the job market. These factors are not evaluated in this report.

According to the Compliance Year 2010 employment survey data gathered from APEP reports, RECLAIM facilities reported a net gain of 1,094 jobs, representing 1.06% of their total employment. One facility (0.35% of the active facilities) indicated that the RECLAIM program resulted in two job gains at its facility. Among the facilities that reported job losses, the indicated reasons for these losses were attributed to factors other than RECLAIM. Six RECLAIM facilities were listed as shutdown during Compliance Year 2010. None of these facilities reported on their APEP report that RECLAIM was a contributing factor in their decision to close. One facility identified in this report as shutdown was actually not built.

Chapter 7: Air Quality and Public Health Impacts

Audited RECLAIM emissions have been in an overall downward trend since the program's inception. NOx and SOx emissions in Compliance Year 2010 continued their downward trend (reduced by 2.5% and 5.8%, respectively, compared to Compliance Year 2009). Quarterly calendar year 2010 NOx emissions ranged from approximately two percent below to five percent above the mean NOx emissions for the year. Quarterly calendar year 2010 SOx emissions ranged from approximately seven percent below to nine percent above the year's mean SOx emissions. There was no significant shift in seasonal emissions from the winter season to the summer season. Furthermore, maps of quarterly Compliance Year 2010 emissions were prepared and are presented in this chapter pursuant to Rule 2015(b)(2).

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. Analysis of per capita exposure (the length of time each person is exposed) to ozone in 1998 and 2000 shows that the Basin achieved the December 2000 target for ozone well before the deadline. In fact, Los Angeles County, Orange County, and the South Coast Air Basin overall achieved compliance with the December 2000 target prior to 1994, and Riverside and San Bernardino Counties achieved compliance in 1996. In calendar year 2011, the per capita exposure to ozone 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). 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. Therefore, it can be concluded that the RECLAIM program creates no increased toxic impact beyond what would have occurred with the rules and control

measures RECLAIM subsumed, and therefore poses no increased adverse public health impacts.

INTRODUCTION

The South Coast Air Quality Management District (AQMD) REgional CLean Air Incentives Market (RECLAIM) program was adopted in October 1993 and replaced certain command-and-control rules regarding oxides of nitrogen (NO_x) and oxides of sulfur (SO_x) 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 program requirements, as well as 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 audits. The audit results are used to help determine whether any program modifications are appropriate. AQMD staff has completed the initial tri-annual audit and each individual annual audit report through the 2010 Compliance Year Audit.

This report presents the annual audit and progress report of RECLAIM's seventeenth compliance year (January 1 through December 31, 2010 for Cycle 1 and July 1, 2010 through June 30, 2011 for Cycle 2 RECLAIM facilities), also known as Compliance Year 2010. 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;
- Average annual 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 audit is organized into the following chapters:

1. RECLAIM Universe
This chapter discusses changes in the universe of RECLAIM sources that occurred from July 1, 2010 through June 30, 2011.
2. RTC Allocations and Trading
This chapter summarizes changes in emissions allocations in the RECLAIM universe, RTC supply and RTC trading activity, average annual prices, availability of RTCs, and market participants.
3. Emission Reductions Achieved
This chapter assesses emissions trends and reductions 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 AQMD'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 and geographic 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 first 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, 2010, the overall changes in RECLAIM participants were 118 facilities included into the program, 70 facilities excluded from the program, and 158 facilities ceased operation. Thus, the RECLAIM universe consisted of 284 active facilities on July 1, 2010. From July 1, 2010 through June 30, 2011, three facilities were included into the RECLAIM universe (two facilities in both the oxides of nitrogen [NOx] and oxides of sulfur [SOx] universes and one in the NOx universe only), no facility was excluded, and six NOx only facilities shut down and are no longer in the active RECLAIM universe. These changes resulted in a net decrease of three facilities in the universe, bringing the total number of active RECLAIM facilities to 281 by June 30, 2011.

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 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, 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 at their discretion. 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 facility research operations; ski resorts; prisons; hospitals; publicly-owned municipal waste-to-energy facilities; publically-owned sewage treatment facilities operating 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 NO_x and/or SO_x emissions above the four-ton per year threshold;
or

It ceases to be categorically excluded and its reported NO_x and/or SO_x emissions are greater than or equal to four tons per year; or

It is determined by AQMD staff to meet the applicability requirements of RECLAIM, but was initially misclassified as not subject to RECLAIM.

Each RECLAIM facility is issued at the time of joining RECLAIM 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 facilities deem appropriate (see Chapter 2 – RTC Allocations and Trading).

RECLAIM facilities that permanently go out of business after January 1, 1994 (Cycle 1) or after July 1, 1994 (Cycle 2) are removed from the active emitting RECLAIM universe, but may retain their remaining RTCs and participate in the trading market.

Universe Changes

The RECLAIM rules include several mechanisms to exclude facilities originally included in the program and to add new facilities. The overall changes to the RECLAIM universe from the date of adoption (October 15, 1993) through the end of Compliance Year 2009 (June 30, 2010) were: the inclusion of 118 facilities (30 facilities created by partial change of operator of existing RECLAIM facilities), the exclusion of 70 facilities, and the shutdown of 158 facilities. Thus, the net change in the RECLAIM universe during the first 16 compliance years was a decrease of 110 facilities from 394 to 284 facilities. From July 2010 through June 30, 2011, three facilities were included, no facility was excluded, and six facilities shut down. These changes brought the total number of facilities in the RECLAIM universe to 281 facilities. These include 247 NO_x-only, no SO_x-only, and 34 both NO_x and SO_x RECLAIM facilities. The list of active facilities in the RECLAIM universe as of June 30, 2011 (the end of Compliance Year 2010 for Cycle 2 facilities) is provided in Appendix A.

Facility Inclusions and Exclusions

Between July 1, 2010 and June 30, 2011, three facilities were added to the RECLAIM universe. Two facilities are newly constructed power plants and opted to participate in the RECLAIM program. One of the two newly constructed power plants opted to participate in both the NO_x and SO_x portions of RECLAIM, whereas the other opted to participate in only the NO_x portion. The third facility is the result of a partial change of operator of an existing facility participating in both NO_x and SO_x RECLAIM. These three facilities and the reasons for their inclusion are listed in Appendix B.

No facility was excluded from the RECLAIM universe between July 1, 2010 and June 30, 2011.

Facilities Permanently Ceasing Operations

Six RECLAIM facilities permanently ceased operations between July 1, 2010 and June 30, 2011. One of these facilities was planned but never built, and therefore does not represent an actual shutdown of formerly operating equipment. The second shutdown facility distributed its operations to other existing facilities and all equipment at this facility was shutdown. Finally, the high cost of manufacturing was cited by two other facilities, while the two remaining facilities stated that declining demand for their products, in addition to cost of manufacturing, were the reasons for shutdown. These facilities were in NOx RECLAIM and not in SOx RECLAIM. Appendix C lists these facilities and provides brief descriptions of the reported reasons for their closures.

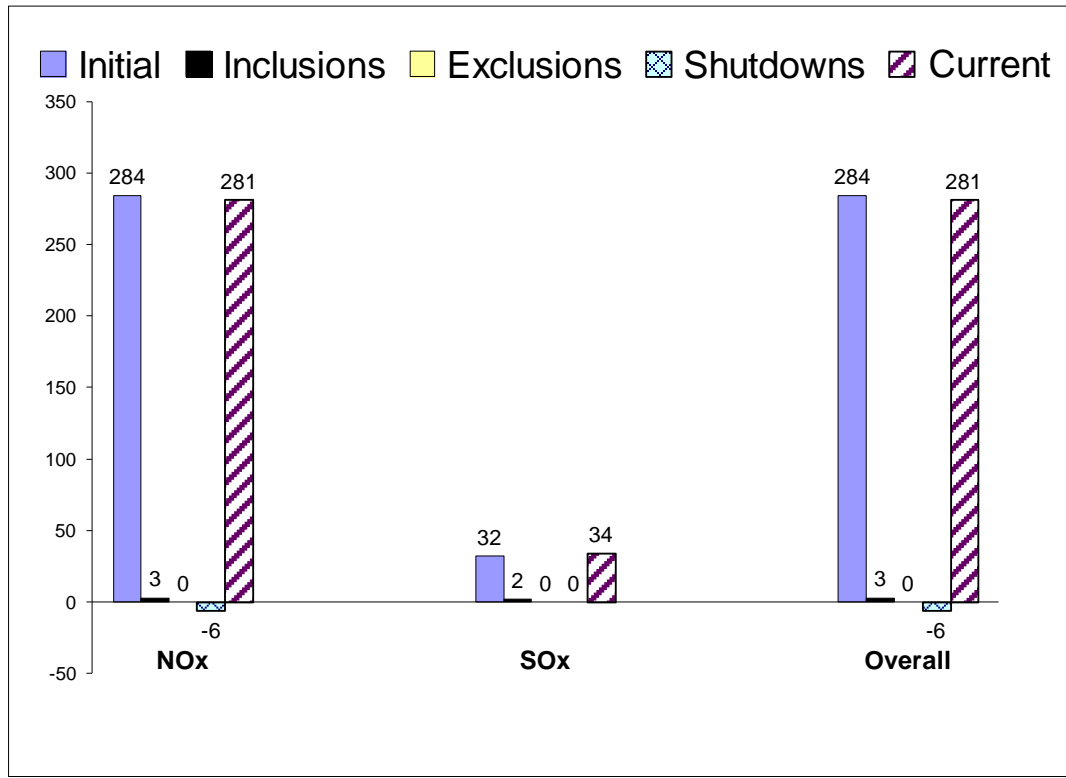
The combination of the above stated inclusions and shutdowns resulted in a net decrease of four facilities in the RECLAIM universe. Table 1-1 summarizes changes in the RECLAIM universe between the start of the program and June 30, 2011. Overall changes to the RECLAIM universe that occurred from July 1, 2010 through June 30, 2011 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 June 30, 2010	118	10	118
Exclusions – October 15, 1993 through June 30, 2010	-69	-4	-70
Shutdowns – October 15, 1993 through June 30, 2010	-157	-15	-158
Universe – June 30, 2010	284	32	284
Inclusions – July 1, 2010 through June 30, 2011	3	2	3
Exclusions – July 1, 2010 through June 30, 2011	0	0	0
Shutdowns – July 1, 2010 through June 30, 2011	-6	0	-6
Universe – June 30, 2011	281	34	281

* 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 from July 1, 2010 through June 30, 2011



CHAPTER 2

RTC ALLOCATIONS AND TRADING

Summary

On January 7, 2005, the Governing Board adopted amendments to RECLAIM that resulted in an overall 22.5% reduction in NOx Allocations phased in from 2007 through 2011. For Compliance Year 2010, the cumulative NOx RTC reduction was 19.8% since 2007. Additionally, the Compliance Year 2010 RTC supply increased by 16.2 tons for NOx and decreased by 17.3 tons for SOx due to allocation adjustments for clean fuel production pursuant to Rule 2002(c)(12). Therefore, NOx and SOx RTC supplies for Compliance Year 2010 were 10,053 and 4,282 tons, respectively. On November 5, 2010, the Governing Board adopted further amendments to RECLAIM that will result in an overall reduction of 5.7 tons/day (or 48.4%) in SOx Allocations with the reductions phased in from 2013 through 2019.

During calendar year 2011, there were 380 registered RTC transactions with a total value of \$12.9 million traded, excluding the values reported for swaps. Since the inception of the RECLAIM program in 1994, a total value of over one billion dollars has been traded in the RTC trading market, excluding swaps. In terms of volume traded in calendar year 2011, 3,432 tons of discrete NOx, 413 tons of discrete SOx RTCs, 498 tons of IYB NOx and 19 tons of IYB SOx RTCs were traded.

The average annual prices of discrete-year NOx RTCs traded during calendar year 2011 were \$693 per ton for Compliance Year 2010 RTCs, \$1,561 per ton for Compliance Year 2011 RTCs, and \$4,121 per ton for Compliance Year 2012 RTCs. The average annual prices for discrete-year SOx RTCs traded during the same period were \$779 per ton for Compliance Year 2010 RTCs and \$500 per ton for RTCs for Compliance Year 2011¹. Therefore, the average annual 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 AQMD Rule 2015, as well as the \$38,650 per ton of NOx and \$27,828 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 average annual price during calendar year 2011 for IYB NOx RTCs was \$56,708 per ton, and the average annual price for IYB SOx RTCs was \$102,366 per ton. Therefore, average annual IYB RTC prices did not exceed the \$579,757 per ton of IYB NOx RTCs or the \$417,425 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).

The role of investors in the RTC market remains significant. Based on both trading values and the number of trades with price, investors were involved in a significant portion of the trades recorded in calendar year 2011 (61% and 100% of total value and 63% and 100% of total volume for discrete NOx and SOx

¹ There were no discrete-year 2012 SOx RTCs traded in calendar year 2011.

trades, respectively; 64% and 99% of total value and 64% and 91% of total volume for IYB NOx and SOx trades, respectively). Investors' holdings of IYB NOx RTCs was 4.8%, and IYB SOx RTCs was 0.5% at the end of calendar year 2011.

Background

The AQMD issues each RECLAIM facility emissions allocations for each compliance year, according to the methodology specified in Rule 2002, based on its historic production levels as reported to AQMD in its emission inventory reports (if the facility existed prior to January 1, 1993), any qualified external offsets it previously provided, and any unused ERCs generated at and held by the facility. 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 trades (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 occurring within the RTCs' period of validity and the trades are made during the appropriate time period. RECLAIM facilities have 30 days at the end of each of the first three quarters of each compliance year to reconcile their quarterly and year-to-date emissions, and 60 days after the end of each compliance year to reconcile their total annual emissions by securing adequate RTCs.

In an effort to achieve additional NOx reductions pursuant to 2003 AQMP Control Measure #2003 CMB-10 – “Additional NOx Reductions for RECLAIM (NOx)” and to comply with requirements for demonstrating Best Available Retrofit Control Technology (BARCT) equivalency under state law, AQMD began the RECLAIM rule amendment process in early 2004. The process included a detailed analysis of control technologies that qualified as BARCT for NOx, and 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 adopted several changes to the RECLAIM program. Among other amendments, the changes resulted in cumulative reductions of 7.7 tons NOx per day, a more than 20% reduction, from all RECLAIM facilities when fully implemented in Compliance Year 2011 (the reductions are being phased in from 2007 through 2011: 4.0 tons per day in 2007 and an additional 0.925 tons per day in each of the following four years).

Also, in July 2007, AQMD adopted the 2007 AQMP, which serves as the region's attainment demonstration for the annual average PM2.5 standards. The 2007

AQMP included Control Measure CMB-02 – “Further SO_x Reductions for RECLAIM (SO_x)” which proposed to further reduce SO_x allocations by approximately three tons per day, with the reductions phased in from 2011 to 2014.

On November 5, 2010, the Governing Board adopted changes to the RECLAIM program that will result in an overall reduction of 5.7 tons SO_x per day when fully implemented in 2019 (the reductions are being phased in from 2013 through 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 SO_x is an essential part in the South Coast Air Basin’s effort in attaining the federal 24-hour average PM_{2.5} standard by 2020. These rule amendments also satisfied the requirements for BARCT in accordance with California Health and Safety Code §40440.

Although other chapters in this report present and discuss Compliance Year 2010 data, RTC trading and price data discussed in this chapter are for calendar year 2011.

RTC Allocations and Supply

The methodology for determining RTC allocations is established by Rule 2002. According to the rule, allocations may change when the universe of RECLAIM facilities changes, emissions associated with the production of re-formulated gasoline increase or decrease, or reported historical activity levels are updated. In addition to the allocation, 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 governed pursuant to approved protocols. Changes in the RTC supply during Compliance Year 2010 are discussed below.

Allocations Adjustments Due to Inclusion and Exclusion of Facilities

Allocations for a facility are based on the facility’s historical operations, emission reduction requirements under the command-and-control rules subsumed by RECLAIM, AQMP control measures subsumed by RECLAIM, and adjustments for BARCT equivalency. Facilities entering RECLAIM after 1994 are issued allocations according to the same methodology as that used for issuing RTCs to facilities initially 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 §40410.5.²

Two facilities opted to join the RECLAIM program – one joined the NO_x portion and the other joined both NO_x and SO_x during Compliance Year 2010. Additionally, one other facility was included as a result of a partial change of operator and no facility was excluded during this compliance year. The opt-in facilities did not qualify for any allocation because both were new facilities without any prior operating histories. No additional allocation was issued to the facility that went through a partial change of operator of an existing facility. Therefore, no changes to the NO_x or SO_x RTC supplies occurred as a result of changes to the RECLAIM universe in Compliance Year 2010.

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 CARB Phase II reformulated gasoline. The amount of these RTCs is based on actual emissions for the subject compliance year and historical production data. Based on the historical production data submitted, qualifying refineries were issued in 2000 an aggregate baseline of 86.5 tons of NO_x and 42.3 tons of SO_x for Compliance Year 1999, 101.8 tons of NO_x and 41.4 tons of SO_x for Compliance Year 2000, and 98.4 tons of NO_x and 40.2 tons of SO_x for each subsequent Compliance Year. 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 will be deducted if emissions were less than projected; conversely, additional RTCs will be issued if emissions were higher than projected).

As a result of the amendment to Rule 2002 in January 2005 to further reduce RECLAIM NO_x allocations, the NO_x historical baseline Clean Fuel Adjustments for Compliance Year 2007 and subsequent years held by the facility were also reduced by the appropriate shave factors as stated in Rule 2002(f)(1)(A). On the other hand, Rule 2002(c)(12) entitles these refineries' to a Clean Fuels adjustment based on actual emissions. Therefore, each refinery is subject to an adjustment at the end of each compliance year by the difference between the amount of actual emission increases due solely due to production reformulated gasoline at each refinery and the amount of credits it was issued back in 2000 after discounting by the shave factors for the corresponding compliance year. For Compliance Year 2010, the overall effect of adjusting NO_x allocations to account for these differences was a total of 16.2 tons of NO_x RTCs (0.2% of total NO_x allocation for Compliance Year 2010) were added to, and 17.3 tons of SO_x RTCs (0.4% of total SO_x allocation for Compliance Year 2010) were deducted from, refineries' Compliance Year 2010 holdings.

² These Compliance Year 1994 allocations and Non-tradable/Non-usable Credits are not included in the RTC supply as shown in Figures 2-1 and 2-2 of Chapter 2, and Figures 3-1 and 3-2 of Chapter 3. They are also not included in the "Total NO_x RTCs" or "Total SO_x RTCs" columns shown in Tables 3-1 and 3-2, respectively, of Chapter 3.

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 2010.

Conversions of Other Types of Emission Reduction Credits

Conversions of Mobile Source Emission Reduction Credits (MSERCs) and other types of emission reductions credits, besides 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 and 1612 allow the creation of MSERCs. However, there are no State Implementation Plan (SIP) approved protocols for conversion of MSERCs to RTCs. As a result, no new RTCs were issued as a result of conversion of other types of emission reduction credits in Compliance Year 2010.

Net Changes in RTC Allocations

The changes to RTC supplies described in the above sections resulted in a net increase of 16.2 tons of NO_x RTCs and a decrease of 17.3 tons of SO_x RTCs for Compliance Year 2010. Table 2-1 summarizes the changes in NO_x and SO_x RTC supplies that occurred in Compliance Year 2010 pursuant to Rule 2002.

Table 2-1
Changes in NO_x and SO_x RTCs Supplies during Compliance Year 2010 (tons/year)

Source	NO _x	SO _x
Universe changes	0	0
Clean Fuel/Reformulated Gasoline	16.2	-17.3
Activity corrections	0	0
MSERCs	0	0
Net change	16.2	-17.3

Note: The data in this table represents the changes that occurred over the course of Compliance Year 2010 to the Compliance Year 2010 aggregate NO_x and SO_x RTC supplies originally issued pursuant to Rule 2002, not the difference between 2010 aggregate RTC supply and that for any other compliance year.

Figures 2-1 and 2-2 illustrate the total NO_x and SO_x RTC supplies through the end of Compliance Year 2020.

