

Progress Towards Meeting Upcoming Air Quality Deadlines

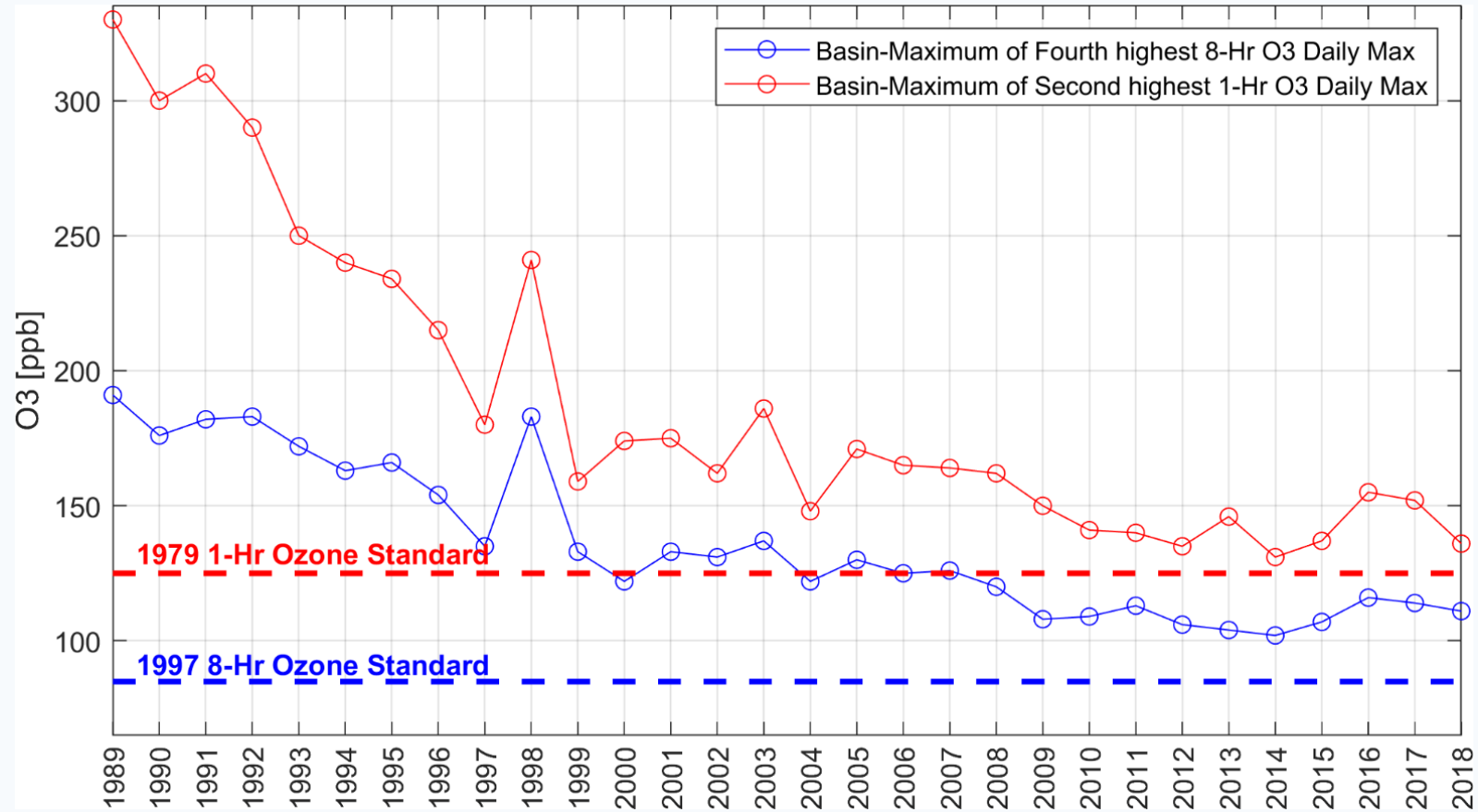
Governing Board Retreat

May 2019

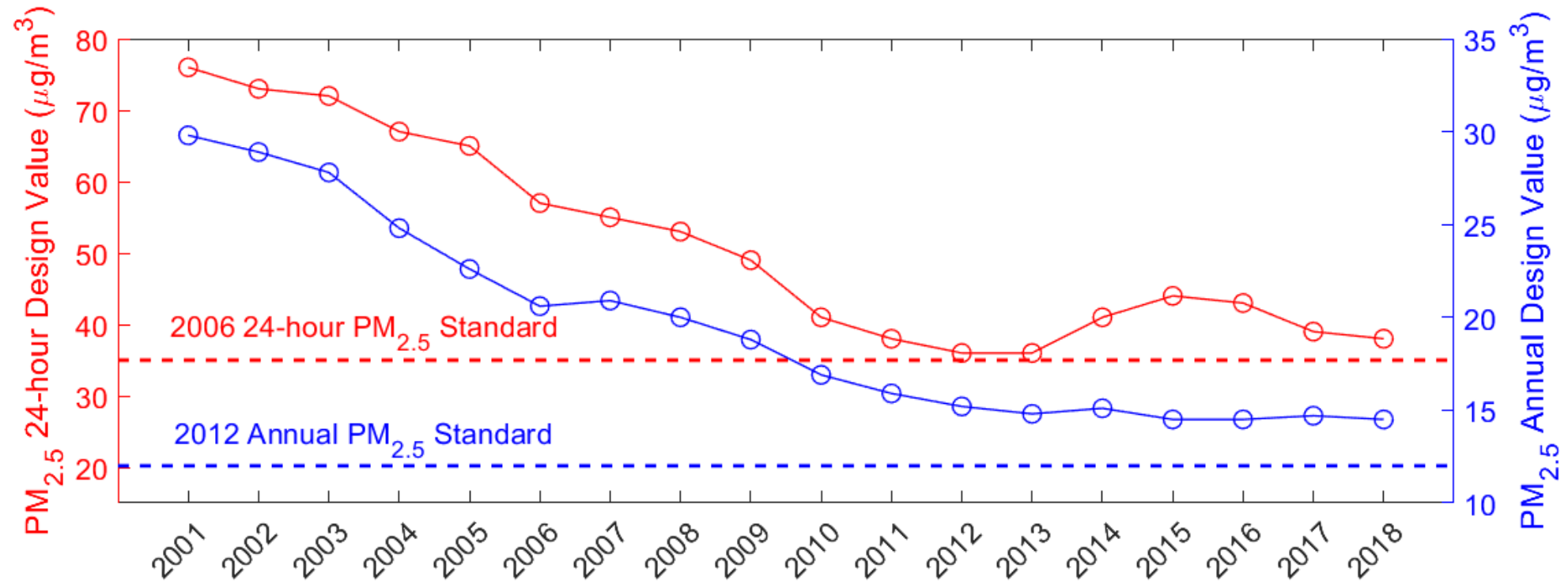
Upcoming Deadlines to Attain National Standards

Standard	Concentration	Classification	Attainment Year
2006 24-hour PM2.5	35 ug/m3	Serious	2019
1979 1-hour Ozone	120 ppb	Extreme	2022
1997 8-hour Ozone	80 ppb	Extreme	2023
2012 Annual PM2.5	12 ug/m3	Serious	2025
2008 8-hour Ozone	75 ppb	Extreme	2031
2015 8-hour Ozone	70 ppb	Extreme	2038