Figure 2-1
NOx RTC Supply

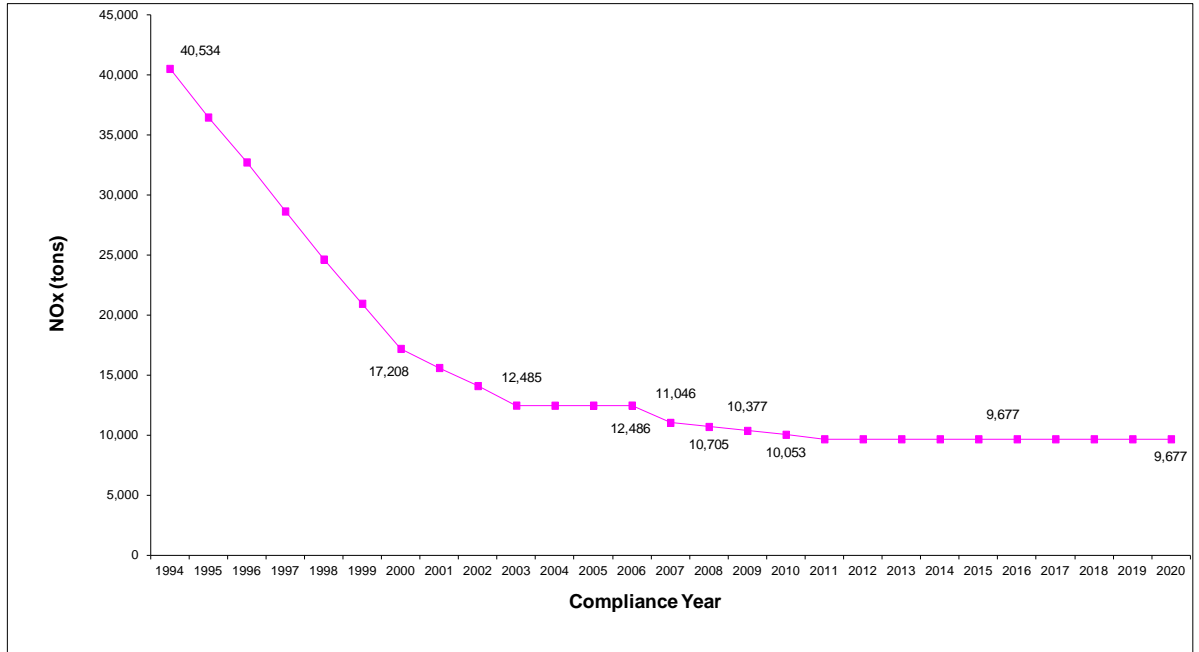
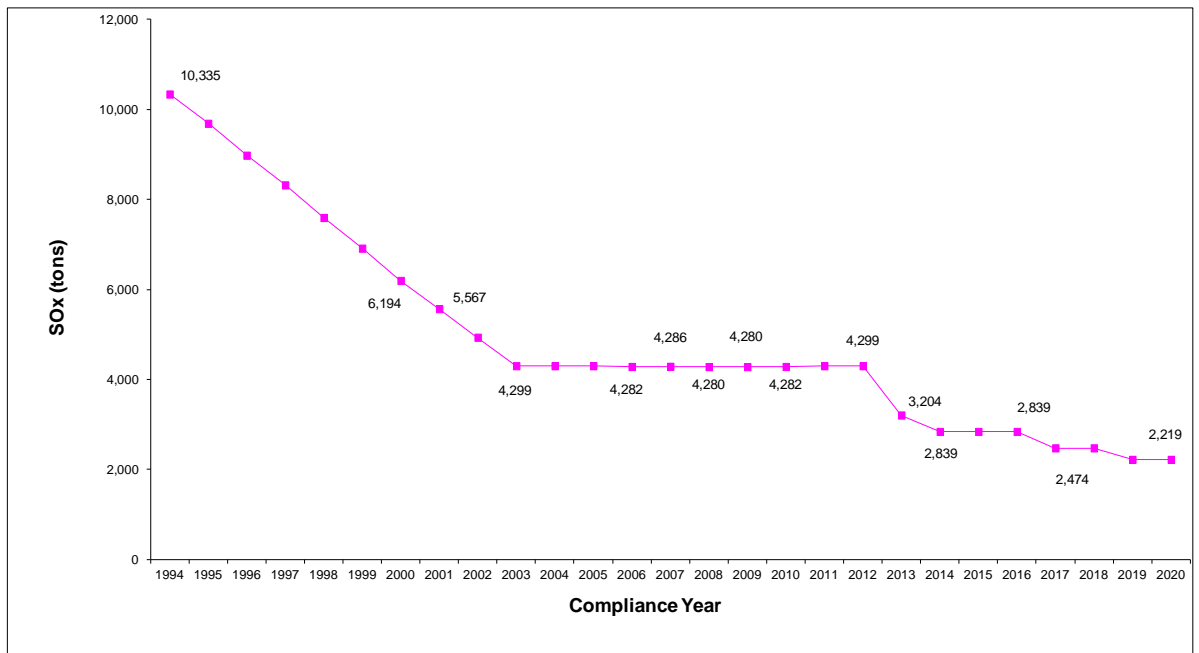


Figure 2-2
SOx RTC Supply



Upcoming Proposal for Credit Generation

AQMD is evaluating two potential new rules that would generate additional credits. One potential rule would allow generation of emission reduction credits 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 (Proposed Rule 2512 – Credit Generation Program for Ocean-Going Vessels at Berth). The other potential rule would allow generation of emission reduction credits through the voluntary repowering of diesel-fueled auxiliary head end power generating units at passenger locomotives with cleaner engines (Proposed Rule 2511 – Credit Generation Program for Locomotive Head End Power Unit Engines). Under these two proposals, the resultant credits from both rules would be allowed to be used in the RECLAIM program. Currently, both proposed rules are under development by staff. Public meetings and Board consideration for these two potential rules are pending.

RTC Price Reporting Methodology

On September 7, 2007, the Governing Board approved a new reporting methodology for RTC trades that is more reflective of the market and minimizes the potential for price manipulation. Under this new reporting methodology, trades of specific, discrete-year RTCs are reported to AQMD separately from trades involving blocks of RTCs with a specified start year and continuing into perpetuity (also known as infinite-year blocks or IYBs). Discrete-year trades continue to be reported in terms of dollars per pound and averaged in dollars per ton of RTCs for each discrete compliance year while IYB trade prices are reported separately and as total dollar value for total amount of IYB traded, and averaged as a total dollar value per ton of IYB RTC.

In addition, the new reporting methodology also identified swap trades as having the potential to adversely impact the calculated average annual prices of RTCs, because 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. Therefore, reported prices for swap trades are excluded from the calculation of average annual RTC price under this new reporting methodology. Further details regarding the new reporting methodology for RTC trades, which was approved by the Governing Board on September 7, 2007, can be found in the report entitled "[Evaluation and Review of the RECLAIM Program and Assessment of RTC Price Reporting](#)".

In this report, the Governing Board also established new program review thresholds for IYB trades through Board Resolution No. 07-20. Accordingly, the new program review price thresholds for IYB RTCs (equivalent to 15 times the 1993 thresholds used for discrete trades with CPI adjustments) are \$579,757 per ton of NO_x RTCs and \$417,425 per ton of SO_x RTCs in 2011 dollars.

RTC Trading Activity Excluding Swaps

Overall Trading Activity

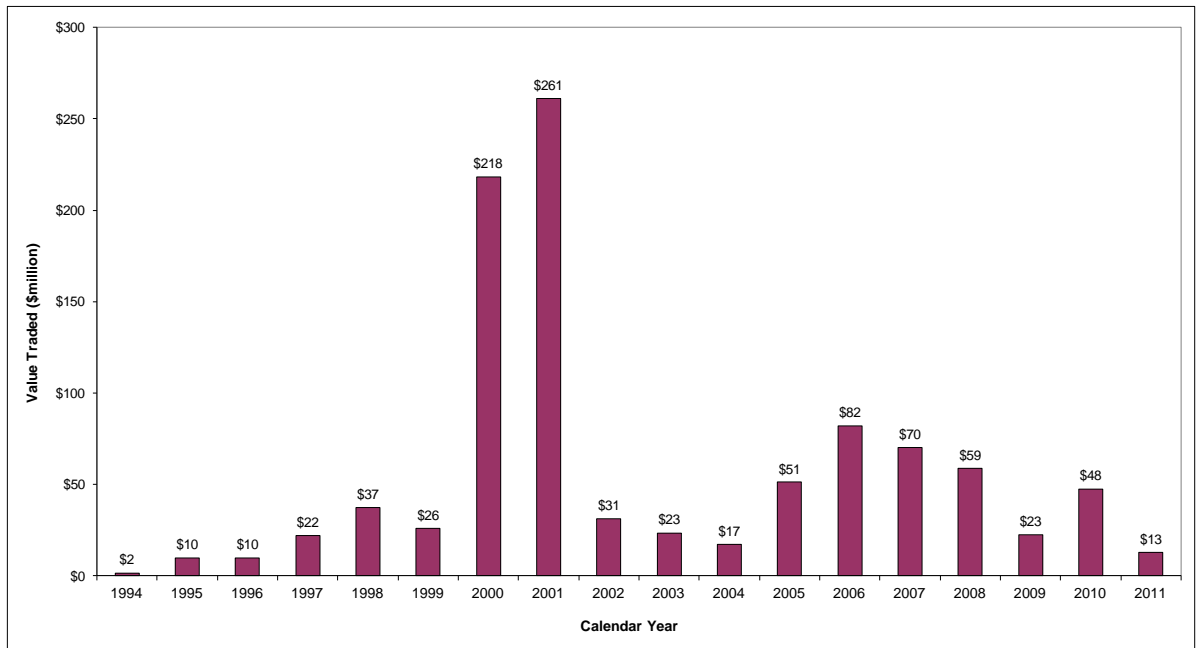
The RTC market activity was slower in calendar year 2011 compared to years past. The total traded value in 2011 was the lowest value traded since calendar year 1997. The calendar year 2011 trading activity—380 total registered trade transactions (359 NO_x trades and 21 SO_x trades)—was slightly lower than

number of trade transactions in calendar year 2010 (394 total registered trade transactions). These trades included discrete and IYB RTCs traded with prices, discrete and IYB RTC transfers with zero price, and discrete and IYB RTC swap trades.

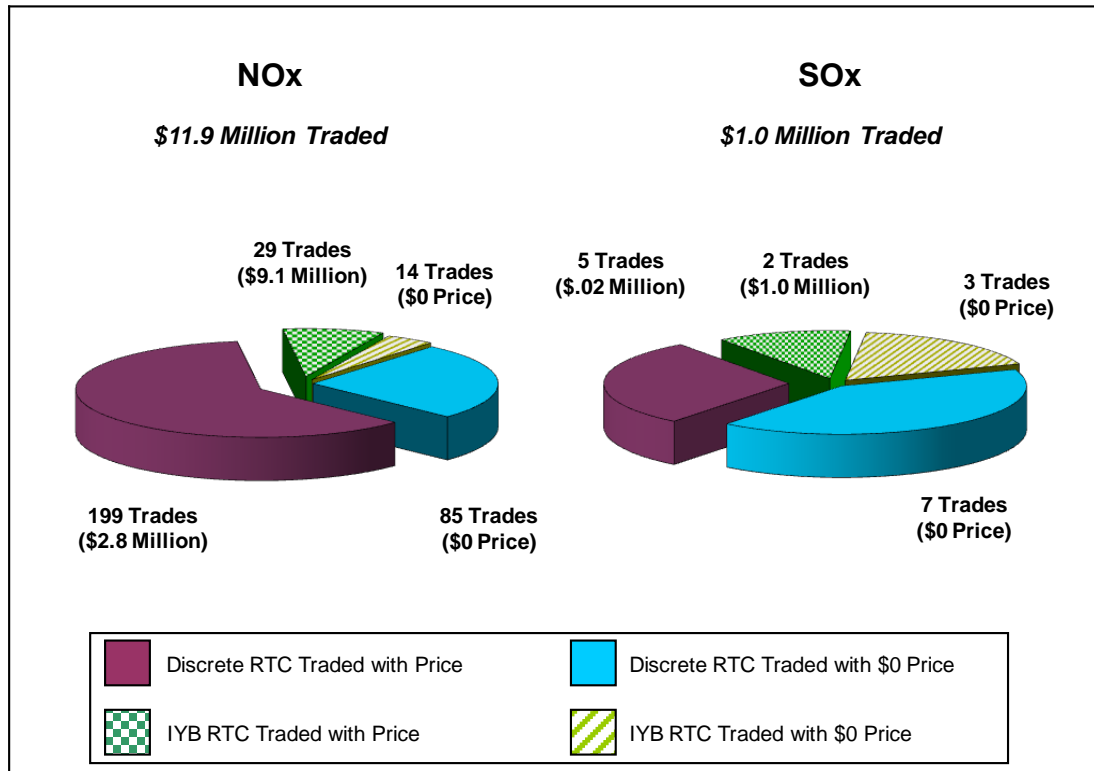
Excluding swap trades, a total value of \$12.9 million was traded in calendar year 2011 (\$11.9 million for NOx and \$1.0 million for SOx) compared to the total value of \$47.6 million traded in calendar year 2010 (\$17.3 million for NOx and \$30.3 million for SOx). This difference in the value traded was largely due to the decreased trading of IYB SOx RTCs which was at an exceptionally high level in 2009 probably induced by the then-impending rule amendment to the SOx portion of the RECLAIM program. Figure 2-3 shows historical trading values (excluding swaps). Figure 2-4 summarizes overall trading activity (excluding swaps) in calendar year 2011 by pollutant.

RTC transfers with zero price generally occur when a seller transfers or escrows RTCs to a broker, when there is a transfer between facilities under common operator, or when there is a transfer between facilities that have gone through 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.

Figure 2-3
Annual Trading Values for NOx and SOx (Excluding Swaps)



**Figure 2-4
Calendar Year 2011 Overall Trading Activity (Excluding Swaps)**



Discrete RTC Trading Activity

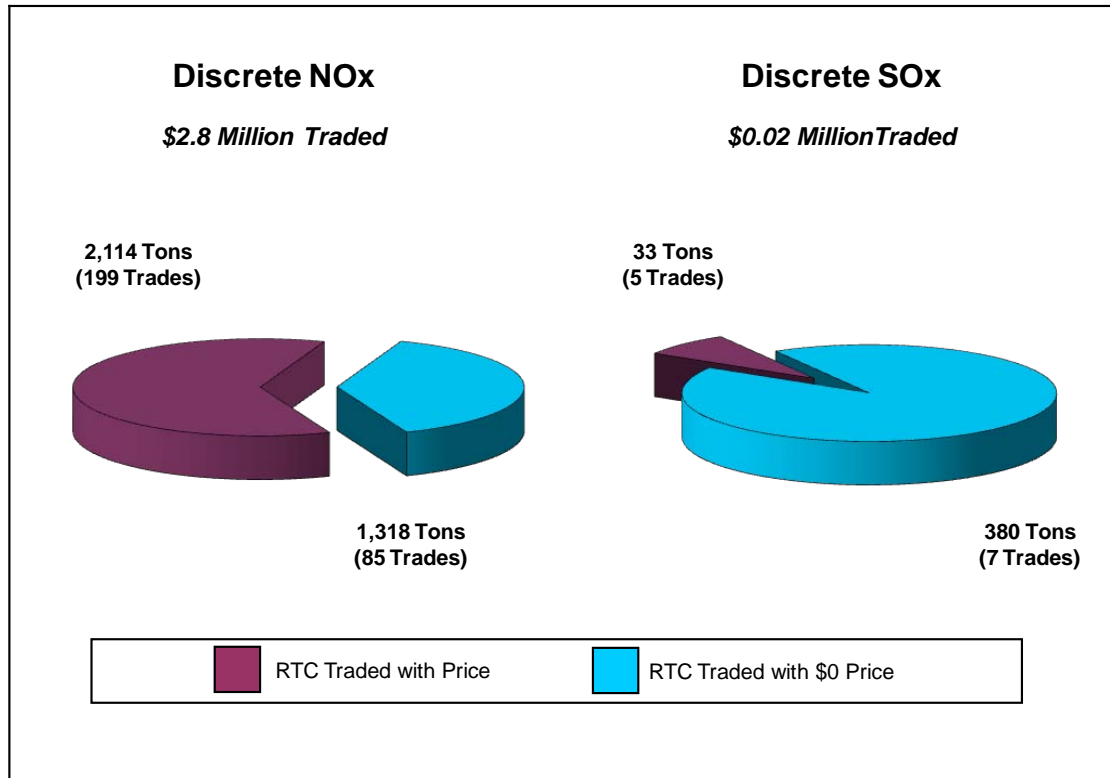
In calendar year 2011, there were a total of 284 discrete NOx trades and 12 discrete SOx trades of RTCs. Of the 284 discrete NOx trades, 199 were traded with price totaling 2,114 tons in volume and \$2.8 million in value. Of the 12 SOx trades, five were traded with price totaling 33 tons in volume and \$0.02 million in value. In addition to trades with prices, there were 85 discrete NOx trades of 1,318 tons and seven discrete SOx trades of 380 tons traded with zero price.

In calendar year 2011, trading of discrete NOx RTCs was limited to Compliance Years 2010, 2011 and 2012 only, with the exception of one trade, which was a transfer between two facilities under common ownership for Compliance Years 2012 to 2017 of discrete year NOx RTCs without price. Trading of discrete SOx RTCs was limited to Compliance Years 2010 and 2011 only.

Discrete NOx RTC trades with price in calendar year 2011 experienced a minor decrease in total quantity traded and total value when compared to trades in calendar year 2010. The quantity of discrete NOx RTCs traded with price decreased slightly from 2,194 tons in calendar year 2010 to 2,114 tons in calendar year 2011 and the total value of discrete NOx RTCs traded decreased from \$3.0 million in calendar year 2010 to \$2.8 million in calendar year 2011. The overall quantity of discrete NOx RTCs decreased from 3,593 tons traded in calendar year 2010 to 3,432 tons in calendar year 2011. Discrete SOx RTC trades with price in calendar year 2011 also showed a decrease in both

quantities traded and total value. The quantity traded with price decreased from 161 tons to 33 tons and the value of discrete SOx RTCs traded decreased from \$0.08 million to \$0.02 million from calendar year 2010 to 2011, respectively. Due to an increase in quantity of discrete SOx RTCs traded without price, the overall quantity of discrete SOx RTCs increased from 379 tons to 413 tons. Figure 2-5 illustrates the trading activity of discrete RTCs (excluding swaps) for calendar year 2011.

Figure 2-5
Calendar Year 2011 Trading Activity for Discrete RTCs (Excluding Swaps)



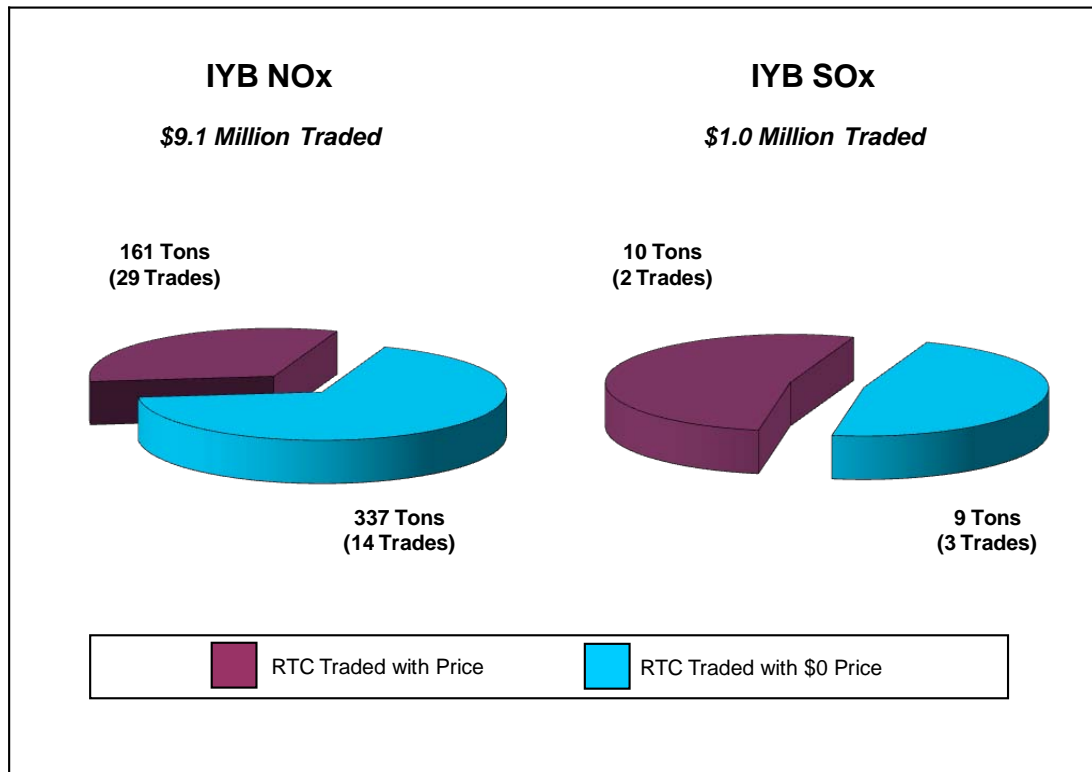
IYB RTC Trading Activity

IYB RTCs include RTCs valid for a certain specified start year and continuing into perpetuity. In calendar year 2011, there were 43 IYB NOx trades and five IYB SOx trades. All of these IYB trades included Compliance Year 2010, 2011, 2012 or 2013 as the start year. Of the 43 IYB NOx trades, 29 trades were with price totaling 161 tons and \$9.1 million (compared to 13 trades with price totaling 149 tons and \$14.3 million in 2010). This represents a 41% drop in the calendar year 2011 average price for IYB NOx RTCs from the average price of 2010 (from \$95,971 per ton to \$56,708 per ton).

There were two IYB SOx RTC trades in calendar year 2011 with price totaling ten tons, which was significantly lower than the ten trades with price totaling 277 tons traded in calendar year 2010. Both IYB SOx trades with price included Compliance Year 2011 as the start year. The total value of these IYB SOx

trades (\$1 million) was also much lower than the total value in 2010 (\$30.2 million). However, the average price for IYB SOx RTCs in calendar year 2011 only decreased by six percent from the average price of 2010 (from \$109,219 per ton to \$102,366 per ton). In addition to trades with prices, there were also 14 IYB NOx trades totaling 337 tons and three IYB SOx trades totaling nine tons traded with zero price. Figure 2-6 illustrates the calendar year 2011 IYB RTC trading activity excluding swap trades.

Figure 2-6
Calendar Year 2011 Trading Activity for IYB RTCs (Excluding Swaps)



Trade data presented in this report, including historical data prior to 2001, are compiled strictly according to the new reporting methodology approved by the Governing Board in 2007. Swap information and details of discrete and IYB trades were not required to be provided by trade participants prior to the amendment of Rule 2007 – Trading Requirements in May 2001. In compiling data for calendar years 1994 through part of 2001, any trade registration involving infinite-year 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 new trade reporting methodology. The quantities traded without price for calendar years 2002 through 2006, as illustrated in Figures 2-7 through

2-10, have been revised to remove the double-counted swap volume in prior Annual RECLAIM Audits.³

Figure 2-7
Discrete NOx RTCs Trades (Excluding Swaps)

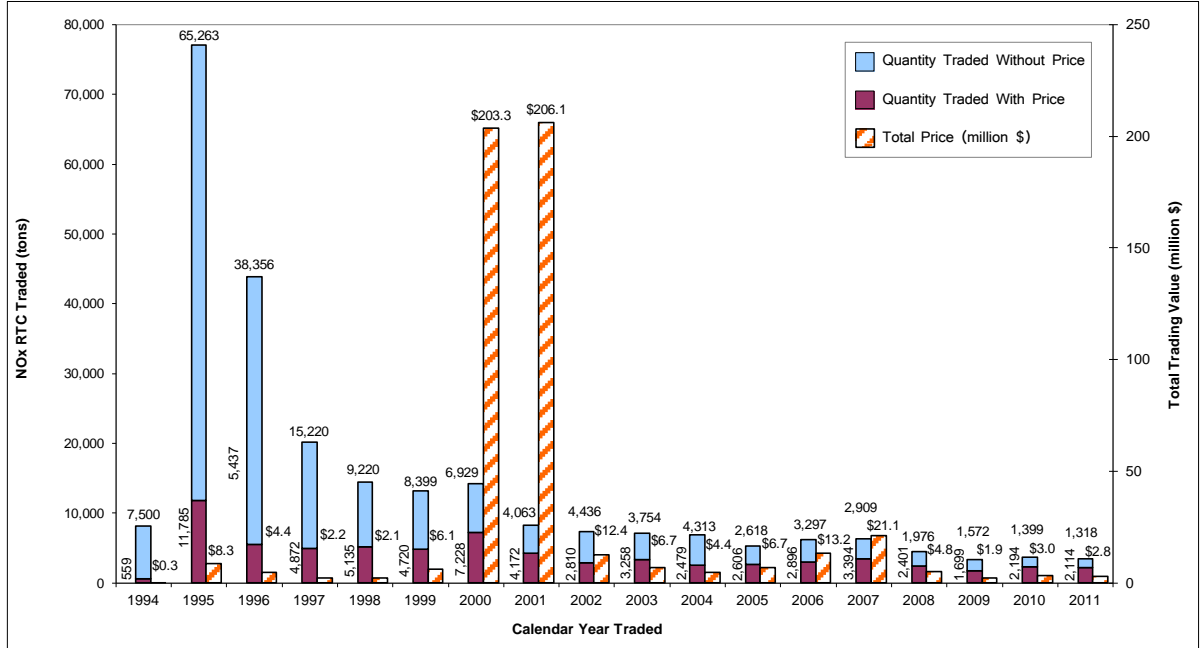
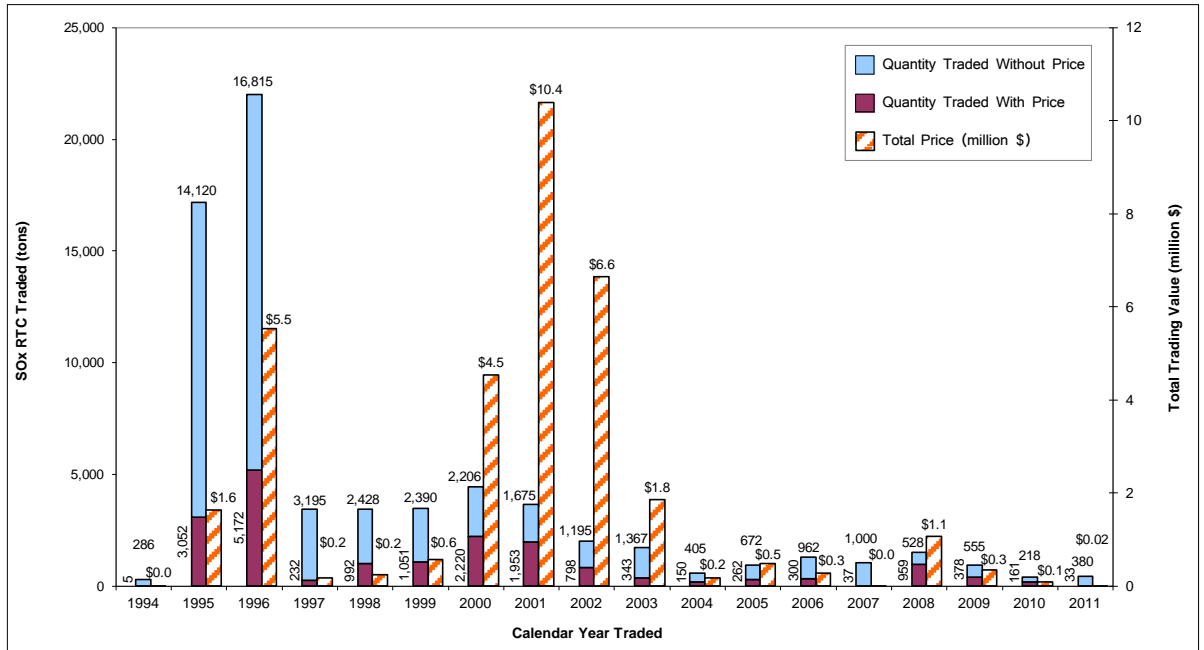


Figure 2-8
Discrete SOx RTCs Trades (Excluding Swaps)



³ Swap trades were deducted twice from volume traded without price for calendar years 2002 through 2006. This did not impact any reported prices.

Figure 2-9
IYB NOx RTCs Trades (Excluding Swaps)

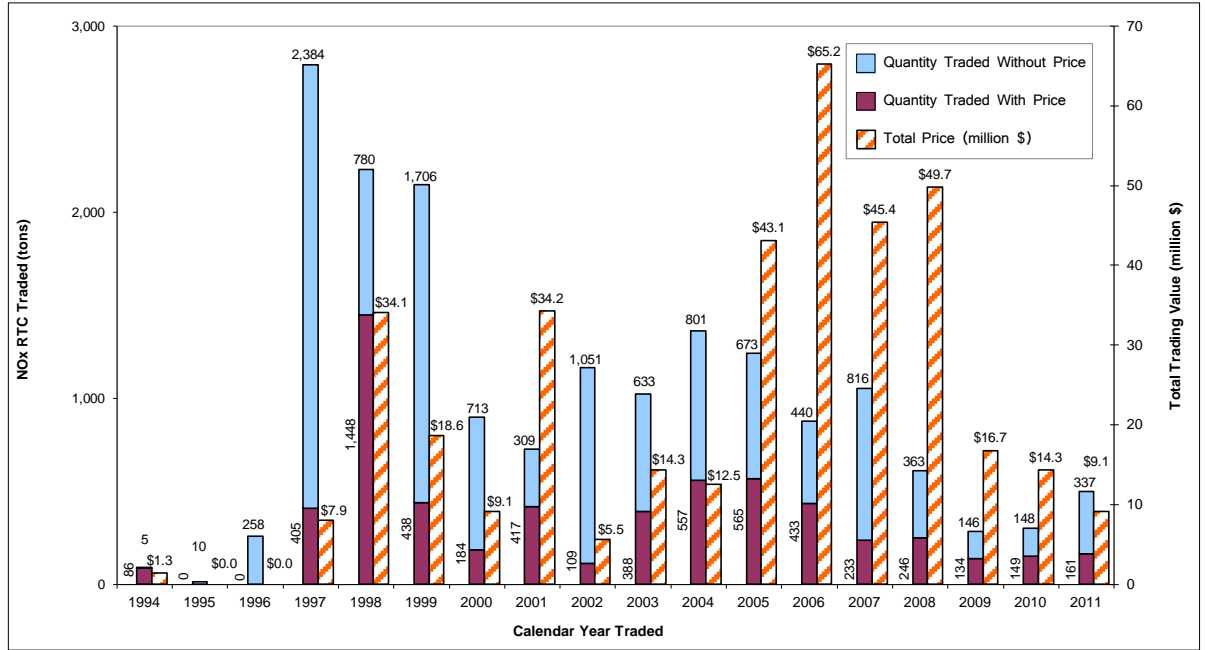
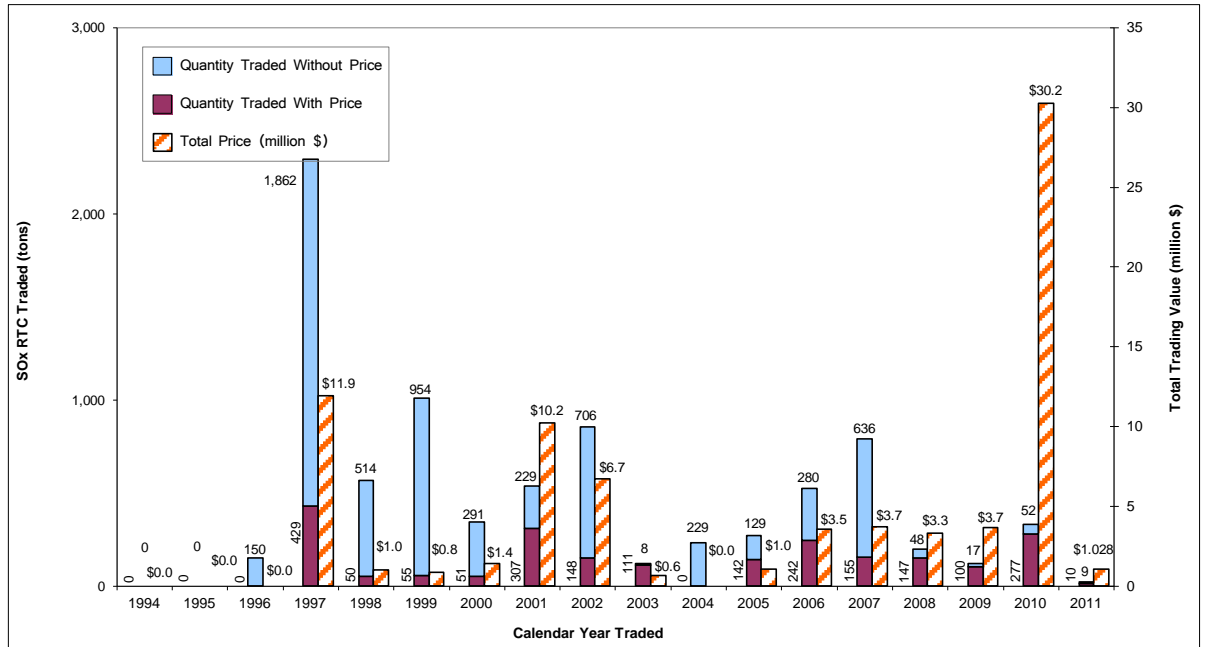


Figure 2-10
IYB SOx RTCs Trades (Excluding Swaps)



Swap Trades

In addition to traditional trades of RTCs for a price, RTC swaps also occurred between trading partners. There were swaps of RTCs with different zones, cycles, expiration years, and pollutants in calendar year 2011. No swaps in calendar year 2011 involved IYB RTCs. In some cases, swaps involved a combination of RTCs and cash payment as a premium. 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 \$2.2 million in total value was reported from RTCs that were swapped in calendar year 2011. 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. (For example, in the case of a swap of NO_x 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 result in calculated average annual prices dominated by swap transactions, and therefore, may not be representative of market prices actually paid for RTCs. Under the September 2007 Governing Board-approved price reporting methodology, 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 2011 RTC swaps for NO_x and SO_x, respectively.

Table 2-2
NOx Registrations Involving Swaps*

NOx	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	0.0	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	0.0	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	0.0	775.5	25	32

* There are swaps that are without price. 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*

SOx	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	0.0	161.8	13	13
2005	\$ 2.16	43.5	227.8	13	14
2006	\$ 0.02	0.0	24.4	2	2
2007	\$ 0.00	0.0	0.0	0	0
2008	\$ 0.40	0.0	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	0.0	228.5	3	4

* There are swaps that are without price. 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 2011, the average annual prices for discrete-year NOx RTCs were \$693 per ton for Compliance Year 2010, \$1,561 per ton for Compliance Year 2011, and \$4,121 per ton for Compliance Year 2012. The average annual prices for discrete-year SOx RTCs were \$779 per ton for Compliance Year 2010 and \$500 per ton for Compliance Year 2011⁴. Figures 2-11 and 2-12 present the average annual prices for discrete-year NOx and SOx RTCs during calendar years 2003 through 2011, 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 to the next calendar year.

Average annual prices in calendar year 2011 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 AQMD Rule 2015, as well as the \$38,650 per ton of NOx and \$27,828 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).

Investors were involved in a significant proportion of discrete-year RTC trades in calendar year 2011. They were involved with 61% with respect to value and 63% with respect to volume for discrete-year NOx RTCs. All discrete-year SOx RTCs traded in calendar year 2011 were sold by investors and as such, investors were involved with 100% of discrete-year SOx RTC transactions.

⁴ There were no discrete-year 2012 SOx RTCs traded in calendar year 2011.

Figure 2-11
Average Annual Prices for Discrete-Year NOx RTCs during Calendar Years 2003 through 2011

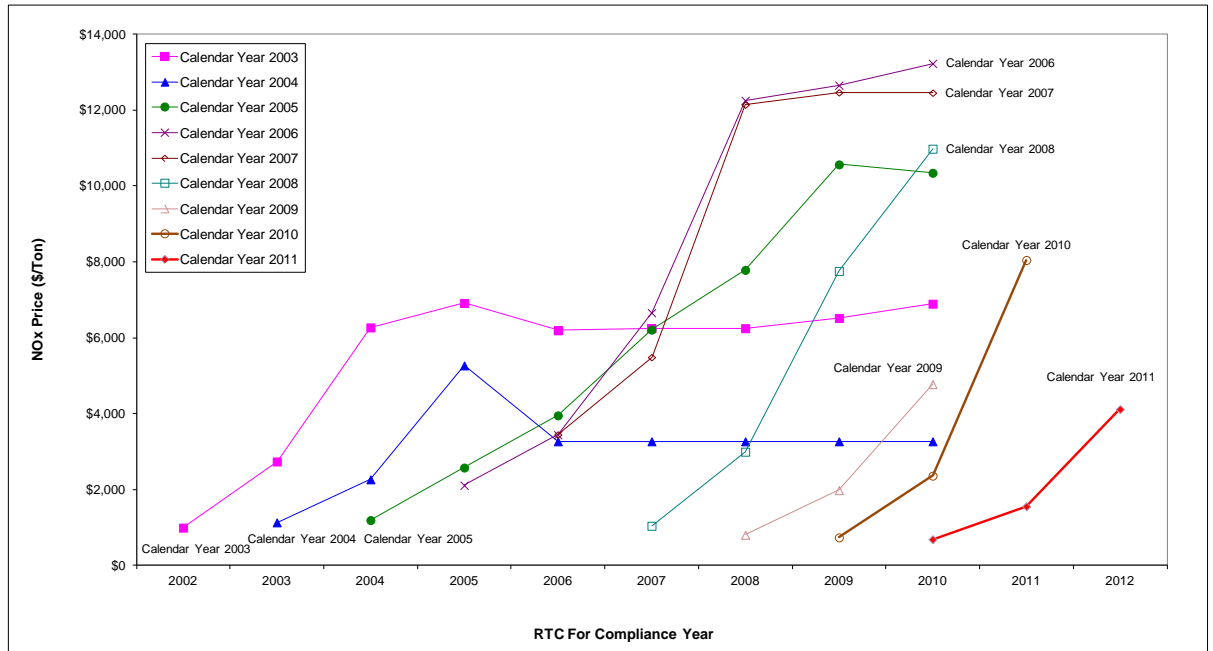
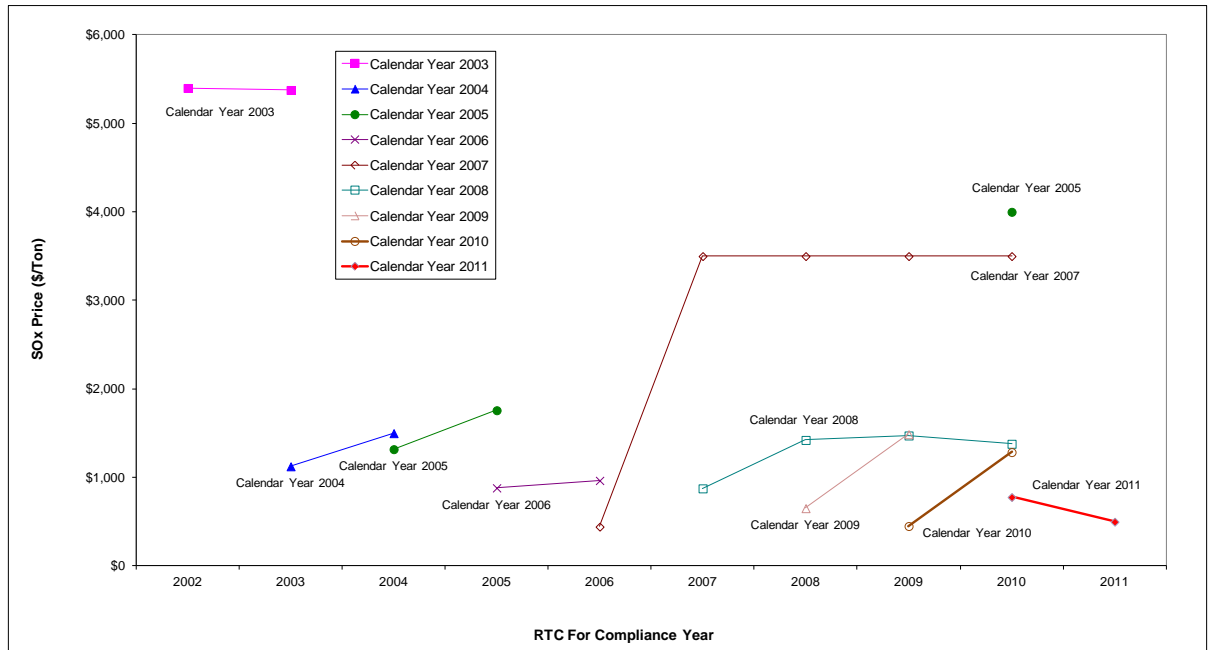


Figure 2-12
Average Annual Prices for Discrete-Year SOx RTCs during Calendar Years 2003 through 2010



Twelve-Month Rolling Average Prices of Compliance Year 2011 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.” Pursuant to the RTC price reporting and averaging methodology approved by the Governing Board in September 2007, “swap” transactions (the exchange of RTCs for other RTCs or for other emissions credits) were 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, AQMD is required to review the compliance aspects of the RECLAIM program and the Governing Board may direct the Executive Officer to convert the annual incremental Non-tradable/Non-usable RTCs (2.7%) back to active, tradable RTCs valid for the compliance year in which Cycle 1 facilities are operating at the time the finding is made. In its resolution amending Rule 2002(f), 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 AQMD 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.

As shown in Table 2-4, the twelve-month rolling average prices of Compliance Year 2011 NOx RTCs have generally been declining since January 2011 and have not exceeded 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 and consider reinstating the incremental NOx RTC adjustment for Compliance Year 2011. For Compliance Year 2010 NOx RTCs, the same findings were true and were included in the RECLAIM Annual Audit Report for 2009 Compliance Year, submitted to the Governing Board in March 2011.