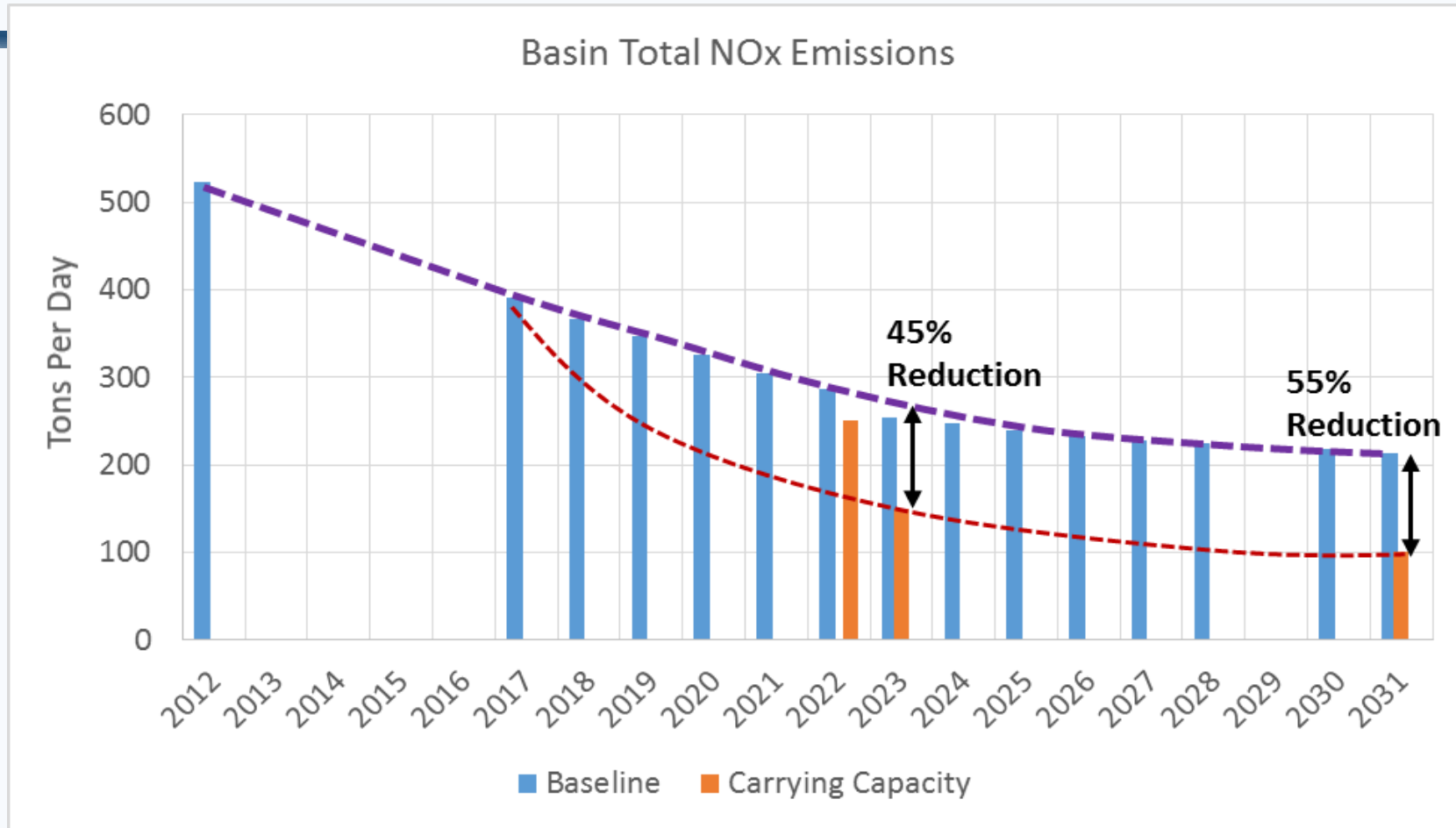
Ozone Trend in SCAB



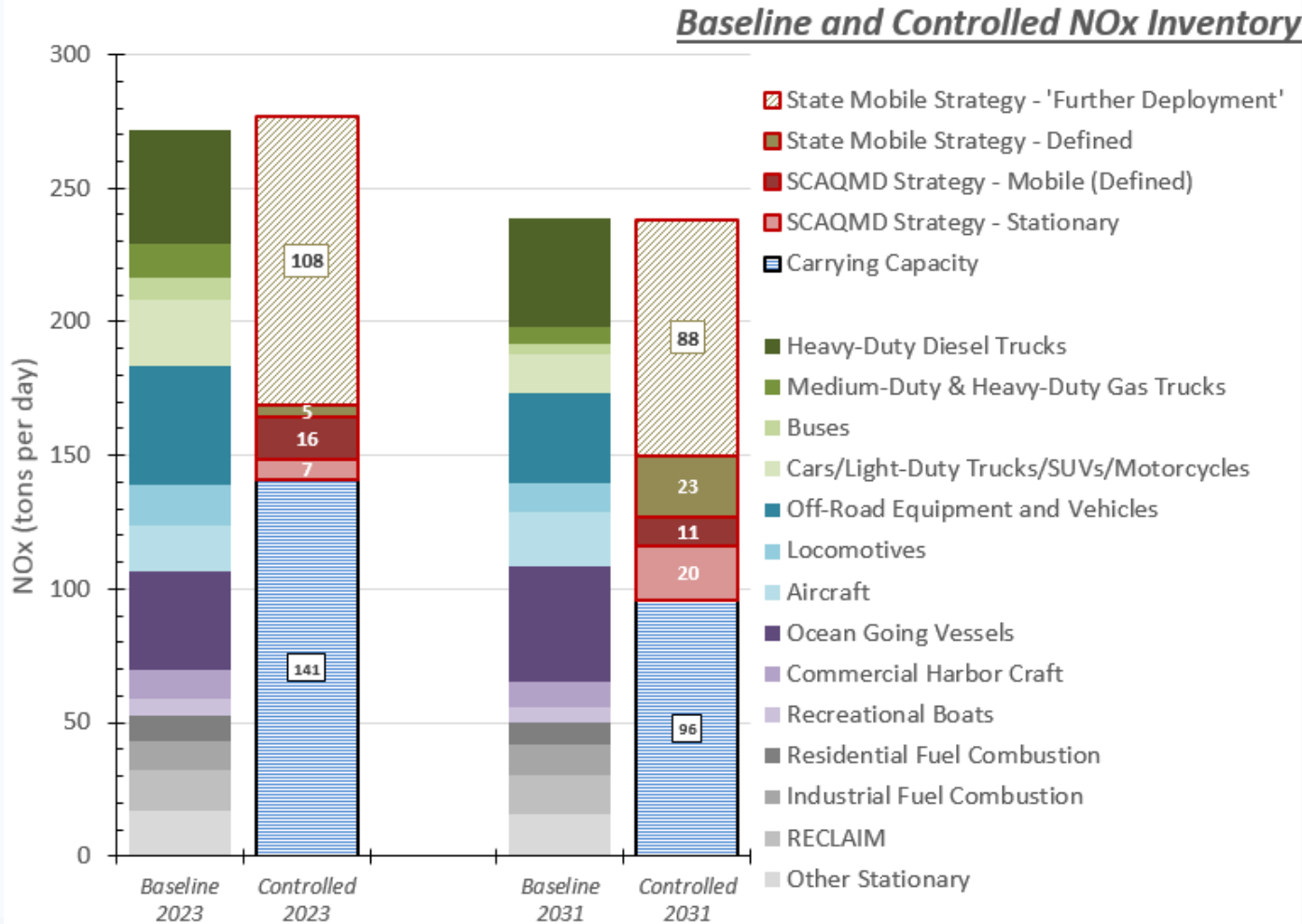
PM_{2.5} Trend in SCAB