**Table 2-4
Twelve-Month Rolling Average Prices of Compliance Year 2011 NOx RTCs**

Reporting Month	12-Month Period	Average Price (\$/ton)
January 2011	January through December 2010	\$ 8,052
February 2011	February 2010 through January 2011	\$ 8,052
March 2011	March 2010 through February 2011	\$ 7,999
April 2011	April 2010 through March 2011	\$ 7,950
May 2011	May 2010 through April 2011	\$ 7,850
June 2011	June 2010 through May 2011	\$ 7,852
July 2011	July 2010 through June 2011	\$ 6,783
August 2011	August 2010 through July 2011	\$ 6,758
September 2011	September 2010 through August 2011	\$ 4,026
October 2011	October 2010 through September 2011	\$ 3,427
November 2011	November 2010 through October 2011	\$ 2,784
December 2011	December 2010 through November 2011	\$ 2,089
January 2012	January through December 2011	\$ 1,561

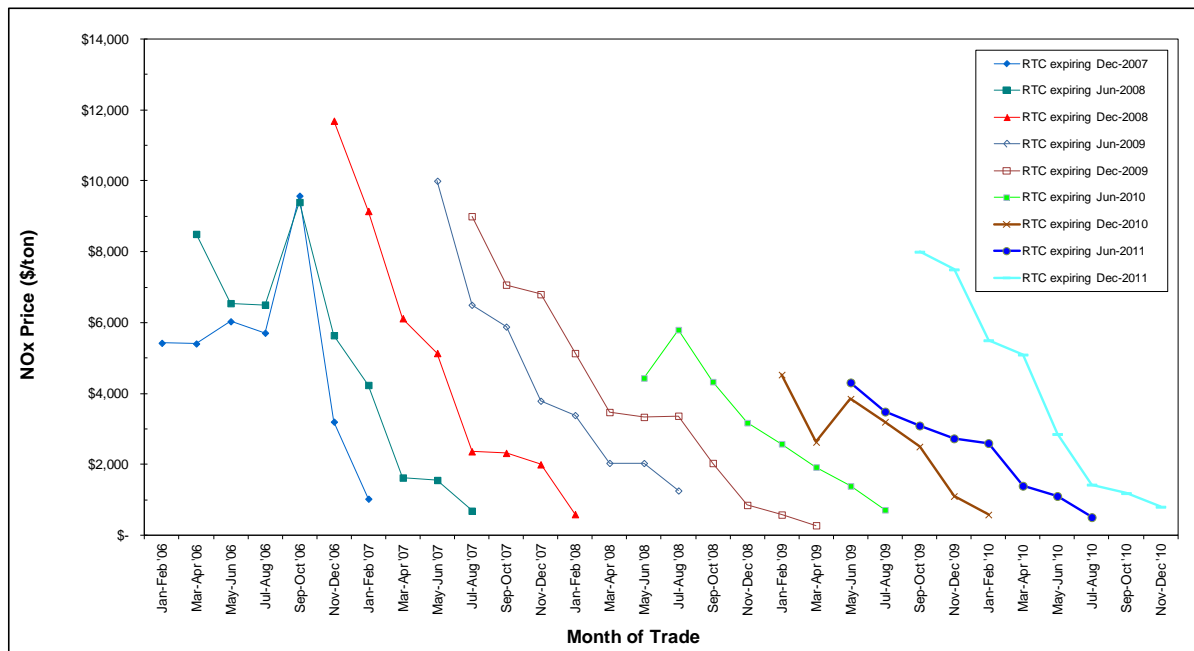
Note: The average prices for the August, September and October 2011 reporting months to the SSC have been corrected in the table above. The data presented to the SSC included two pending trades which were later voided. This resulted in less than 9% change in the twelve-month rolling average prices for August, September and October 2011 and did not change any of the findings and conclusions reported.

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 2011 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, however SOx RTC prices have generally followed the same trends.

Figure 2-13
Bi-Monthly Average Price for NOx RTCs near Expiration



Note: A limited set of data points are used for clarity.

IYB RTC Prices

The average annual price for IYB NOx RTCs traded in calendar year 2011 is \$56,708 per ton, which is significantly lower than the average annual price of \$95,761 per ton traded in calendar year 2010. The average annual price for IYB SOx RTCs in calendar year 2011 is \$102,366 per ton, which is slightly lower than the \$109,219 per ton traded in calendar year 2010. There were only two IYB SOx trades with price totaling 10.0 tons in 2011 which is much lower than the 277.0 tons traded in 2010. Data regarding IYB RTCs traded with price (excluding swap trades) for NOx and SOx RTCs and their average annual prices since 1994 are summarized in Tables 2-5 and 2-6, respectively. In calendar year 2011, the average annual IYB RTC prices did not exceed the \$579,757 per ton of NOx RTCs or the \$417,425 per ton of SOx RTCs program review thresholds established by the Governing Board pursuant to California Health and Safety Code §39616(f).

Investors were again involved in a significant proportion of IYB trades in calendar year 2011. They were involved with 64% with respect to both value and to volume for IYB NOx RTCs. Investors were involved with 99% with respect to value and 91% with respect to volume for IYB SOx RTCs. A more detailed discussion of investor participation is presented later in this chapter.

Table 2-5
IYB NOx Pricing (Excluding Swap Registrations)

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

* No information regarding swap trades was reported until May 9, 2001.

Table 2-6
IYB SOx Pricing (Excluding Swap Registrations)

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

* No information regarding swap trades was reported until May 9, 2001.

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. The two foreign investors⁵ did not participate in any RTC trades in Calendar Year 2011.

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. For discussion in this report, "investors" include all parties who hold RTCs other than RECLAIM facility permit holders and brokers.

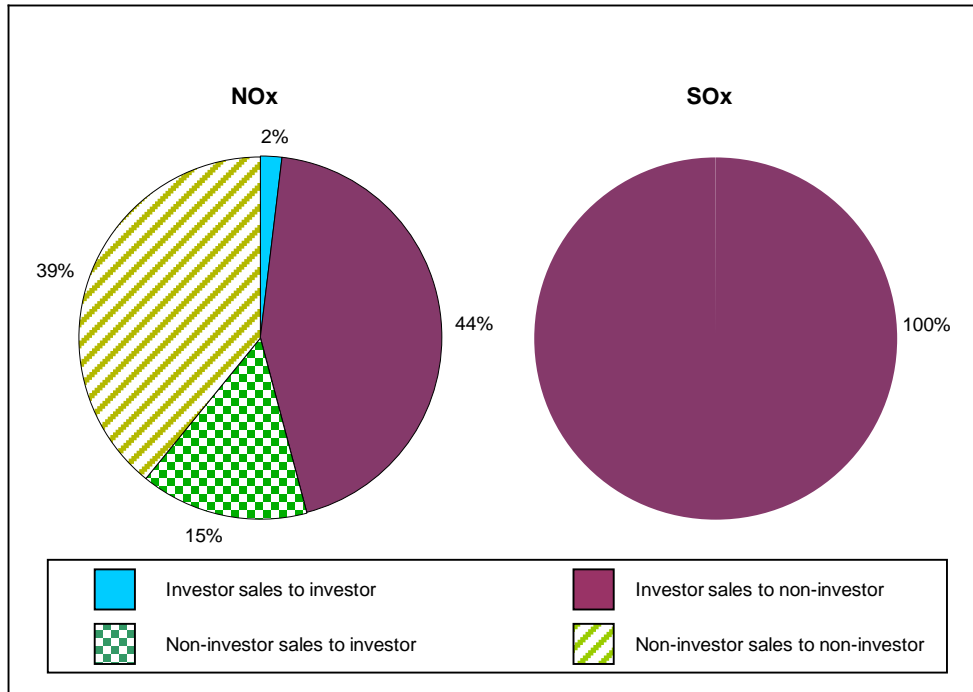
Investors' Participation

Commodity traders, mutual funds, and private investors invest in and own RTCs in order to seek profits by trading them. Investors' involvement in discrete NOx and SOx trades registered with price in calendar year 2011 is illustrated in Figures 2-14 and 2-15. In compiling data for these two figures, staff removed

⁵ One of the two foreign investors is located in the Isle of Man and the other is located in Cayman Islands.

brokers' involvement⁶. Figure 2-14 is based on total value of discrete NOx and SOx RTCs traded, and shows that investors were involved in 61% and 100%, respectively, of the NOx and SOx trades reported by value. Figure 2-15 is based on discrete volume traded with price and shows that investors were involved in 63% and 100% of the NOx and SOx trades, respectively. Figures 2-16 and 2-17 provide similar data for both IYB NOx and SOx trades, and show that investors were involved in 64% of IYB NOx trades and 99% of IYB SOx trades on a reported value basis, and 64% of IYB NOx and 91% of IYB SOx trades on the basis of the number of pounds traded with price. As of the end of calendar year 2011, investors' holding of IYB NOx RTCs decreased slightly to 4.8% from 5.5% at the end of calendar year 2010. Mutual fund investors hold 3.3% of all IYB NOx RTCs. Investors increased their holding of IYB SOx RTCs to 0.5% at the end of calendar year 2011 from 0.01% at the end of calendar year 2010. No IYB SOx RTCs are currently held by mutual fund investors.

Figure 2-14
Calendar Year 2011 Investor-Involved Discrete NOx and SOx Trades Based on Value Traded



⁶ The established convention for registering broker-involved RTC trades is to do so in two sequential steps: first from the seller to the broker, then from the broker to the buyer. However, to avoid double counting of brokered trades in this analysis, they are treated as if each brokered trade had been registered from the seller to the buyer in a single step. Trades reported without price are excluded from this analysis because they typically represent RTC exchanges between facilities under common ownership and trades associated with changes of facility operator, and are therefore, not reflective of market behavior.

Figure 2-15
Calendar Year 2011 Investor-Involved Discrete NOx and SOx Trades Based on Volume Traded with Price

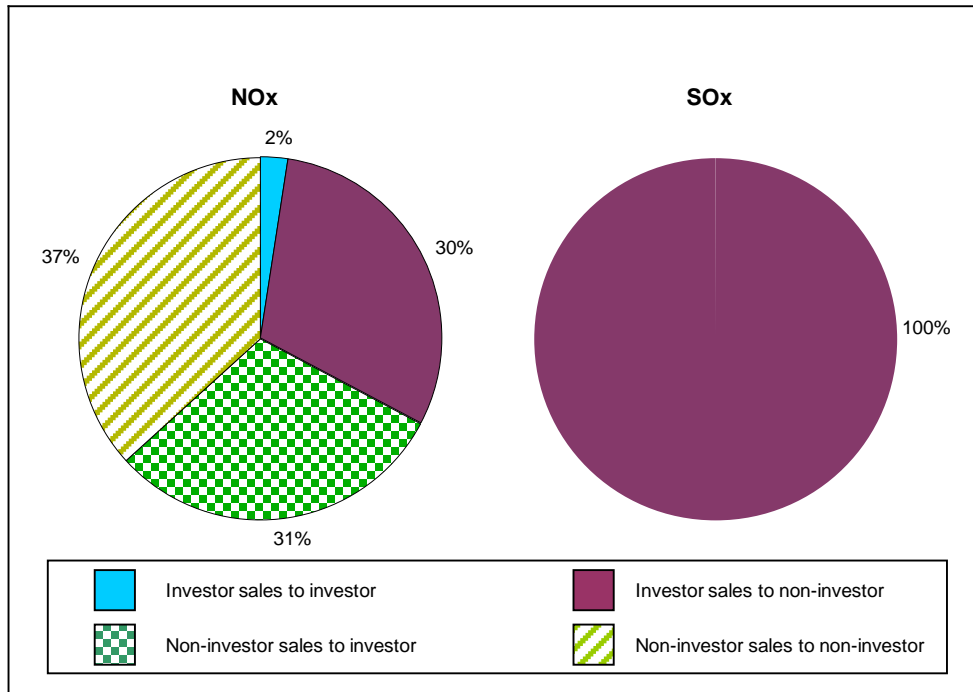


Figure 2-16
Calendar Year 2011 Investor-Involved IYB NOx and SOx Trades Based on Value Traded

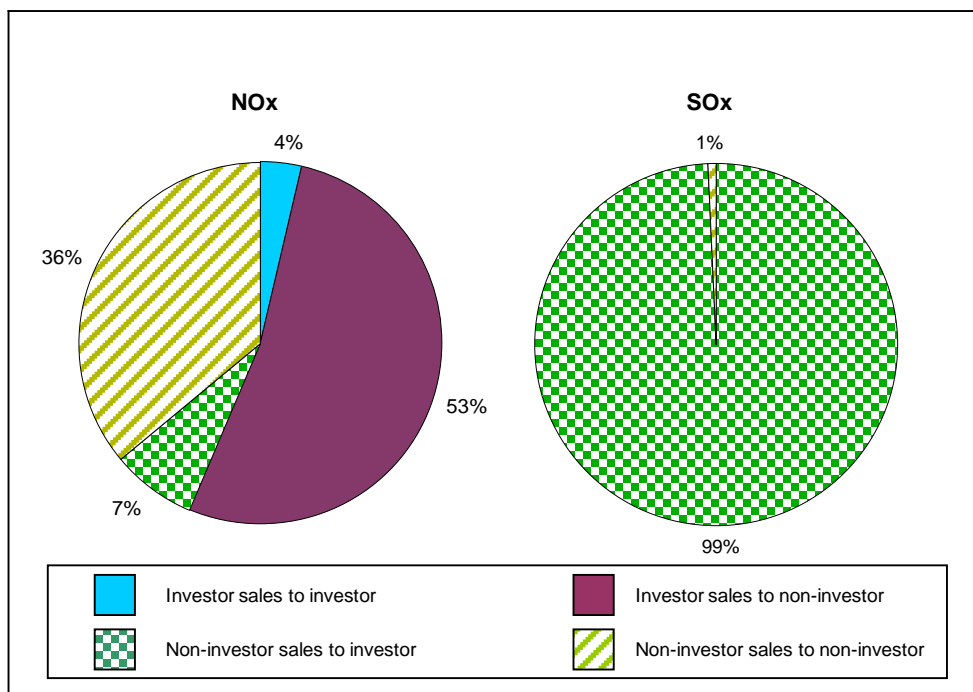
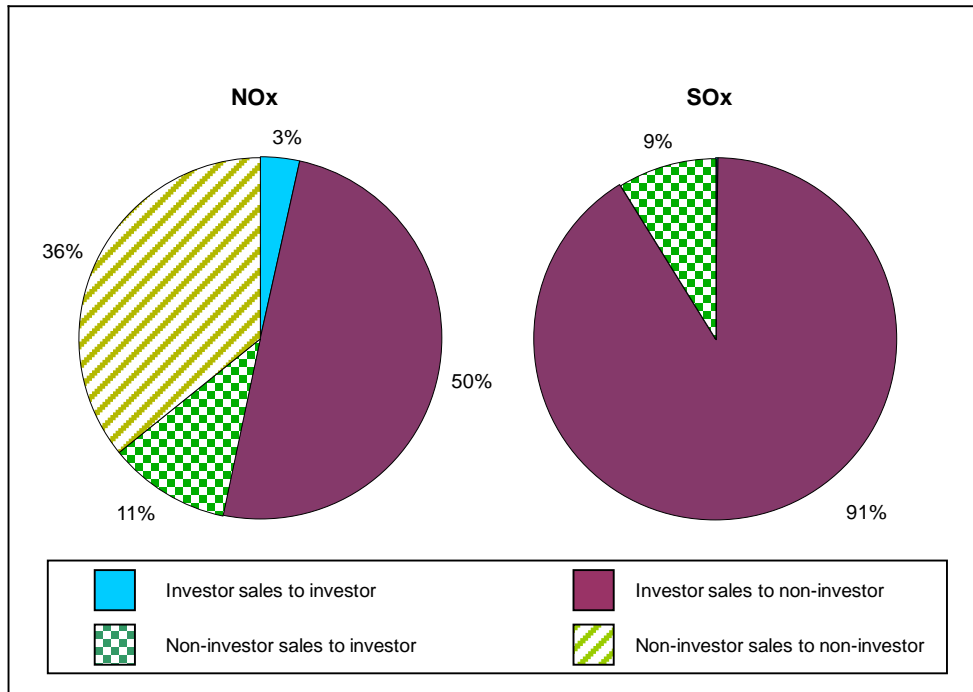


Figure 2-17
Calendar Year 2011 Investor-Involved IYB NOx and SOx Trades Based on Volume Traded with Price



The supply of IYB RTCs available for sale has been mainly from facilities that have permanently shut down. In past years, investors have purchased IYB RTCs from RECLAIM facilities that were shutting down. However, the six RECLAIM facilities that shut down during Compliance Year 2010 (refer to Chapter 1) held a total of 28.9 tons of IYB NOx RTCs. Of this amount, 11.2 tons was sold to investors, 15.7 tons were sold to other RECLAIM facilities and the remaining 2.0 tons have not yet been sold or transferred.

Investors’ 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, they 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 (failing to

reconcile by securing sufficient RTCs to cover their emissions) their allocations if their reported emissions were increased as the result of any problems or errors discovered by AQMD during annual audits. For Compliance Year 2010, the total RECLAIM NOx emissions were 7,116 tons. However, Compliance Year 2010 spans a period marked by a depressed economy with low production at many manufacturing facilities and thus low emissions compared to historical levels. If the economy were to improve, total RECLAIM NOx emissions would likely approach recent historical levels. RECLAIM NOx emissions as recent as Compliance Year 2007 totaled 8,794 tons. If emissions were to remain constant at that 2007 level, the NOx RTC surplus in 2012 would be 883 tons (9% of allocation)⁷, which is less than the traditional 10% compliance margin. Therefore, the current aggregate investors' holdings of 4.8% of NOx RTCs valid for Compliance Year 2012 and beyond (IYB RTCs) have the potential to result in a sellers' market.

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 (4.8% 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 calendar year 2012 and beyond. 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. Although investors' holdings of IYB NOx RTCs declined during calendar year 2011, they 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 from now through 2012, and can be affected by various factors including installation of more emission control equipment, production changes, and shifts in industry sectors and in the economy, in general. In January 2005, AQMD identified cost-effective control opportunities outside the power producing industry that would amount to 3.7 tons per day of additional NOx reductions based on historical production rates. 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. AQMD staff continues to monitor investor participation in the market to ensure that such participation does not adversely impact the RECLAIM program.

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 buy or sell RTCs. In those

⁷ Assuming emissions in 2012 stay at Compliance Year 2010 level, the NOx RTC surplus would be at 26.5% [(9,677 - 7,116)/9,677].

transactions, one party pays a premium for the right to purchase or sell 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 or sell the RTCs at a future date. These rights may or may not be actually exercised. RTC traders are obligated to report options to the AQMD within five business days of reaching an agreement. These reports are posted on the AQMD website. There was no trade involving the contingent right (option) to buy or sell RTCs in calendar year 2011.

As in prior years, RTCs were used in other programs during calendar year 2011. A total of 95.6 tons of NOx RTCs and 21.3 tons of SOx RTCs were surrendered to mitigate impacts from construction projects under the California Environmental Quality Act and to satisfy variance conditions. These consisted solely of discrete year RTCs. The majority of surrendered NOx RTCs (97.6%) were used to mitigate impacts from construction projects, and the remaining surrendered NOx RTCs (2.4%) were used to satisfy excess emissions under variance conditions. All surrendered SOx RTCs were used to satisfy excess emissions under variance conditions.

CHAPTER 3 EMISSION REDUCTIONS ACHIEVED

Summary

For Compliance Year 2010, aggregate NOx emissions were below total allocations by 29% 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 2010. 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 has clearly achieved its targeted emission reductions.

Background

One of the major objectives of the annual RECLAIM program audits is to assess whether RECLAIM is achieving its targeted emission reductions. The annual allocations issued to RECLAIM facilities reflect required emission reductions initially from the subsumed command-and-control rules and control measures, and from subsequent rule amendments reflecting BARCT. In January 2005, the Board adopted an amendment to Rule 2002 to further reduce RECLAIM NOx allocations to implement the latest BARCT. The amendments to Rule 2002 called for the NOx allocation reductions to be phased in during Compliance Years 2007 through 2011. These changes will result in cumulative NOx allocation reductions of 22.5% from all RECLAIM facilities when fully implemented in Compliance Year 2011, with the biggest single-year reduction of 11.7% in Compliance Year 2007. All emissions data presented in this annual audit report are compiled from audited facility emissions.

Emissions Audit Process

Since the inception of the RECLAIM program, AQMD has conducted annual 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.

AQMD staff adjusts the APEP-reported emissions based on audit results, as necessary. Whenever AQMD 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 emissions for each facility are posted on AQMD's web page after the audits are completed.

This annual RECLAIM audit report reflects audited NOx and SOx emissions data for Compliance Year 2010. Staff is currently working with one remaining facility located on Catalina Island to resolve validity of CEMS data issues that need further analysis. The impact of this analysis is not expected to change the overall findings related to the RECLAIM program's aggregate compliance. However, any necessary adjustment to this one facility's audit will be reflected in next year's annual RECLAIM audit report.

Emission Trends and Analysis

RECLAIM achieves its emission reduction goals on an aggregate basis by ensuring that annual emissions in total are below allocations. 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. Issues related to two facilities' Compliance Year 2009 NOx emissions were resolved and staff updated Table 3-1 to reflect a net decrease in Compliance Year 2009's aggregate NOx emissions of 17 tons from a total of 7,317 tons to a total of 7,300 tons. Table 3-1 and Figure 3-1 show aggregate NOx emissions based on audited emission data for Compliance Years 1994 through 2010.

Table 3-1 and Figure 3-1 show that, programmatically, there were excess NOx RTCs remaining after accounting for fully audited NOx emissions for every compliance year since 1994, except for Compliance Year 2000 when NOx emissions exceeded the total RTC allocations for that year due to the California energy crisis. Since 2005, RECLAIM annual NOx emissions have been below total allocations (*i.e.*, the RECLAIM emission reduction goal) by at least 20 percent. For Compliance Years 2009 and 2010, the leftover NOx RTCs totaled 30 and 29 percent of the aggregate allocations, respectively, even though there was a programmatic reduction in RECLAIM NOx allocations adopted by the Governing Board as part of the January 2005 rule amendments. There may be other forces at play to cause such results in addition to actual emission reductions implemented through the application of air pollution control systems by RECLAIM facilities. Potentially, the effects of the nation's economic downturn and slow recovery over the last few years may also be contributing to lower aggregate emissions in the RECLAIM universe.

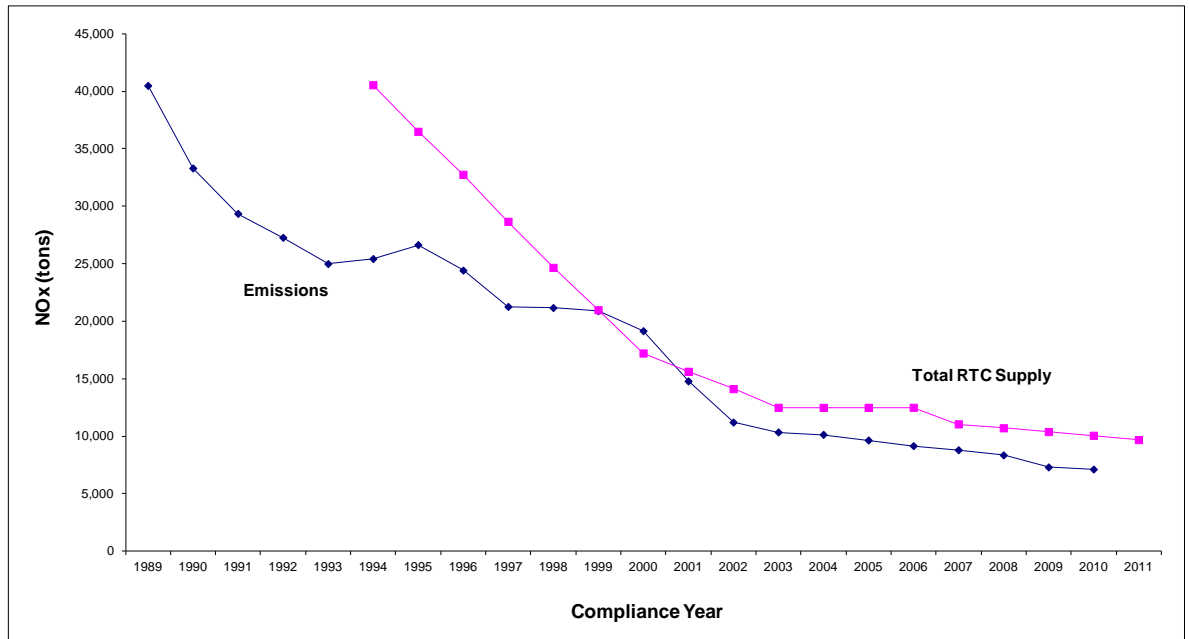
Table 3-1
Annual NOx Emissions for Compliance Years 1994 through 2010

Compliance Year	Audited Annual NOx Emissions¹ (tons)	Audited Annual NOx Emissions Change from 1994 (%)	Total NOx RTCs² (tons)	NOx RTCs Left Over (tons)	NOx RTCs Left Over (%)
1994	25,420	0%	40,534	15,114	37%
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	8,794	-65%	11,046	2,252	20%
2008	8,346	-67%	10,705	2,359	22%
2009	7,300	-71%	10,377	3,077	30%
2010	7,116	-72%	10,053	2,937	29%

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 = Allocations + Converted ERCs.

**Figure 3-1
NOx Emissions and Available RTCs**



Similar to Table 3-1 and Figure 3-1 for NOx, Table 3-2 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. Furthermore, after resolving outstanding issues related to one facility's Compliance Year 2009 SOx emissions, staff updated Table 3-2 to reflect a net decrease in Compliance Year 2009's aggregate SOx emissions of 3 tons from a total of 2,949 tons to a total of 2,946 tons. As shown in Table 3-2 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 2010, SOx emissions were below total allocations by 35%. Similar to NOx RTC leftovers, the SOx RTCs leftovers for the last three compliance years, inclusive of Compliance Year 2010, remain in excess of 20%. 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 updated emissions taken from audited 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.

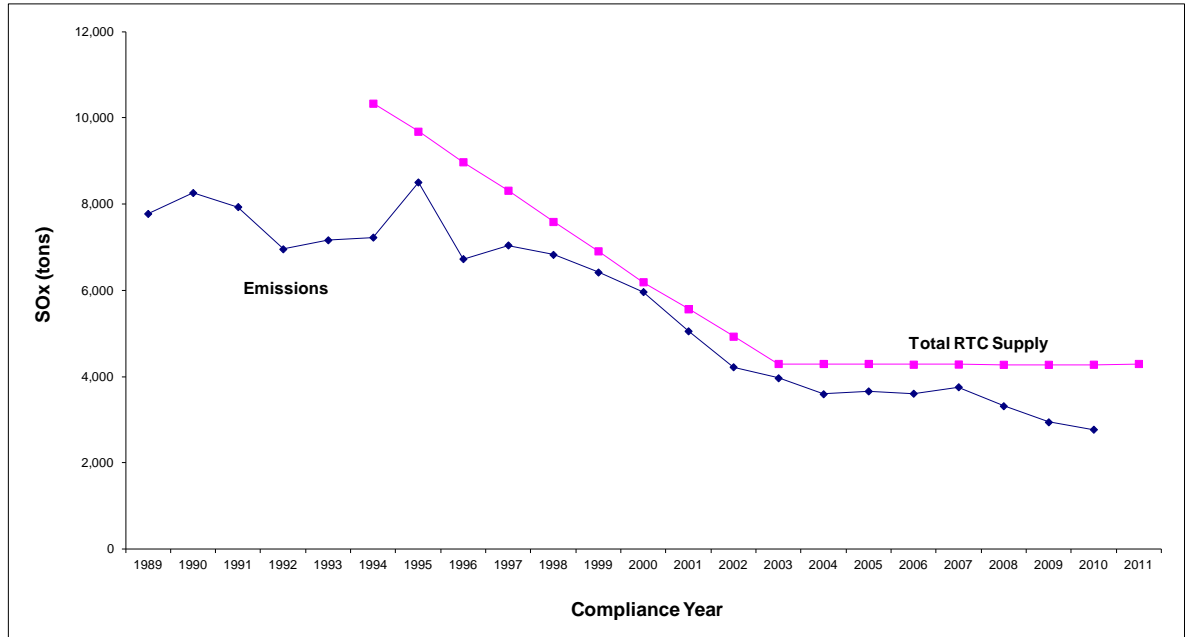
Table 3-2
Annual SOx Emissions for Compliance Years 1994 through 2010

Compliance Year	Audited Annual SOx Emissions¹ (tons)	Audited Annual SOx Emissions Change from 1994 (%)	Total SOx RTCs² (tons)	SOx RTCs Left Over (tons)	SOx RTCs Left Over (%)
1994	7,230	0%	10,335	3,105	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%

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 = Allocations + Converted ERCs.

**Figure 3-2
SOx Emissions and Available RTCs**



Comparison to Command-and-Control Rules

RECLAIM subsumed a number of command-and-control rules¹ 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 and 2012, respectively. During Compliance Year 2010, one of the subsumed rules, Rule 1110.2 – Emissions from Gaseous and Liquid-Fueled Engines was amended on July 9, 2010 and affected gaseous- and liquid-fueled engines producing more than 50 brake-horsepower. The purpose of this rule amendment was to add an exemption for internal combustion engines operated at one remote public safety communication facility in southwestern Riverside County on Santa Rosa Peak at over 7,400 foot altitude that does not have access to electric power or natural gas. Due to the location of the site having limited access during winter, this exemption allows the use of diesel generators. This amended rule did not impose a category-wide equipment emission limit change, but rather exempted a single non-RECLAIM facility from meeting its current command-and-control emission limit.

Another rule amended twice in Compliance Year 2010, Regulation IX – Standards of Performance for New Stationary Sources, had the potential to impact NOx or SOx sources at RECLAIM facilities. However, since Regulation IX was not subsumed by RECLAIM rules, the requirements of both amendments to Regulation IX would apply equally to equipment at facilities under both command-and-control rules and RECLAIM.

¹ See Tables 1 and 2 of Rule 2001.

Amended March 5, 2010, Regulation IX incorporated new or amended federal standards by reference. Three actions enacted by USEPA in 2009, and incorporated by reference, affect facilities with fossil fuel-fired steam generators and industrial-commercial-institutional steam generating units; industries using stationary combustion turbines; and industries preparing and processing coal. These new source performance standards cover compliance alternatives for fossil fuel-fired steam generators and industrial-commercial-institutional steam generating units; amendment of SO_x standards for certain stationary combustion turbines burning low-sulfur content biogas; and revision of some emission limits for certain equipment at coal preparation and processing plants.

On March 4, 2011 Regulation IX was again amended to incorporate by reference federal New Source Performance Standards (NSPS). Specifically, this action incorporated Subparts A and F– General Provisions, and New Source Performance Standards for Portland Cement Plants (USEPA effective date November 8, 2010, Reference: 75 FR54970, Vol. 75, No. 174, September 9, 2010). This amendment contained: 1) additional or revised emission limits for particulate matter (PM), opacity, nitrogen dioxide (NO₂), and sulfur dioxide (SO₂) for facilities that commenced construction, modification, or reconstruction after June 16, 2008; and, 2) additional testing and monitoring requirements for affected sources.

Program Amendments

During Compliance Year 2010, two new amendments to Regulation XX were adopted by AQMD's Governing Board: Rule 2002 – Allocations for Oxides of Nitrogen (NO_x) and Oxides of Sulfur (SO_x) on November 5, 2010, and Rule 2005 – New Source Review for RECLAIM on June 3, 2011. As discussed in Chapter 2 and Chapter 3 of last year's "Annual RECLAIM Audit Report for 2009 Compliance Year," the amendment to Rule 2002 was in response to USEPA's "Clean Air Fine Particle Implementation Rule" in March of 2007, whereby non-attainment areas are required to meet particulate matter with aerodynamic diameter less than 2.5 microns (PM_{2.5}) standards by 2010. Since the 2007 AQMP identified NO_x and SO_x reductions as the two most effective tools in reaching attainment with the PM_{2.5} standards, the 2007 AQMP revision included both a formal request to extend USEPA's PM_{2.5} attainment date to 2015, and Control Measure CMB-02 ("Further SO_x Reductions for RECLAIM"), which estimated that implementation of SO_x BARCT could achieve at least three tons per day SO_x emission reductions from 2011 to 2014. The amendment to Rule 2002 will result in an overall reduction of 5.7 tons SO_x per day when fully implemented in 2019 (the reductions are being phased in from 2013 through 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 5.7 tons per day in 2019 and after).

In response to AQMD Governing Board Chairman Burke's "Helping Hand Initiative for 2009" at the January 9, 2009 Board Meeting to provide enhanced customer service to permit applicants and permit holders, the Governing Board amended Rule 2005 on June 3, 2011 by revising the RTC hold requirement to make it less burdensome for facilities while continuing to comply with the federal NSR and state no net increase (NNI) in emissions requirements. Rule 2005 required RECLAIM facilities that had an emissions increase subject to NSR since October 1993, to hold RTCs at the beginning of each compliance year equal to

the increase in its maximum potential emissions. The evaluation of emission increases is performed on a device-by-device basis, so any time a new NO_x- or SO_x-emitting RECLAIM device is installed it triggers the RTC hold requirement, regardless if the new device is replacing an older device and is lower-emitting than the one being replaced. Therefore, as time goes on, this type of emission increases, and the associated aggregate hold requirement, continues to grow even as aggregate emissions decline. As a result, there was concern that facilities would find themselves unable to modernize simply because they would not be able to obtain sufficient RTCs to satisfy the hold requirement at the beginning of a compliance year due to the built-in decreasing allocations, despite the requirement to reconcile all actual emissions from that unit on a quarterly basis and at the end of the compliance year. The RTC hold requirement applied even if the net impact of the facility's modernization effort was a reduction in RECLAIM emissions. The amount of RTCs required to be held is equal to the maximum potential emission level rather than the anticipated actual emission level. Additionally, this also could create an artificially high demand for RTCs at the beginning of a compliance year because actual emissions are generally less than maximum potential to emit. The held RTCs are not allowed to be traded until either the end of a compliance year or the end of a quarter, if the permit so allows. Generally, the value of RTCs declines as they approach their expiration date. This increases the operating cost of a new lower emitting source without any emission benefits (*i.e.*, the RTCs are required to be held when their cost is higher than the price they can be sold at the end of the holding period).

The amendment to Rule 2005 alleviated the impacts of the RTCs holding requirement for facilities initially permitted prior to the October 1993 adoption of RECLAIM that do not emit at a level higher than their starting allocations (plus Non-tradable/Non-usable RTCs for Compliance Year 1994), while continuing to satisfy federal emissions offset requirements. Specifically, amended Rule 2005 only subjects facilities that held AQMD permits prior to the October 1993 adoption of RECLAIM to the hold requirement for the first year after each increase in potential emissions. USEPA published a notice in the Federal Register [Federal Register Volume 76, Number 244 (Tuesday, December 20, 2011), pp.78829-78831] informing the public that it would be issuing a direct final rule approving Rule 2005, as amended by the Governing Board on June 3, 2011 into the SIP, on February 21, 2012 unless it received adverse comments prior to January 19, 2012. As of the closing date for adverse comments, none were received.

Backstop Provisions

Rule 2015 requires that AQMD 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 average annual price of RTCs exceeds \$15,000 per ton. Compliance Year 2010 aggregate NO_x and SO_x emissions were both below aggregate allocations as shown in Figures 3-1 and 3-2. At the same time, average annual prices for NO_x and SO_x RTCs in calendar year 2010 were below \$15,000 per ton, as shown in Chapter 2. Therefore, there is no need to initiate a program review.

Breakdowns

Pursuant to Rule 2004(i) – Breakdown Provisions, a facility may request that emissions in excess of normal emission levels 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 AQMD staff 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 audit report, Rule 2015(d)(3) requires AQMD to determine whether excess emissions approved for exclusion from securing RTCs to cover their emissions have been programmatically offset by unused RTCs within the RECLAIM program. If the breakdown emissions exceed the unused RTCs, 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 audit report in an amount sufficient to offset the unmitigated breakdown emissions.

As shown in Table 3-3, a review of APEP reports for Compliance Year 2010 found that no facilities requested to exclude breakdown emissions from being counted against their allocations. Thus, for Compliance Year 2010, no additional offsets are required pursuant to Rule 2015(d)(3).

**Table 3-3
Breakdown Emission Comparison for Compliance Year 2010**

Emittant	Unmitigated Breakdown Emissions ¹ (tons)	Compliance Year 2010 Unused RTCs ² (tons)
NOx	0	2,937
SOx	0	1,507

¹ Data for unmitigated breakdown emissions (not counted against Allocation) as reported under APEP reports.

² Unused RTCs = RTC supply – Audited Emissions. Unused RTCs will be discounted by any unmitigated breakdown emissions, if any.

Impact of Changing Universe

As discussed in Chapter 1, two facilities were included into both the NOx and SOx universes, one facility was included into the NOx universe only, no facilities were excluded, and six facilities in the NOx universe shut down. Staff conducted

an analysis to evaluate the impact on emissions reductions due to these changes in the RECLAIM universe.

Facilities that were in operation prior to October 15, 1993 and are not categorically excluded may choose to enter the program even though they did not initially meet the inclusion criteria. They may also be included by AQMD if their facility-wide emissions increase to four tons or more per year of NO_x or SO_x or both. When one of these facilities enters the program, they are issued RTC allocations based on their operational history using the same methodology applied to facilities in the initial universe. 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. Inclusions also change the rules and requirements that apply to the affected facilities. There were no facilities that were in operation prior to October 15, 1993 that chose to opt-in to the RECLAIM program between July 1, 2010 and June 30, 2011 and none were included into the RECLAIM program based on the Rule 2001 threshold of actual NO_x and/or SO_x emissions greater than or equal to four tons.

Facilities that commenced operation on or after October 15, 1993 as non-RECLAIM facilities can either choose to enter RECLAIM or are included due to actual NO_x or SO_x emissions in excess of four tons or more per year. These facilities are not issued RTCs based on operational history except for those credits converted and issued based on external offsets provided by the facility. When a newly-constructed facility joins the RECLAIM universe, it is required to obtain sufficient RTCs to offset its NO_x or SO_x emissions. These RTCs must be obtained through the trading market and are not issued by AQMD 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. There were two newly-constructed facilities that elected to opt-in between July 1, 2010 and June 30, 2011. One was a NO_x-only facility while the other was a NO_x and SO_x RECLAIM facility.

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 to as a consequence of a facility splitting into two and undergoing a partial change of operator. Therefore, the supplies of NO_x and SO_x RTCs are not impacted. There was one facility included into both the NO_x and SO_x RECLAIM universes between July 1, 2010 and June 30, 2011 resulting from the partial change of operator of an existing RECLAIM facility.

The shutdown of a RECLAIM facility results in a reduction in actual emissions. The shutdown 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. Shutdown 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, six NO_x-only RECLAIM facilities shut down permanently between July 1, 2010 and June 30, 2011.

A facility is excluded from the RECLAIM universe if AQMD 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 between July 1, 2010 and June 30, 2011.

In short, both inclusion of facilities that were initially permitted after the October 1993 adoption of RECLAIM, new facilities and facilities that result from a partial change of operator, and shutdown facilities change the demand for RTCs without changing the supply², 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. Finally, inclusions of facilities that were initially permitted prior to the October 1993 adoption of RECLAIM most likely will affect demand more than supply because even though these facilities are issued RTC allocations based on their operational history, the amount, in many cases, is not enough to offset their current or future operations.

Compliance Year 2010 NOx and SOx audited emissions and initial allocations for facilities that were shutdown, excluded, or included into the program during Compliance Year 2010 are summarized in Tables 3-4 and 3-5.

**Table 3-4
NOx Emissions Impact from the Changes in Universe (Tons)**

Category	Compliance Year 2010 NOx Emissions (tons)	Compliance Year 2010 NOx Initial Allocations (tons)
Shutdown Facilities	2.8	45.6
Excluded Facilities	Not applicable	Not applicable
Included Facilities	1.6 ^a	22.8 ^b
RECLAIM Universe	7,116	10,053

^a These NOx emissions are from the one included facility resulting from a partial change of operator that occurred in the last quarter of the compliance year. The two other included facilities (both opt-ins) had no impact on Compliance Year 2010 emissions because they are new facilities that have not yet started operations.

^b The facility that resulted from a partial change of operator was required to hold enough NOx RTCs to cover its operations during the compliance year. The two opt-in facilities represent new construction and did not receive any initial allocations.

² Facilities that were initially permitted after the October 1993 adoption of RECLAIM and that provided NOx or SOx ERCs to offset their emissions would be issued RTCs corresponding to the ERCs provided.

Table 3-5
SOx Emissions Impact from the Changes in Universe (Tons)

Category	Compliance Year 2010 SOx Emissions (tons)	Compliance Year 2010 SOx Initial Allocations (tons)
Shutdown Facilities	Not applicable	Not applicable
Excluded Facilities	Not applicable	Not applicable
Included Facilities	0.45 ^a	2.45 ^b
RECLAIM Universe	2,775	4,282

^a These SOx emissions are from the one included facility resulting from a partial change of operator that occurred in the last quarter of the compliance year. The second included facility was a NOx-only opt-in that would have no impact on SOx. The third included facility is a NOx and SOx opt-in but had no impact on Compliance Year 2010 emissions because it is a new facility that has not yet started operation.

^b The facility that resulted from a partial change of operator was required to hold enough SOx RTCs to cover its operations during the compliance year. The two opt-in facilities represent new construction and did not receive any initial allocations.

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 2010, a total of 30 NO_x RECLAIM facilities had NSR NO_x emission increases due to expansion or modification, and four SO_x RECLAIM facilities had NSR SO_x emission increases due to expansion or modification. The consistent trend of surplus NO_x and SO_x RTCs over their respective emissions has allowed for expansion and modification by existing facilities.