Future NOx Emissions and Reduction Goals



2016 AQMP - Overall Control Strategy (NOx)



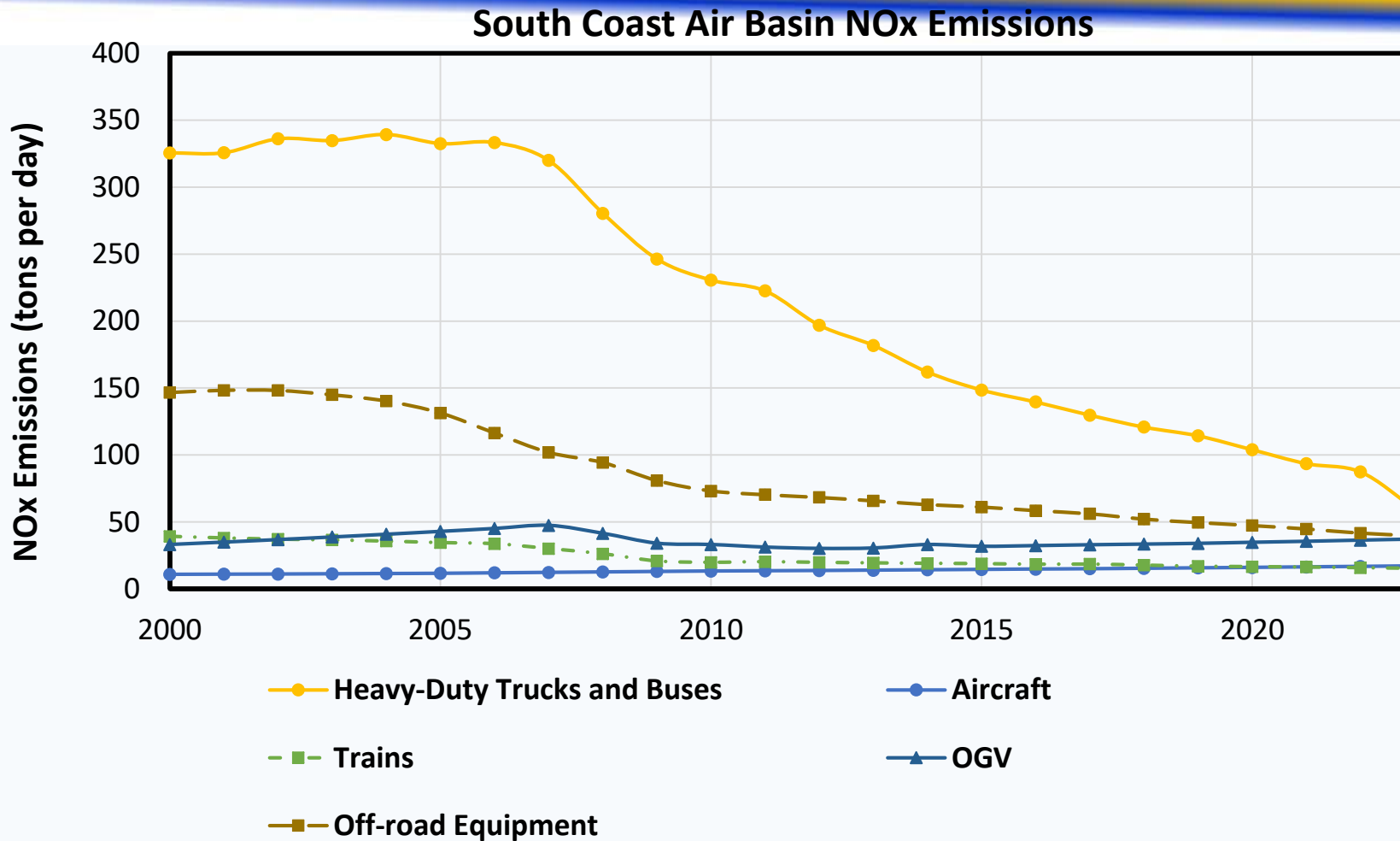
South Coast AQMD Measures:

- Stationary Source
- Localized Mobile Sources
- Regulatory Paths
- Incentives Components

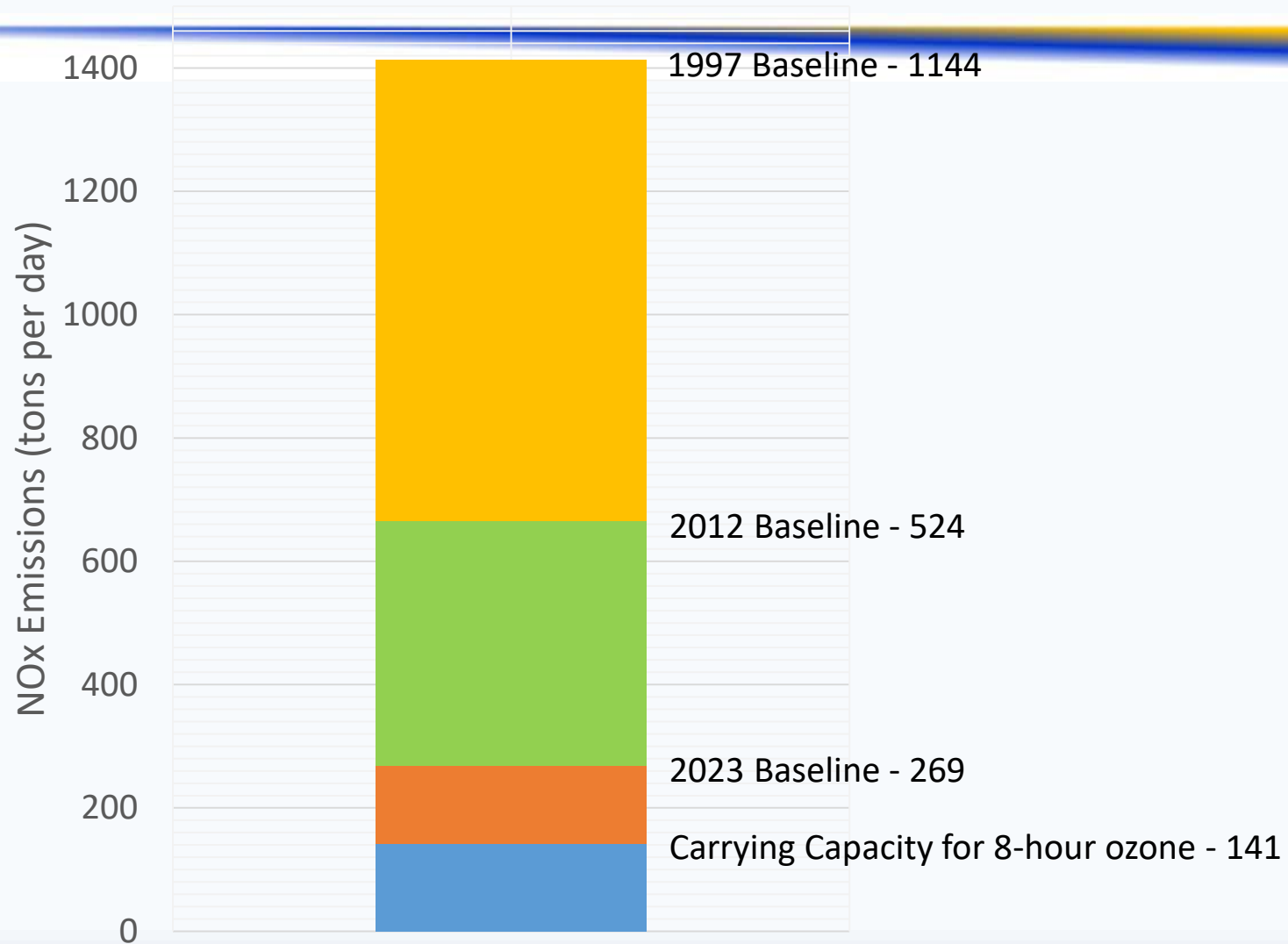
CARB Measures:

- Mobile Sources (On-Road, Off-Road)
- Consumer Products
- Regulatory Paths
- Incentives Components
- Efficiency Gains

NOx Trend for Major Source Categories



NOx Emission Reductions Progress (tons per day)



2016 AQMP Continued Implementation

- Rule/Regulation Adoption/Amendments
 - ✓ Stationary and Mobile Sources
- Policy Development
 - ✓ Facility-Based Mobile Source Measures
 - ✓ ISR/MOU
 - ✓ New Incentive Programs
 - ✓ Ongoing Incentive Funding Efforts
 - ✓ Incentive RFP Project Awards
 - ✓ Lifecycle Analysis for Stationary Applications (NEAT model)
 - ✓ Electrification, Solar, Cleaner Technologies



Control Measures Adopted Since 2016 AQMP Approval

AQMP Control Measure	South Coast AQMD Rule	Adoption Date
Further Emission Reductions from Coatings, Solvents, Adhesives, and Sealants (CTS-01)	Rule 1168 – Adhesive and Sealant Applications	October 6, 2017 <i>(1.4 tpd VOC)</i>
Control of Metal Particulate from Metal Grinding Operations (TXM-01)	Rule 1430 - Control of Emissions from Metal Grinding Operations at Metal Forging Facilities	March 3, 2017
Control of Toxic Metal Particulate Emissions from Contaminated Soil (TXM-04)	Rule 1466 - Control of Particulate Emissions from Soils with Toxic Air Contaminants	July 7, 2017
Control of Lead Emissions from Stationary Sources (TXM-07)	Rule 1420 - Emissions Standard for Lead	December 1, 2017

Control Measures Adopted Since 2016 AQMP Approval

AQMP Control Measure	South Coast AQMD Rule	Adoption Date
Further NOx Reductions from RECLAIM Assessment (CMB-05)	Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters	December 2018 <i>(0.27 tpd NOx)</i>
Further NOx Reductions from RECLAIM Assessment (CMB-05)	Rule 1135 – Emissions of Oxides of Nitrogen from Electric Power Generating Facilities	November 2018 (1.8 tpd)
Emission Reductions from Non-Refinery Flares (CMB-03)	Rule 1118.1 – Control of Emissions from Non-Refinery Flares	January 2019 (0.2 tpd)
Further NOx Reductions from RECLAIM Assessment (CMB-05)	Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines	April 2019 (2.8 tpd)