RECLAIM is required to comply with federal NSR emissions offset requirements at a 1.2-to-1 offset ratio for NO_x emission increases and at least at a 1-to-1 offset ratio for SO_x emission increases on a programmatic basis. In Compliance Year 2010, RECLAIM provided an offset ratio of 34-to-1 for NO_x, demonstrating federal equivalency. RECLAIM inherently complies with the federally-required 1-to-1 SO_x offset ratio for any compliance year provided aggregate SO_x emissions under RECLAIM are lower than or equal to aggregate SO_x allocations for that compliance year. As shown in Chapter 3, there was no programmatic SO_x exceedance during Compliance Year 2010; in fact, there was a surplus of SO_x RTCs. Therefore, RECLAIM more than complied with the federally-required SO_x offset ratio and further quantification of the SO_x offset ratio is unnecessary. Compliance with the federally-required offset ratio also demonstrates compliance with the state NNI requirements for new or modified sources. In addition, RECLAIM requires application of Best Available Control Technology (BACT) for all new or modified sources with emission increases.

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 a facility's ability to expand or modify its operations¹.

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

¹ Federal NSR applies to federal major sources (sources with the potential to emit at least 10 tons of NO_x or 100 tons of SO_x per year for the South Coast Air Basin) and state NNI requirements apply to all NO_x sources and to SO_x 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.

BACT is comparable to California's BARCT. AQMD requires all existing major sources to employ federal BACT/California BARCT and, therefore, is eligible for a 1.2-to-1 offset ratio for ozone precursors (*i.e.*, NO_x and VOC). The federal offset requirement for major SO₂ 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 SO_x standards, SO_x 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 SO_x 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 SO_x and state NNI requirements for both SO_x and NO_x. 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 California BACT/federal Lowest Achievable Emission Rate (LAER) for new or modified sources with emissions increases of RECLAIM pollutants. This provision complies with both the 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 required RECLAIM facilities to provide, 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. After the first year of operation, the same rule also requires RECLAIM facilities to provide sufficient RTCs to offset the annual potential emissions from newly permitted equipment at a 1-to-1 ratio at the commencement of each compliance year. Although RECLAIM allows a 1-to-1 offset ratio for emissions increases, RECLAIM complies with the federal offset requirement by complying with the 1.2-to-1 offset requirement for NO_x on an aggregate basis. This annual audit report assesses NSR permitting activities for Compliance Year 2010 to verify that programmatic compliance of RECLAIM with federal and state NSR requirements has been maintained.

Finally, as mentioned previously in Chapter 3, AQMD's Governing Board approved amendments to Rule 2005 – New Source Review for RECLAIM on June 3, 2011. This rule amendment removed a barrier for facilities to modernize by eliminating the requirement for an existing facility to hold sufficient RTCs in advance of second and subsequent compliance years provided its overall facility emissions remain under its 1994 initial allocations plus non-tradable credits. But for facilities that did not exist prior to October 1993, the requirement to hold sufficient RTCs in advance of second and subsequent compliance years remains unchanged. Also, all RECLAIM facilities must still hold adequate RTCs to

reconcile their emissions during a compliance year pursuant to Rule 2004. USEPA has published notice in the Federal Register regarding its intent to issue a direct final rule effective February 21, 2012, provided that no adverse comments are submitted by January 19, 2012. As mentioned in Chapter 3, the closing date for adverse comments had expired and none were received.

NSR Activity

Evaluation of NSR data for Compliance Year 2010 shows that RECLAIM facilities were able to expand and modify their operations while complying with NSR requirements. During Compliance Year 2010, a total of 30 RECLAIM facilities (18 in Cycle 1 and 12 in Cycle 2) were issued permits to operate, which resulted in a total of 89.28 tons per year of NO_x emission increases from starting operations of new or modified sources, and four SO_x RECLAIM facilities (one facility in Cycle 1 and three facilities in Cycle 2) experienced a total of 0.27 tons per year of SO_x NSR emission increases that resulted from starting operations of new or modified sources. These emission increases were calculated pursuant to Rule 2005(d) – Emission Increase. NSR offset requirements² did not apply to the three new facilities included into RECLAIM mentioned in Chapter 1 because two of them are new power plants under construction that opted to participate in the RECLAIM program (the RTC hold requirement will apply to these facilities at the time of permit to operate issuance), whereas the third facility entered the RECLAIM program due to a partial change of operator without any emission increase. As in previous years, there were adequate unused RTCs (NO_x: 2,937 tons, SO_x: 1,507 tons; see Chapter 3) in the RECLAIM universe for use by new entrants into the program and for existing facilities to expand or increase production.

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 NO_x and at least 1-to-1 for SO_x) 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

² RTC hold requirements under NSR applies when a Permit to Operate is issued.

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 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 where RACT lies 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 were issued to 30 RECLAIM facilities and resulted in 89.28 tons of NOx emission increase pursuant to Rule 2005(d). Therefore, the Compliance Year 2010 NOx programmatic offset ratio calculated from this methodology is 34-to-1 as shown below:

$$\begin{aligned} \text{Offset Ratio} &= \left(1 + \frac{2.937 \text{ tons}}{89.28 \text{ tons}} \right) \text{-to-1} \\ &= 34 \text{-to-1} \end{aligned}$$

RECLAIM continues to generate sufficient excess emissions reductions to provide greater than 1.2-to-1 offset ratio for NOx emissions, as 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 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 excess SOx

RTCs (1,507 tons) when compared to the total SOx emissions during Compliance Year 2010. Therefore, 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 existing 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 the NSR activity in Compliance Year 2010 shows that RECLAIM is in compliance with both state NNI and federal NSR requirements. AQMD 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 2010, two RECLAIM facilities³ were subject to this requirement. The facilities submitted modeling analyses that showed that their NOx/SOx 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), Conoco Phillips Company (Facility ID 800362) was required to submit modeling analysis for its SOx emissions and Mountainview Power Company (Facility ID 121737) was required to submit modeling analysis for its NOx emissions in Compliance Year 2010.

CHAPTER 5 COMPLIANCE

Summary

There were 284 NOx and 32 SOx active facilities in the RECLAIM program at the start of Compliance Year 2010. During Compliance Year 2010, two facilities were included into both the NOx and SOx universes, one facility was included only into the NOx universe, no facilities were excluded, and six facilities in the NOx universe shut down. Of these 287 NOx RECLAIM Facility Permit holders during Compliance Year 2010, 265 facilities (92%) complied with their NOx allocations, and all of the SOx facilities (100%) complied with their SOx allocations. The 22 NOx facilities that exceeded their NOx allocations had aggregate NOx emissions of 374 tons and did not have adequate allocations to offset 51.3 tons (or 14%) of their emissions. This exceedance amount is small compared to the overall allocations for Compliance Year 2010 (0.5% of NOx allocations). The exceedances from these 22 facilities did not impact RECLAIM emission reduction goals. The overall RECLAIM NOx and SOx emission reduction targets and goals were met for Compliance Year 2010 (i.e., aggregate emissions for all active 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, specific and detailed MRR protocols are specified in the RECLAIM regulation to guarantee 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. 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, each RECLAIM facility received an annual allocation for each compliance year. For an existing facility new to the program, annual allocations are issued according to the same methodology used for those facilities that were included at the start of the program. However, 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. These facilities are issued RTCs, on an annual basis, converted from the amount of offsets provided and/or any ERCs generated at and held by the individual facility itself. 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 to further reduce emissions, buy RTCs, or sell unneeded RTCs.

At the end of the reconciliation period for each quarter and each compliance year, a RECLAIM facility must hold sufficient RTCs in its allocation account to cover its quarterly as well as year-to-date emissions for the compliance year. Facilities may buy RTCs at any time during the year in order to ensure that their emissions are covered or trade excess RTCs. In addition, at the end of each compliance year, there is a 60-day reconciliation period during which facilities have a final opportunity to buy or sell RTCs for that compliance year. 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 QCERs and/or APEP report, respectively.

Compliance Audit

Since the beginning of the program, AQMD has conducted annual 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, operational records, and emissions calculations in order to verify emissions reported electronically to AQMD or submitted in QCERs and APEP reports. These inspections revealed that some facilities made errors in quantifying their emissions such as arithmetic errors, used incorrect emission factors or adjustment factors (*e.g.*, pressure correction factors and bias adjustment factors), used emission calculation methodologies not allowed under the rules, used MDP inappropriately, or did not use MDP when required. Other common mistakes included reporting non-RECLAIM emissions and/or excluding reportable emissions.

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. Emissions data are ensured to be valid and reliable through this extensive and rigorous audit process.

Compliance Status

At the beginning of Compliance Year 2010, there were 284 NO_x RECLAIM facilities and 32 SO_x facilities. As stated in Chapter 1, two facilities were included into both the NO_x and SO_x universe, one facility was included only into the NO_x universe, and six NO_x-only facilities ceased operations during Compliance Year 2010. During this compliance year, a total of 22 RECLAIM facilities failed to reconcile their NO_x emissions and no facility exceeded its SO_x Allocations. Of these 22 facilities, 14 facilities failed to secure sufficient RTCs to cover their reported emissions during either the quarterly or annual year-to-date reconciliation periods as confirmed through audits. In addition to failing to secure sufficient RTCs to cover their reported emissions, audits for six of these 14 facilities revealed additional reasons for exceedance related to incorrect fuel usage, arithmetic errors, using incorrect emission factors, and omitting emissions from reportable sources. The remaining eight facilities exceeded their allocations as a result of recalculation of their emissions during the audit of the facility.

One facility exceeded its allocation because it failed to account for all reportable emissions in one quarter due to a calculation error. Another facility exceeded its allocation because the facility failed to account for emissions from contractor-owned portable internal combustion engines as well as from equipment exempt from obtaining a written permit pursuant to Rule 219. The third facility exceeded its allocation because it failed to apply MDP on process unit equipment and equipment exempt from obtaining a written permit pursuant to Rule 219 because of invalid fuel usage data. The fourth facility exceeded its allocation because the audit showed it failed to apply the correct form of MDP on process unit and equipment exempt from obtaining a written permit pursuant to Rule 219. The fifth facility exceeded its allocation because it used an incorrect emission factor and an incorrect higher heating value to calculate large source and process unit emissions. The sixth facility exceeded its allocation because it incorrectly determined fuel usage for its process unit internal combustion engines. The seventh facility exceeded its allocation because it incorrectly calculated emissions from equipment exempt from obtaining a written permit pursuant to Rule 219. In the eighth case, the facility exceeded its allocation because MDP was not applied to 21 days of data when the CEMS certification lapsed.

Overall, the allocation compliance rate is 92% (265 out of 287 facilities) for NO_x RECLAIM facilities and 100% for SO_x RECLAIM facilities. The 22 facilities, which had NO_x emissions in excess of their individual NO_x allocations, had 374 tons of NO_x emissions and did not have adequate RTCs to cover 51.3 tons (or 14%) of their emissions. This amount is 0.5% of aggregate NO_x allocations for Compliance Year 2010.

Impact of Missing Data Procedures

MDP was designed to provide a method for determining emissions when an emission monitoring system fails to 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 Emission 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 in the 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 emissions².

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 greater than four quarters 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, 93 NOx facilities and 23 SOx facilities used MDP in reporting their annual emissions during Compliance Year 2010. In terms of mass emissions, 7.0% of the total reported NOx emissions and 6.1% of the total reported SOx emissions in the APEP reports were calculated using MDP for Compliance Year 2010. Table 5-1 compares the impact of MDP on reported annual emissions for the last few compliance years and the second compliance year, 1995 (MDP was not fully implemented during Compliance Year 1994).

**Table 5-1
MDP Impact on Annual Emissions**

Emittant	Percent of Reported Emissions Using Substitute Data *							
	1995	2004	2005	2006	2007	2008	2009	2010
NOx	23.0% (65/6,070)	8.3% (106/824)	3.0% (88/359)	2.5% (48/220)	5.6% (78/489)	7.6% (86/625)	7.8% (103/554)	7.0% (93/488)
SOx	40.0% (12/3,403)	10.4% (16/373)	3.6% (15/161)	0.0% (0/0)	7.0% (14/262)	7.5% (9/242)	13.8% (15/403)	6.1% (23/168)

* 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

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 when data is not available.

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 NO_x facilities implementing MDP in Compliance Year 1995, 93 facilities reported NO_x emissions using MDP in Compliance Year 2010. Even though this number of facilities is higher than in 1995, the percentage of emissions reported using MDP during Compliance Year 2010 is much lower than it was in 1995 (7.1% compared to 23%). Additionally, in terms of quantity, NO_x emissions in Compliance Year 2010 were 8% of those in Compliance Year 1995 (488 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 of 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 7% of NO_x annual emissions were calculated using MDP in Compliance Year 2010. 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 7% 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 2010, a majority of NO_x MDP emissions data (60%) as well as SO_x MDP emissions data (91%) 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.

Emissions Monitoring

Overview

The reproducibility of reported RECLAIM facility emissions—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 NO_x sources into major sources, large sources, process units, and equipment exempt from obtaining a written permit pursuant to Rule 219. All SO_x 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 Emission Monitoring System (CEMS)	Fuel Meter or Continuous Process Monitoring System (CPMS)	Fuel Meter, Timer, or CPMS
Reporting Frequency	Daily	Monthly	Quarterly

Continuous Emission 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, which are relatively few in number but represent a majority of the total emissions from all equipment. Based on emissions reported in the QCERs, 75% of all RECLAIM NOx emissions come from major sources and 91% of all RECLAIM SOx emissions come from major sources.

Alternatives to CEMS, or Alternative Continuous Emission Monitoring Systems (ACEMS), 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 the AQMD to be equivalent to CEMS in relative accuracy, reliability, reproducibility, and timeliness.

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.

Standing Working Group on RECLAIM CEMS Technical Issues

CEMS technical issues, which delayed certification of some CEMS, arose over the course of RECLAIM implementation. To address these issues and further

assist facilities in complying with major source monitoring requirements, a Standing Working Group (SWG) on RECLAIM CEMS Technical Issues was formed to provide a forum in which facility representatives, consultants and AQMD staff could discuss and work out technically-sound and reasonable solutions to CEMS issues. In the past, the SWG met quarterly to discuss progress and also bring up new issues. However, since existing issues have been resolved and new issues are infrequent and addressed on a case-by-case basis, the SWG currently is only convened as necessary.

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 the AQMD 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: $\pm 20\%$ for pollutant concentration, $\pm 15\%$ for stack flow rate, and $\pm 20\%$ 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 2010 and 2011 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 2010**

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
428	100	104	100	21	100	62	100	395	100	428	100	80	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 2011¹

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
372	100	76	100	15	100	61	100	346	100	372	100	65	100

¹. All passing rates calculated from data submitted before January 10, 2012 and may exclude some data from the fourth quarter of calendar year 2011.

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/SO₂ 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.

Electronic Data Reporting of RATA Results

Facilities operating CEMS under RECLAIM are required to submit RATA results. Traditionally, these results are presented in formal source test reports. AQMD, with help of the SWG, set up an electronic reporting system, known as Electronic Data Reporting (EDR), to allow RATA results to be submitted on storage media such as floppy diskettes, compact discs (CDs) and digital video discs (DVDs), or by electronic mail using a standardized format. This system minimizes the amount of material the facility must submit to AQMD and also facilitates the RATA review process. With this added option, almost all facilities have employed the EDR system to report RATA results, which has helped AQMD expedite the review process. About 97% of RATA results were submitted using EDR in calendar year 2010 and about 99% in calendar year 2011.

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 the equipment's concentration limit or emission rate. Since emissions are 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 either the fuel-based calculations for 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. Additionally, 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 is designed to take advantage of electronic reporting technology to streamline reporting requirements for both facilities and AQMD, and to help automate compliance tracking. Under RECLAIM, facilities report their emissions electronically on a per device basis to AQMD's Central Station computer as follows:

- Major sources must use a Remote Terminal Unit (RTU) to telecommunicate emission data to the AQMD 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 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, the existing AQMD internet based application, Web Access To Electronic Reporting System (WATERS), was upgraded January 2005 to allow RECLAIM facilities 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 the AQMD 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 AQMD 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.

A Compliance Advisory (dated December 6, 2011) was mailed to all RECLAIM facilities to provide guidance regarding the minimum recordkeeping standards for equipment exempt from obtaining a written permit pursuant to Rule 219, and to clarify the emission monitoring and quantification requirements for equipment that use pilot lights. As indicated in the advisory, the provisions in the advisory will be effective and enforced beginning April 1, 2012.

CHAPTER 6 REPORTED JOB IMPACTS

Summary

This chapter compiles data as reported by RECLAIM facilities in their Annual Permit Emissions Program (APEP) report. The analysis focuses exclusively on job impacts at RECLAIM facilities and if those job impacts were directly attributable to RECLAIM as reported by those facilities. There may be additional effects 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) and also factors other than RECLAIM (e.g., the current economic downturn), that impact the job market. These factors are not evaluated in this report.

According to the Compliance Year 2010 employment survey data gathered from APEP reports, RECLAIM facilities reported a net gain of 1,094 jobs, representing 1.06% of their total employment. One facility (0.35% of the active facilities) indicated that the RECLAIM program resulted in two job gains at its facility. Among the facilities that reported job losses, the indicated reasons for these losses were attributed to factors other than RECLAIM. Six RECLAIM facilities were listed as shutdown during Compliance Year 2010. None of these facilities reported on their APEP report that RECLAIM was a contributing factor in their decision to close. One facility identified in this report as shutdown was actually not built.

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 on the forms the number of jobs at the beginning of Compliance Year 2010 and any changes that took place during the compliance year in each of three categories: manufacturing, sale of products, and non-manufacturing. The number of jobs gained and lost reported by facilities in each category during the compliance year was tabulated.

Additionally, the APEP reports ask facilities that shutdown during Compliance Year 2010 to provide the reasons for their closure. The APEP reports also allow facilities to indicate whether the RECLAIM program led to the creation or elimination of jobs during Compliance Year 2010. 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 are essential in assessing the influence that the RECLAIM program has on these issues. The following discussion represents data obtained from APEP reports submitted to AQMD for Compliance Year 2010 and clarifying information collected by AQMD staff. AQMD staff is not able to verify the reported job impacts information.

Job Impacts

Table 6-1 summarizes job impact data gathered from Compliance Year 2010 APEP reports and follow-up contacts with facilities' staff. It should be noted that 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. A total of 116 facilities reported 8,436 job gains, while 130 facilities reported a total of 7,342 job losses. Net job gains were reported in two of the three categories: sales of products (10), and non-manufacturing (2,650), whereas net job losses were reported in the third category: manufacturing (1,566). Table 6-1 shows a total net gain of 1,094 jobs, which represents a net increase of 1.06% at RECLAIM facilities during Compliance Year 2010.

Table 6-1
Job Impacts at RECLAIM Facilities for Compliance Year 2010

Description	Manufacture	Sales of Products	Non-Manufacture	Total
Initial Jobs	43,115	883	59,468	103,466
Overall Job Gain	2,017	136	6,283	8,436
Overall Job Loss	3,583	126	3,633	7,342
Final Jobs	41,549	893	62,118	104,560
Net Job Change	-1,566	10	2,650	1,094
Percent (%) Job Change	-3.63%	1.13%	4.46%	1.06%
Facilities Reporting Job Gains	83	23	64	116
Facilities Reporting Job Losses	96	27	77	130

Data in Table 6-1 include six RECLAIM facilities that were reported to be shutdown or ceasing operations in Compliance Year 2010 as listed in Appendix C. Two of these facilities reported high manufacturing costs, whereas another two facilities additionally cited a declining demand for products as the reasons for shutting down. The fifth facility was shut down after its operations were consolidated under other facilities within the District. The sixth facility that is listed as shutdown was actually never built. The Permits to Construct were inactivated in May 2007. Hence, the facility is no longer considered an active RECLAIM facility.

Only one facility reported job impacts (gains or losses) attributed to the RECLAIM program (refer to Appendix E). It reported a gain of two jobs to meet the monitoring, reporting and recordkeeping, as well as additional maintenance requirements, of the RECLAIM program. 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 current economic downturn), also impact the job market. Based on the current year and past few years of data collected from RECLAIM

facilities, the job gains or losses attributed only to RECLAIM comprise a very small percentage (less than 2%) of the total number of jobs lost or gained in that period. 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. 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. NOx and SOx emissions in Compliance Year 2010 continued their downward trend (reduced by 2.5% and 5.8%, respectively, compared to Compliance Year 2009). Quarterly calendar year 2010 NOx emissions ranged from approximately two percent below to five percent above the mean NOx emissions for the year. Quarterly calendar year 2010 SOx emissions ranged from approximately seven percent below to nine percent above the year's mean SOx emissions. There was no significant shift in seasonal emissions from the winter season to the summer season. Furthermore, maps of quarterly Compliance Year 2010 emissions were prepared and are presented in this chapter pursuant to Rule 2015(b)(2).

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. Analysis of per capita exposure (the length of time each person is exposed) to ozone in 1998 and 2000 shows that the Basin achieved the December 2000 target for ozone well before the deadline. In fact, Los Angeles County, Orange County, and the South Coast Air Basin overall achieved compliance with the December 2000 target prior to 1994, and Riverside and San Bernardino Counties achieved compliance in 1996. In calendar year 2011, the per capita exposure to ozone 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). 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. Therefore, it can be concluded that the RECLAIM program creates no increased toxic impact beyond what would have occurred with the rules and control measures RECLAIM subsumed, and therefore poses no increased adverse public health impacts.

Background

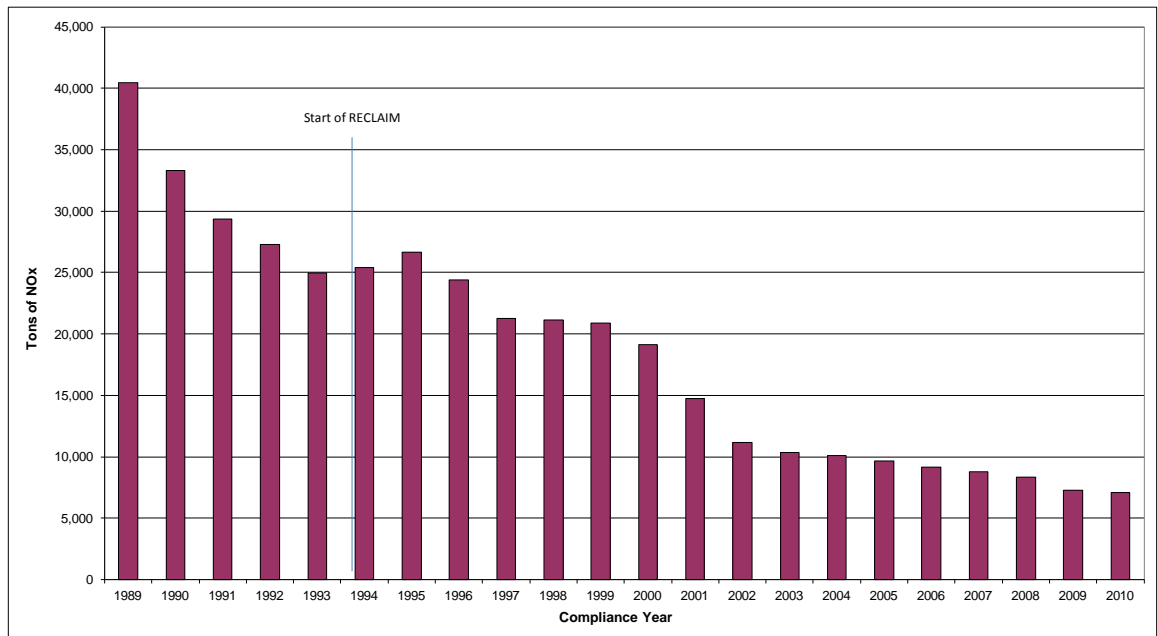
RECLAIM is designed to achieve the same, or higher level of, benefits in terms of air quality and public health as would have been achieved from implementation of the control measures and command-and-control rules that RECLAIM subsumed. Therefore, as a part of each annual program audit, AQMD evaluates per capita exposure to air pollution, toxic risk reductions, emission trends, and seasonal fluctuations in emissions. AQMD also generates quarterly emissions maps depicting the geographic distribution of RECLAIM emissions. This chapter addresses:

- Emission trends for RECLAIM facilities;
- Seasonal fluctuations in emissions;
- Geographic patterns of emissions;
- Per capita exposure to air pollution; and
- Toxics impacts.

Emission Trends for RECLAIM Sources

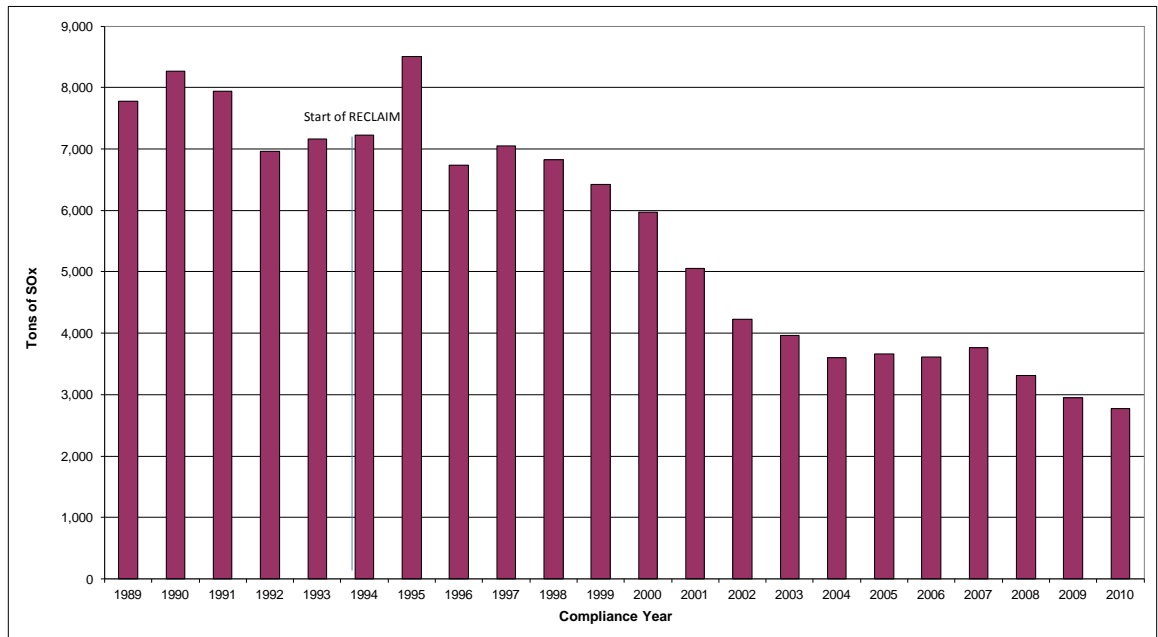
Concerns were expressed during program development that RECLAIM might cause sources to increase their aggregate emissions during the early years of the program due to perceived over-allocation of emissions. In Figures 7-1 and 7-2, which show NOx and SOx emissions from RECLAIM sources since 1989, the analysis of emissions from RECLAIM sources indicates that overall, RECLAIM emissions have been in a downward trend since program inception. Compliance Year 2010 NOx emissions were 2.5% lower and SOx emissions were 5.8% lower than they were in Compliance Year 2009.

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 have decreased every year since Compliance Year 1995. 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 their respective previous compliance year.

The increase in NOx emissions from Compliance Year 1994 to 1995 can be attributed to the application of MDP at the onset of RECLAIM implementation. At RECLAIM's adoption in 1993, facilities with major sources were allowed to report emissions for their first year in the program by quantifying emissions using an emission factor and fuel throughput (interim reporting). This interim period allowed major sources time to certify their CEMS. However, many facilities with major sources had difficulties in certifying their CEMS by the end of the interim period, and consequently, reported emissions using MDP during Compliance Year 1995. 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 by assuming continuous operation at the maximum rated capacity without taking into account efficiency from the use of emissions controls, regardless of the actual operational level during missing data periods. As a result, the application of MDP during this time period yielded substitute data that may have been much higher than the actual emissions. Overall, the figures show that RECLAIM facilities did not increase their aggregate emissions during the earlier years of the program.

Seasonal Fluctuation in Emissions for RECLAIM Sources

During program development, another concern was that RECLAIM might cause facilities to shift emissions from the winter season into the summer ozone season, thus exacerbating poor air quality. To address this concern, AQMD staff analyzed quarterly audited emissions during calendar year 2010 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, 7-4, 7-5, and 7-6.¹

Figure 7-3 shows the 2010 mean quarterly NOx emissions, which is the average of the four quarterly aggregate emissions, versus the 2010 actual quarterly emissions and Figure 7-4 compares the 2010 quarterly NOx emissions with the quarterly emissions from 2002 through 2009. During calendar year 2010, aggregate quarterly NOx emissions varied from about two percent below the mean in the first quarter (January through March) to about five percent above the mean in the fourth quarter (October through December). Furthermore, Figure 7-4 shows that quarters 1, 2, and 3 of 2010 had lower aggregate RECLAIM NOx emissions than the corresponding quarter of any prior year since the program began in 1994. Additionally, the 2010 quarterly aggregate NOx emissions profile is relatively flat for the first three quarters compared to with profiles for several other recent years. Even though NOx emissions for the last quarter of the 2010 quarterly aggregate NOx emissions profile shows an emission increase, which may be attributed to an improvement in the economy, this increase did not result in a seasonal shift. Figures 7-3 and 7-4, together, show that the RECLAIM program has not caused a significant shift in NOx emissions from the winter season into the summer season.

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.

Figure 7-3
Calendar Year 2010 NOx Quarterly Emissions

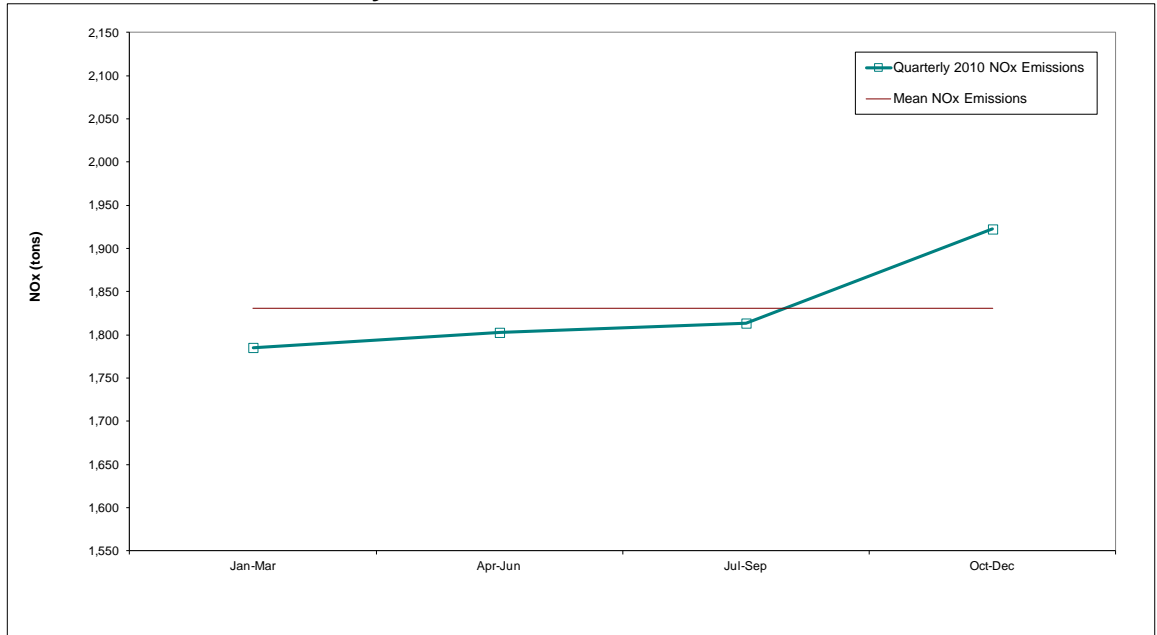


Figure 7-4
Quarterly NOx Emissions from Calendar Years 2002 through 2010

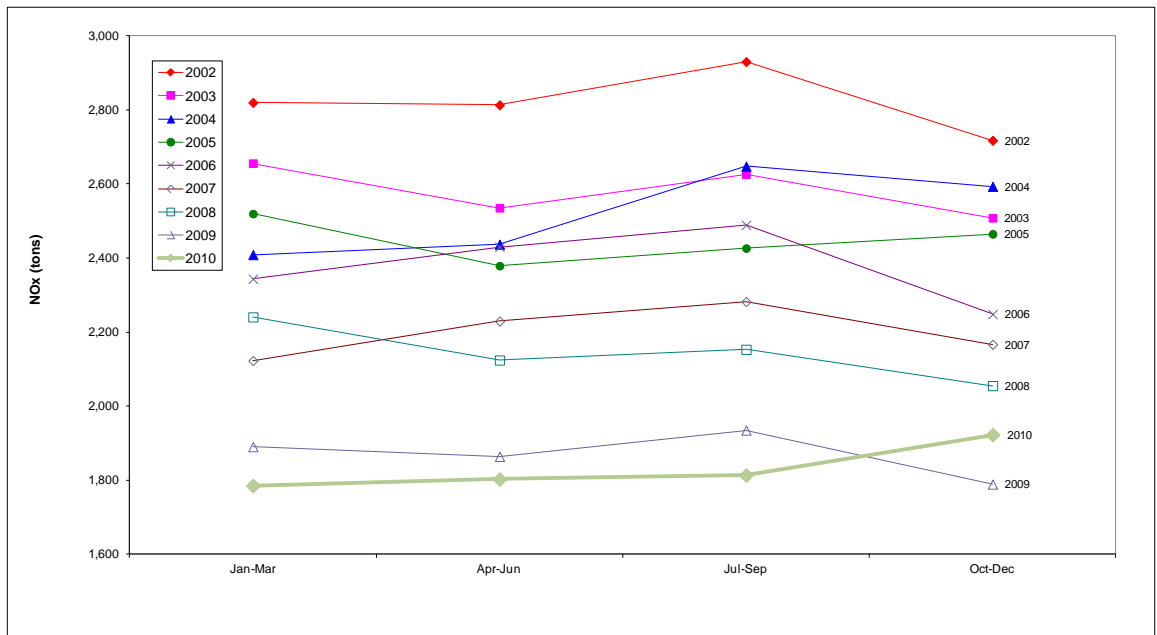


Figure 7-5 presents the 2010 mean quarterly SOx emissions versus the 2010 actual quarterly emissions and Figure 7-6 compares the 2010 quarterly SOx emissions with the quarterly emissions from 2002 through 2009. Figure 7-5 shows that quarterly SOx emissions during calendar year 2010 varied from seven percent below the mean in the second quarter (April through June) to nine percent above the mean in the third quarter (July through September). Figure 7-

6 reveals that the 2010 quarterly aggregate SOx emissions profile was similar to those for previous years.

This analysis shows that the RECLAIM program has not caused a significant shift in SOx emissions from the winter season into the summer season and that the calendar year 2010 seasonal emissions profile was similar to the corresponding profiles for other recent years.

Figure 7-5
Calendar Year 2010 SOx Quarterly Emissions

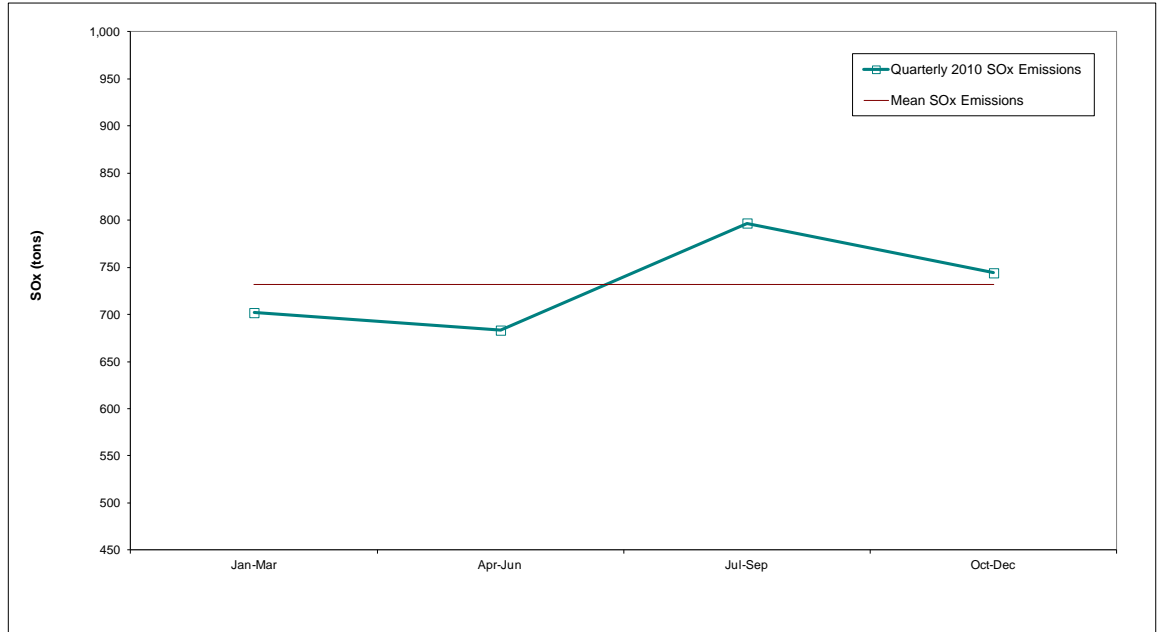
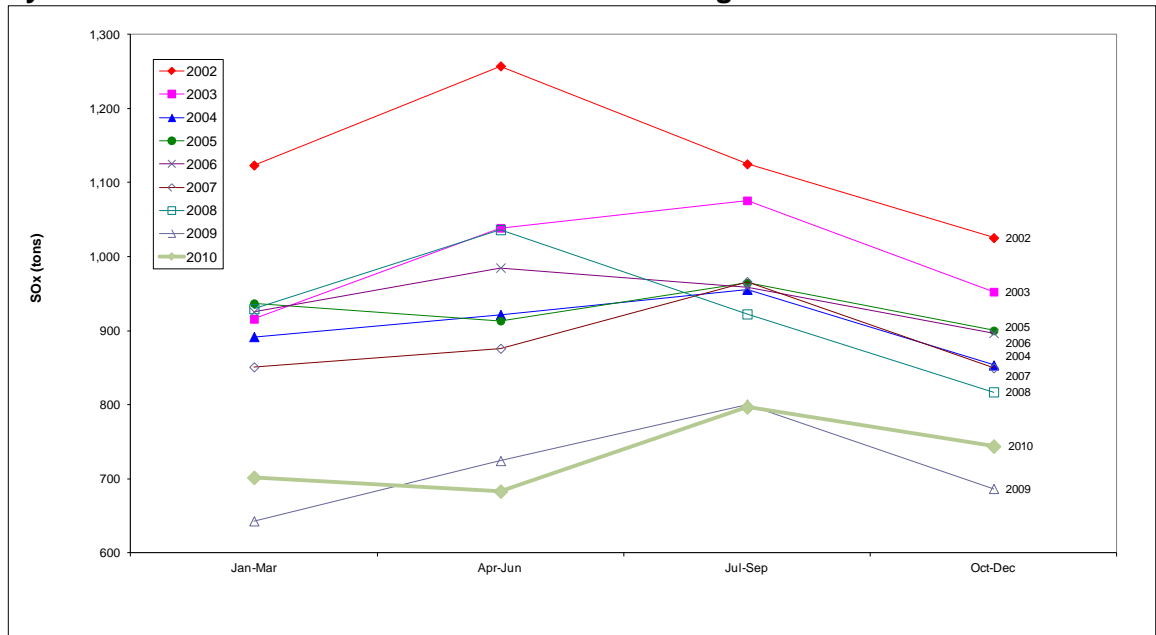


Figure 7-6
Quarterly SOx Emissions from Calendar Years 2002 through 2010



Emission Mapping

As part of this program audit, AQMD staff has also prepared District-wide maps based on the most current sum of certified quarterly emissions pursuant to Rule 2015(b)(2). These maps present the geographical distribution of emissions within the District and are included in Appendices F and G of this report. RECLAIM facilities can increase emissions, as long as they meet BACT requirements for new or modified equipment and provide RTCs to offset any emission increases. However, there are NSR implications if they increase their annual emissions above their Compliance Year 1994 Allocation including Non-tradable/Non-usable credits. This flexibility that a RECLAIM facility has to reduce emissions and/or purchase RTCs from other RECLAIM facilities or RTC holders to offset their emissions presents a potential concern that RECLAIM could alter the geographic distribution of emissions in the Basin and adversely affect air quality in certain areas. In general, RECLAIM NO_x and SO_x emissions are only 2.5% and 19.4%, respectively, of the projected total 2010 Basin-wide emissions inventory.

Grids are superimposed on emission maps as shown in Appendices F and G in order to geographically represent emissions, with shaded cells identifying emission ranges. Starting this year, emission maps are generated by a new computer application and can be used to conduct a grid-by-grid comparison of emissions in a calendar year to the emissions in the previous year. These maps will be posted quarterly on the AQMD's webpage along with copies of the maps prepared based on quarterly emissions and presented in previous annual audit reports.

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. To reflect this revised standard, 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 2011 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 in calendar year 2011, the state 1-hour standard was exceeded on 94 days, which is about the average since 2008. The state 8-hour standard was exceeded on 127 days, which is the lowest number since 2007. As for the federal 8-hour standard, calendar year 2011 shows the lowest number of exceedances since calendar year 2001. Finally, the table shows that in calendar year 2011 the Basin maximum 1-hour and the Basin maximum 8-hour values were 0.16 ppm and 0.136 ppm, respectively, which is about the average since 2005 for both.

**Table 7-1
Summary of Ozone Data**

	Calendar Year										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Days exceeding state 1-hour standard (0.09 ppm)	121	118	133	110	111	102	99	98	100	83	94
Days exceeding state new 8-hour standard (0.07 ppm)	156	149	161	161	142	121	128	136	131	128	127
Days exceeding federal 8-hour standard (0.075 ppm)	132	135	141	126	116	114	108	121	113	109	107
Basin Maximum 1-hour ozone concentration (ppm)	0.191	0.169	0.216	0.163	0.163	0.175	0.171	0.176	0.176	0.143	0.16
Basin Maximum 8-hour ozone concentration (ppm)	0.146	0.148	0.200	0.148	0.145	0.142	0.137	0.131	0.128	0.123	0.136

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 since RECLAIM started in 1994. For calendar year 2011, the actual per capita exposure for the Basin was 2.099 hours, which represents a 97.4% reduction from the 1986-88 baseline level.