Current South Coast AQMD Stationary Source Control Measure / Rule Development

AQMP Control Measure	South Coast AQMD Rule	Adoption/Amendment Schedule
Further Emission Reductions from Coatings, Solvents, Adhesives and Sealants (CTS-01)	<ul style="list-style-type: none"> • Rule 1106 – Marine Coating Operations • Rule 1106.1 – Pleasure Craft Coating Operations 	<ul style="list-style-type: none"> • May 2019
Further NOx Reductions from RECLAIM Assessment (CMB-05)	<ul style="list-style-type: none"> • Rule 1110.2 – Stationary Internal Combustion Engines • Rule 1147.1 – Large Miscellaneous Combustion • Rule 1109.1 – Refinery Equipment • Rule 1147.2 – Metal Melting and Heat Treating Furnaces • Rule 1117 – Glass Melting Furnaces • Rule 1147.3 – Equipment at Aggregate Facilities • Rule 1150.3 – NOx Reductions from Combustion Equipment at Landfills • Rule 1179.1 – NOx Reductions from Combustion Equipment at Publicly Owned Treatment Work Facilities 	<ul style="list-style-type: none"> • September 2019 • September 2019 • October 2019 • November 2019 • December 2019 • December 2019 • December 2019 • December 2019

Current South Coast AQMD Stationary Source Control Measure / Rule Development

AQMP Control Measure	South Coast AQMD Rule, Regulation, or Action	Adoption/Amendment Schedule
Improved Leak Detection and Repair (FUG-01)	<ul style="list-style-type: none"> • Rule 1142 – Marine Tank Vessel Operations 	<ul style="list-style-type: none"> • October 2019
Emission Reductions at Commercial Marine Ports (MOB-01)	<ul style="list-style-type: none"> • Memorandum of Understanding (MOUs) with San Pedro Bay Ports 	<ul style="list-style-type: none"> • November 2019
Emission Reductions at Commercial Airports (MOB-04)	<ul style="list-style-type: none"> • Memoranda of Understanding (MOUs) with Commercial Airports 	<ul style="list-style-type: none"> • November 2019
Emission Reductions from Warehouse Distribution Centers (MOB-03)	<ul style="list-style-type: none"> • Reg. XXIII – Indirect Source Regulation 	<ul style="list-style-type: none"> • December 2019

Current South Coast AQMD Stationary Source Control Measure / Rule Development

AQMP Control Measure	South Coast AQMD Rule	Adoption/Amendment Schedule
Air Toxics Rules	<ul style="list-style-type: none"> • Rule 1407 - Arsenic, Cadmium and Nickel from Non-Ferrous Metal Operations 	<ul style="list-style-type: none"> • September 2019
Air Toxics Rules	<ul style="list-style-type: none"> • Rule 1480 - Toxics Monitoring 	<ul style="list-style-type: none"> • September 2019
Air Toxics Rules	<ul style="list-style-type: none"> • Rule 1410 - Hydrogen Fluoride Use at Refineries 	<ul style="list-style-type: none"> • November 2019
Air Toxics Rules	<ul style="list-style-type: none"> • Rule 1435 - Metal Heat Treating Processes 	<ul style="list-style-type: none"> • November 2019
Air Toxics Rules	<ul style="list-style-type: none"> • Rule 1426 - Metal Finishing Operations 	<ul style="list-style-type: none"> • December 2019

CARB Mobile Source Control Measures / Rule Development

- Adopted Measures
 - South Coast Incentive Measure (HD Vehicles) – March 2018
 - 1,300 drayage / refuse trucks
 - 1 tpd of NOx reductions in 2023 (out of 3 tpd commitment)
 - Innovative Clean Transit – December 2018
 - Zero-Emission Airport Shuttle Buses – February 2019 (first hearing)
- Upcoming Rule Activities
 - Advanced Clean Trucks – December 2019
 - Ocean-Going Vessels At-Berth – Q4 2019
 - HD Low NOx Engine Standards – Q1 2020

Emission Reductions from Rules Adopted Since 2016

AQMP

Agency	Measure	2023 NOx Reductions (tpd)
South Coast AQMD	Rule 1118.1 – Non-Refinery Flares	0.2
South Coast AQMD	Rule 1134 – Stationary Gas Turbines	2.8
South Coast AQMD	Rule 1135 – Electricity Generating Facilities	1.8
South Coast AQMD	Rule 1146 – Non-Refinery Boilers and Heaters	0.27
CARB	South Coast On-Road Heavy Duty Vehicle Incentive Measure	1.00
CARB	HD Diesel Vehicle Emission Control System Warranty	0.02
CARB	Low Carbon Fuel Standard and Alternative Diesel Fuels	0.20
CARB	Portable Engine ATCM and Registration Program	0.38
TOTAL		6.7