² AQMD 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 grids. 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
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 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.

RECLAIM sources are subject to the same air toxic statutes and regulations (e.g., AQMD 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. These regulations ensure that the implementation of

RECLAIM does not result in adverse air toxic health impacts. In addition, 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 these rules apply to non-RECLAIM facilities, in addition to the toxics requirements described above. Sources of fine particulates and toxic metals emissions are also subject to the above-identified regulations pertaining to toxic emissions. Additionally, 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.

In conclusion, implementation of NOx and SOx RECLAIM is not expected to adversely impact air toxic emissions. That is, the substitution of NOx and SOx RECLAIM for the command-and-control rules and the measures RECLAIM subsumes do not result in any significant impact on air toxic emissions; the same toxics requirements and VOC rules and control measures apply in either case; and any emission increases from new or modified sources are controlled by BACT. However, AQMD will continue to monitor and assess toxic impacts as part of future annual audits.

APPENDIX A

RECLAIM UNIVERSE OF SOURCES

The RECLAIM universe of active sources as of the end of Compliance Year 2010, June 30, 2011 is provided below.

Facility ID	Cycle	Facility Name	NOx/SOx
800088	2	3M COMPANY	NOx
104017	1	AERA ENERGY LLC	NOx
23752	2	AEROCRAFT HEAT TREATING CO INC	NOx
115394	1	AES ALAMITOS, LLC	NOx
115389	2	AES HUNTINGTON BEACH, LLC	NOx and SOx
42676	2	AES PLACERITA INC	NOx
115536	1	AES REDONDO BEACH, LLC	NOx
148236	2	AIR LIQUIDE LARGE INDUSTRIES U.S., LP	NOx and 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
140499	2	AMERESCO HUNTINGTON BEACH, L.L.C.	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 INC., (LA BREWERY)	NOx and SOx
117140	2	AOC, LLC	NOx
11640	1	ARLON ADHESIVE SYSTEM/DECORATIVE FILMS	NOx
12155	1	ARMSTRONG WORLD INDUSTRIES INC	NOx
16737	2	ATKINSON BRICK CO	NOx
10094	2	ATLAS CARPET MILLS INC	NOx
117290	2	B BRAUN MEDICAL, INC	NOx
800016	2	BAKER COMMODITIES INC	NOx
117785	1	BALL METAL BEVERAGE CONTAINER CORP.	NOx
800205	2	BANK OF AMERICA NT & SA, BREA CENTER	NOx
40034	1	BENTLEY PRINCE STREET INC	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	NOx/SOx
119907	1	BERRY PETROLEUM COMPANY	NOx
166073	1	BETA OFF SHORE	NOx
155474	2	BICENT (CALIFORNIA) MALBURG LLC	NOx
132068	1	BIMBO BAKERIES USA INC	NOx
149491	2	BOEING REALTY CORP	NOx
115241	1	BOEING SATELLITE SYSTEMS INC	NOx
800067	1	BOEING SATELLITE SYSTEMS INC	NOx
800343	2	BOEING SATELLITE SYSTEMS, INC	NOx
131003	2	BP WEST COAST PROD.LLC BP CARSON REF.	NOx and SOx
131249	1	BP WEST COAST PRODUCTS LLC,BP WILMINGTON	NOx and SOx
98159	2	BREITBURN ENERGY CORP	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 and 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 and 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 and SOx
148925	1	CHERRY AEROSPACE	NOx
800030	2	CHEVRON PRODUCTS CO.	NOx and SOx
56940	1	CITY OF ANAHEIM/COMB TURBINE GEN STATION	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

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	NOx/SOx
16978	2	CLOUGHERTY PACKING LLC/HORMEL FOODS CORP	NOx
800210	2	CONEXANT SYSTEMS INC	NOx
800362	1	CONOCOPHILLIPS COMPANY	NOx and SOx
800363	2	CONOCOPHILLIPS COMPANY	NOx and SOx
38440	2	COOPER & BRAIN - BREA	NOx
68042	2	CORONA ENERGY PARTNERS, LTD	NOx
152707	1	CPV SENTINEL LLC	NOx
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
142536	2	DRS SENSORS & TARGETING SYSTEMS, INC	NOx
800264	2	EDGINGTON OIL COMPANY	NOx and SOx
167432	2	EDISON MISSION HUNTINGTON BEACH, LLC	NOx and SOx
133813	1	EI COLTON, LLC	NOx
115663	1	EL SEGUNDO POWER, LLC	NOx
800372	2	EQUILON ENTER. LLC, SHELL OIL PROD. US	NOx and SOx
124838	1	EXIDE TECHNOLOGIES	NOx and SOx
17344	1	EXXONMOBIL OIL CORP	NOx
25058	2	EXXONMOBIL OIL CORP	NOx
800089	1	EXXONMOBIL OIL CORPORATION	NOx and SOx
800094	1	EXXONMOBIL OIL CORPORATION	NOx
95212	1	FABRICA	NOx
11716	1	FONTANA PAPER MILLS INC	NOx
346	1	FRITO-LAY, INC.	NOx
2418	2	FRUIT GROWERS SUPPLY CO	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	NOx/SOx
142267	2	FS PRECISION TECH LLC	NOx
5814	1	GAINEY CERAMICS INC	NOx
115315	1	GEN ON WEST, INC.	NOx
153033	2	GEORGIA-PACIFIC CORRUGATED LLC	NOx
152857	2	GEORGIA-PACIFIC GYPSUM LLC	NOx
124723	1	GREKA OIL & GAS, INC	NOx
137471	2	GRIFOLS BIOLOGICALS INC	NOx
156741	2	HARBOR COGENERATION CO, LLC	NOx
157359	1	HENKEL CORPORATION	NOx
123774	1	HERAEUS METAL PROCESSING, LLC	NOx
113160	2	HILTON COSTA MESA	NOx
160888	1	HINES REIT EL SEGUNDO, LP	NOx
800066	1	HITCO CARBON COMPOSITES INC	NOx
2912	2	HOLLIDAY ROCK CO INC	NOx
800003	2	HONEYWELL INTERNATIONAL INC	NOx
124619	1	IMPRESS USA INC	NOx
124808	2	INEOS POLYPROPYLENE LLC	NOx and SOx
129816	2	INLAND EMPIRE ENERGY CENTER, LLC	NOx
157363	2	INTERNATIONAL PAPER CO	NOx
106810	2	INTERSTATE BRANDS CORP	NOx
22364	1	ITT CORPORATION	NOx
16338	1	KAISER ALUMINUM FABRICATED PRODUCTS, LLC	NOx
21887	2	KIMBERLY-CLARK WORLDWIDE INC.-FULT. MILL	NOx and SOx
1744	2	KIRKHILL - TA COMPANY	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
115277	1	LAFAYETTE TEXTILE IND LLC	NOx
141295	2	LEKOS DYE AND FINISHING, INC	NOx
144455	2	LIFOAM INDUSTRIES, LLC	NOx
83102	2	LIGHT METALS INC	NOx
151394	2	LINN WESTERN OPERATING INC	NOx

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Facility ID	Cycle	Facility Name	NOx/SOx
151532	2	LINN WESTERN OPERATING INC	NOx
152054	1	LINN WESTERN OPERATING INC	NOx
151415	2	LINN WESTERN OPERATING, INC	NOx
115314	2	LONG BEACH PEAKERS 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 and SOx
38872	1	MARS PETCARE U.S., INC.	NOx
14049	2	MARUCHAN INC	NOx
3029	2	MATCHMASTER DYEING & FINISHING INC	NOx
2825	1	MCP FOODS INC	NOx
115563	1	METAL COATERS OF CALIFORNIA	NOx
94872	2	METAL CONTAINER CORP	NOx
155877	1	MILLERCOORS, LLC	NOx
12372	1	MISSION CLAY PRODUCTS	NOx
141585	1	MOMENTIVE SPECIALTY CHEMICALS, INC.	NOx
121737	1	MOUNTAINVIEW GENERATING STATION	NOx
11887	2	NASA JET PROPULSION LAB	NOx
40483	2	NELCO PROD. INC	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
112853	2	NP COGEN INC	NOx
45471	2	O N I S, DBA, CARMEUSE INDUSTRIAL SANDS	NOx
89248	2	OLD COUNTRY MILLWORK INC	NOx
47781	1	OLS ENERGY-CHINO	NOx
35302	2	OWENS CORNING ROOFING AND ASPHALT, LLC	NOx and SOx
7427	1	OWENS-BROCKWAY GLASS CONTAINER INC	NOx and SOx
151594	1	OXY USA, INC	NOx
151601	1	OXY USA, INC.	NOx
45746	2	PABCO BLDG PRODUCTS LLC,PABCO PAPER, DBA	NOx and SOx
17953	1	PACIFIC CLAY PRODUCTS INC	NOx
59618	1	PACIFIC CONTINENTAL TEXTILES, INC.	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	NOx/SOx
2946	1	PACIFIC FORGE INC	NOx
130211	2	PAPER-PAK INDUSTRIES	NOx
800183	1	PARAMOUNT PETR CORP	NOx and SOx
800168	1	PASADENA CITY, DWP	NOx
133987	1	PLAINS EXPLORATION & PRODUCTION CO, LP	NOx
133996	2	PLAINS EXPLORATION & PRODUCTION COMPANY	NOx
137520	1	PLAINS WEST COAST TERMINALS LLC	NOx
800416	1	PLAINS WEST COAST TERMINALS LLC	NOx
800417	2	PLAINS WEST COAST TERMINALS LLC	NOx
800419	2	PLAINS WEST COAST TERMINALS LLC	NOx
800420	2	PLAINS WEST COAST TERMINALS LLC	NOx
800431	1	PRATT & WHITNEY ROCKETDYNE, INC.	NOx
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	PUREENERGY OPERATING SERVICES, LLC	NOx
132192	1	PUREENERGY OPERATING SERVICES, LLC	NOx
8547	1	QUEMETCO INC	NOx and 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
20543	1	REDCO II	NOx
15544	2	REICHHOLD INC	NOx
52517	1	REXAM BEVERAGE CAN COMPANY	NOx
114801	1	RHODIA INC.	NOx and SOx
61722	2	RICOH ELECTRONICS INC	NOx
139010	2	RIPON COGENERATION LLC	NOx
800182	1	RIVERSIDE CEMENT CO	NOx and SOx
800113	2	ROHR, INC.	NOx
18455	2	ROYALTY CARPET MILLS INC	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	NOx/SOx
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
20203	2	SCOPE PRODUCTS INC, DEXT CO	NOx
14926	1	SEMPRA ENERGY (THE GAS CO)	NOx
37603	1	SGL TECHNIC INC, POLYCARBON DIVISION	NOx
131850	2	SHAW DIVERSIFIED SERVICES INC	NOx
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
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
14871	2	SONOCO PRODUCTS CO	NOx
800338	2	SPECIALTY PAPER MILLS INC	NOx
126498	2	STEELSCAPE, INC	NOx
105277	2	SULLY MILLER CONTRACTING CO	NOx
19390	1	SULLY-MILLER CONTRACTING CO.	NOx
23196	2	SUNKIST GROWERS, INC	NOx
2083	1	SUPERIOR INDUSTRIES INTERNATIONAL INC	NOx
3968	1	TABC, INC	NOx
18931	2	TAMCO	NOx
14944	1	TECHALLOY CO., INC.	NOx and SOx
151798	1	TESORO REFINING AND MARKETING CO	NOx and SOx
800436	1	TESORO REFINING AND MARKETING CO	NOx and SOx
96587	1	TEXOLLINI INC	NOx
148340	2	THE BOEING CO. COMMERCIAL AVIATION SRVCS	NOx
14736	2	THE BOEING COMPANY	NOx
800110	2	THE BOEING COMPANY	NOx
800038	2	THE BOEING COMPANY - C17 PROGRAM	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	NOx/SOx
11119	1	THE GAS CO./ SEMPRA ENERGY	NOx
153199	1	THE KROGER CO/RALPHS GROCERY CO	NOx
11435	2	THE PQ CORP	NOx and SOx
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
800240	2	TIN, INC. TEMPLE-INLAND, DBA	NOx
137508	2	TONOGA INC, TACONIC DBA	NOx
53729	1	TREND OFFSET PRINTING SERVICES, INC	NOx
9053	1	TRIGEN- LA ENERGY CORP	NOx
9217	1	TRIGEN-LA ENERGY CORP	NOx
11034	2	TRIGEN-LA ENERGY CORP	NOx
165192	2	TRIUMPH AEROSTRUCTURES, LLC	NOx
43436	1	TST, INC.	NOx
800026	1	ULTRAMAR INC	NOx and 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
12185	2	US GYPSUM CO	NOx and SOx
1073	1	US TILE CO	NOx
800393	1	VALERO WILMINGTON ASPHALT PLANT	NOx
111415	2	VAN CAN COMPANY	NOx
14502	2	VERNON CITY, LIGHT & POWER DEPT	NOx
115130	1	VERTIS, INC	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 PARK	NOx and SOx
42775	1	WEST NEWPORT OIL CO	NOx and SOx
17956	1	WESTERN METAL DECORATING CO	NOx
51620	1	WHEELABRATOR NORWALK ENERGY CO INC	NOx

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Facility ID	Cycle	Facility Name	NOx/SOx
127299	2	WILDFLOWER ENERGY LP/INDIGO GEN., LLC	NOx
158950	1	WINDSOR QUALITY FOOD CO. LTD.	NOx

APPENDIX B FACILITY INCLUSIONS

As discussed in Chapter 1, three facilities were added to the RECLAIM universe between July 1, 2010 through June 30, 2011. The reasons for the inclusion are also provided.

Facility ID	Cycle	Facility Name	Program	Date	Reason
152707	1	CPV SENTINEL LLC	NOx	4/15/2011	Opt-in at facility request.
146536	1	WALNUT CREEK ENERGY PARK	NOx/SOx	5/5/2011	Opt-in at facility request.
167432	2	EDISON MISSION HUNTINGTON BEACH, LLC	NOx/SOx	5/4/2011	Partial change of operator from an existing facility.

APPENDIX C

RECLAIM FACILITIES CEASING OPERATION OR EXCLUDED

AQMD staff is aware of the following RECLAIM facilities that permanently shut down all operations, inactivated their RECLAIM permits, or were excluded from the RECLAIM universe during Compliance Year 2010. The reasons for shutdowns and exclusions cited below are based on the information provided by the facility and other information available to AQMD staff.

Facility ID	10141
Facility Name	Angelica Textile Services
City and County	Los Angeles, Los Angeles County
SIC	7213
Pollutants	NOx
1994 Allocation, lbs.	10,742
Reason for Shutdown	The facility shutdown and distributed its business to other facilities within the District under their ownership. None of the equipment was moved to any other facility within the District.

Facility ID	15164
Facility Name	Higgins Brick Co.
City and County	Chino Hills, San Bernardino County
SIC	3255
Pollutants	NOx
1994 Allocation, lbs.	76,382
Reason for Shutdown	Declining demand for products, manufacturing, production or raw material cost too high.

Facility ID	18695
Facility Name	US Gypsum Co.
City and County	Santa Fe Springs, Los Angeles County
SIC	3272
Pollutants	NOx
1994 Allocation, lbs.	46,150
Reason for Shutdown	Manufacturing, production or raw material cost too high.

Facility ID	23589
Facility Name	INTERNATIONAL EXTRUSION CORP
City and County	Alhambra, Los Angeles County
SIC	3354
Pollutants	NOx
1994 Allocation, lbs.	35,698
Reason for Shutdown	Declining demand for products and high cost of manufacturing.

Facility ID	65384
Facility Name	Criterion Catalysts & Technologies LP
City and County	Azusa, Los Angeles County
SIC	2819
Pollutants	NOx
1994 Allocation, lbs.	19,607
Reason for Shutdown	Manufacturing, production or raw material cost too high.

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Facility ID	143261
Facility Name	Wellhead Power Colton LLC
City and County	Colton, San Bernardino County
SIC	4911
Pollutants	NOx
1994 Allocation, lbs.	0
Reason for Shutdown	This facility opted into the RECLAIM Program in 2005. However, it was never built and the Permits to Construct were cancelled in May 2007. Hence, the facility is no longer considered an active RECLAIM facility.

APPENDIX D
FACILITIES THAT EXCEEDED THEIR ANNUAL ALLOCATION
FOR COMPLIANCE YEAR 2010

The following is a list of facilities that did not have enough RTCs to cover their NOx emissions in Compliance Year 2010 based on the results of audits conducted by AQMD staff.

Facility ID	Facility Name	Compliance Year
3029	MATCHMASTER DYEING & FINISHING INC	2010
3585	R. R. DONNELLEY & SONS CO, LA MFG DIV	2010
3704	ALL AMERICAN ASPHALT	2010
5998	ALL AMERICAN ASPHALT	2010
7411	DAVIS WIRE CORP	2010
8547	QUEMETCO INC	2010
16338	KAISER ALUMINUM FABRICATED PRODUCTS, LLC	2010
17956	WESTERN METAL DECORATING CO	2010
22364	ITT CORPORATION	2010
61722	RICOH ELECTRONICS INC	2010
83102	LIGHT METALS INC	2010
94930	CARGILL INC	2010
115130	VERTIS, INC	2010
124838	EXIDE TECHNOLOGIES	2010
131732	NEWPORT FAB, LLC	2010
141295	LEKOS DYE AND FINISHING, INC	2010
145836	AMERICAN APPAREL DYEING & FINISHING, INC	2010
151178	PACIFIC ENERGY RESOURCES, LLC	2010
153199	THE KROGER CO/RALPHS GROCERY CO	2010
155221	SAVE THE QUEEN LLC (DBA QUEEN MARY)	2010
800330	THUMS LONG BEACH	2010
800373	CENCO REFINING COMPANY	2010

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.

The detailed information for facilities reporting that RECLAIM contributed to job gains or losses during Compliance Year 2010 is summarized below:

Facilities with actual job gains or losses attributed to RECLAIM:

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	2
Job Loss	0
Comments	Facility cited monitoring, reporting and recording responsibilities, as well as additional maintenance of the Continuous Emissions Monitoring System (CEMS) as the reasons for job gains.

APPENDIX F
QUARTERLY NO_x EMISSION MAPS

**Figure F-1: RECLAIM Facilities
 Certified NOx Emissions (Tons) from 01/2010 to 03/2010**



**Figure F-2: RECLAIM Facilities
 Certified NOx Emissions (Tons) from 04/2010 to 06/2010**



**Figure F-3: RECLAIM Facilities
 Certified NOx Emissions (Tons) from 07/2010 to 09/2010**



**Figure F-4: RECLAIM Facilities
 Certified NOx Emissions (Tons) from 10/2010 to 12/2010**



**Figure F-5: RECLAIM Facilities
 Certified NOx Emissions (Tons) from 01/2010 to 12/2010**



**Figure F-6: RECLAIM Facilities
 Certified NOx Emissions (Tons) from 01/2011 to 03/2011**



**Figure F-7: RECLAIM Facilities
 Certified NOx Emissions (Tons) from 04/2011 to 06/2011**



**Figure F-8: RECLAIM Facilities
 Certified NOx Emissions (Tons) 01/2011 to 06/2011**



APPENDIX G
QUARTERLY SO_x EMISSION MAPS

**Figure G-1: RECLAIM Facilities
 Certified SOx Emissions (Tons) from 01/2010 to 03/2010**



**Figure G-2: RECLAIM Facilities
 Certified SOx Emissions (Tons) from 04/2010 to 06/2010**



**Figure G-3: RECLAIM Facilities
 Certified SOx Emissions (Tons) from 07/2010 to 09/2010**



**Figure G-4: RECLAIM Facilities
 Certified SOx Emissions (Tons) from 10/2010 to 12/2010**



**Figure G-5: RECLAIM Facilities
 Certified SOx Emissions (Tons) 01/2010 to 12/2010**



Legend

- Freeways
- AQMD Boundary
- County Boundary

SOx Emissions (Tons)

- >0-100
- >100-200
- >200-400
- >400-800
- >800-1600
- Over 1600

**Figure G-6: RECLAIM Facilities
 Certified SOx Emissions (Tons) from 01/2011 to 03/2011**



Legend

- Freeways
- AQMD Boundary
- County Boundary

SOx Emissions (Tons)

- >0-150
- >150-300
- >300-450
- >450-600
- >600-750
- Over 750

**Figure G-7: RECLAIM Facilities
 Certified SOx Emissions (Tons) from 04/2011 to 06/2011**



Legend

- Freeways
- AQMD Boundary
- County Boundary

SOx Emissions (Tons)

- >0-150
- >150-300
- >300-450
- >450-600
- >600-750
- Over 750

**Figure G-8: RECLAIM Facilities
Certified SOx Emissions (Tons) 01/2011 to 06/2011**