2016 AQMP Measures with Incentive Components

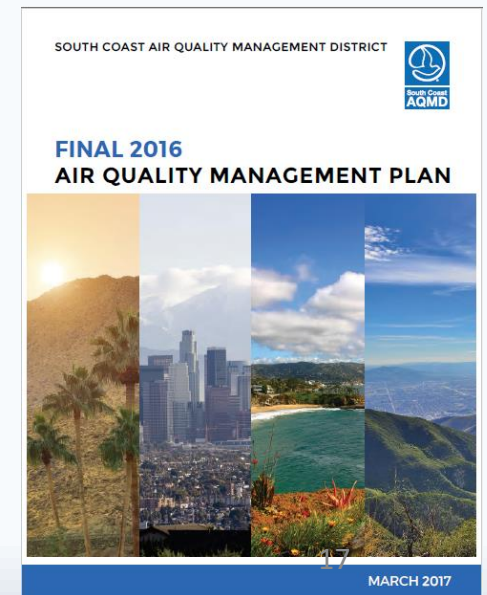
Stationary Source Control Measures

- CMB-01 (Transition to Zero and Near-Zero Emissions Technologies for Stationary Sources)
- CMB-02 (Emission Reductions from Replacement with Zero and Near-Zero NOx Appliances in Commercial and Residential Applications)
- ECC-03 (Additional Enhancements in Reducing Existing Residential Building Energy Use)

Mobile Source Control Measures

- On-road (passenger vehicles, heavy duty trucks, etc.)
- Off-road (construction, lawn and garden, locomotive, etc.)

Need \$1-2 Billion per year over ~13 years



Incentive Funding Since AQMP adoption (2017-2019)

- Federal Funding

- Targeted Air Shed (2 grants)
- EPA Diesel Emission Reduction Act

\$9 M

\$3 M

Total: \$12 M

- State Funding

- AB 2766 Subvention Program
- AB 134 – Community Air Protection Funds for Carl Moyer
- South Coast Portion SB 856
- Carl Moyer
- AB 923 – DMV
- South Coast AQMD Special Funds
- Mobile Source Air Pollution Reduction Review Committee
- Enhanced Fleet Modernization Program
- Prop 1B
- Near-Zero Emission Trucks with CEC Grants and the Ports
- Funding Agricultural Replacement Measures for Emission Reductions

\$110 M

\$108 M

\$85 M

\$63 M

\$50 M

\$47 M

\$46 M

\$21 M

\$18 M

\$12 M

\$4 M

Total: \$564 M

Expected Future Incentive Funding (all values approximate)

• AB 617-related	\$100 M/yr
• Carl Moyer	\$60 M/yr
• AB 2766 Subvention Fund	\$30 M/yr
• VW Settlement	\$20-30 M/yr
• Mobile Source Air Pollution Reduction Review Committee	\$20 M/yr
	Total: \$230-240/yr

Further Deployment of Advanced Technologies and CAA Section 182(e)(5)

- ✓ 2016 AQMP included measures for deployment of advanced cleaner technologies
 - New federal and state regulatory actions
 - System efficiencies
 - Local authority/measures (e.g., facility-based measures)
 - Incentives to accelerate deployment faster than regulations could achieve
- Federal CAA Section 182(e)(5) allows for anticipated development of new control techniques or improvement of existing control technologies for attainment demonstration in extreme areas
- Contingency measures required 3 years prior to implementation date (i.e., 2023 attainment date)
 - Provide full reductions assigned to 182(e)(5) measures
 - Measures already adopted

Contingency Measure Development Plan

- Accounting of NO_x reductions achieved to date
 - Adopted CARB and South Coast AQMD measures since 2016 AQMP adoption
 - Proposed measures/programs to be adopted by end of 2019/early 2020
 - Incentive measures funded to date
- Additional reductions expected from new and anticipated sources of funding
- Identify remaining balance
 - Contribution of federal sources and federal responsibility
 - Measures for additional incentive funding, regulations, actions
- Due to U.S. EPA December 31, 2019