



AQMP Advisory Group

May 18, 2021

Cleaning The Air That We Breathe...



Agenda

1. Welcome, Introductions, Approval of Minutes, and 2016 AQMP Updates
2. Certification of Nonattainment New Source Review and Clean Fuels for Boilers Compliance Demonstration
3. Updates on 2022 AQMP Emissions Inventory
4. Updates on 2022 AQMP Working Groups
5. South Coast Air Basin PM₁₀ Maintenance Plan for 1987 24-hour PM₁₀ Standard



Agenda Item #1

**Welcome, Introductions, Approval of
Minutes, and 2016 AQMP Updates**



2016 Air Quality Management Plan (AQMP)

- Approved by South Coast AQMD Governing Board in March 2017
- Integrated plan addressing multiple National Ambient Air Quality Standards (NAAQS)

Criteria Pollutant	Standard	South Coast Classification	Coachella Valley Classification
2008 8-hour Ozone	75 ppb	Extreme	Severe
1997 8-hour Ozone	80 ppb	Extreme	Extreme*
1979 1-hour Ozone	120 ppb	Extreme	Attainment
2012 Annual PM2.5	12 $\mu\text{g}/\text{m}^3$	Serious	Unclassifiable/ Attainment
2006 24-hour PM2.5	35 $\mu\text{g}/\text{m}^3$	Serious	Unclassifiable/ Attainment

*Voluntary reclassification from severe to extreme in July 2019



South Coast AQMD NOx Rules/Programs Adopted Since 2016 AQMP

Rule Number – Rule Title	Adoption Date	Implementation Schedule	Est. Reductions (NOx, tpd)	2016 AQMP Control Measure
Rule 1135 – Electricity Generating Facilities	11/2/18	2024	1.7	CMB-01; CMB-05
Rule 1146 – Boilers, Steam Generators, and Process Heaters	12/7/18	2023 (RECLAIM) / 2033 (Non-RECLAIM)	0.27 (RECLAIM) / 0.04 (Non-RECLAIM)	CMB-01; CMB-05
Rule 1146.1 – Small Boilers, Steam Generators, and Process Heaters				
Rule 1146.2 – Large Water Heaters, Small Boilers and Process Heaters				
Rule 1118.1 – Non-Refinery Flares	1/4/19	2025	0.18	CMB-03
Rule 1134 – Stationary Gas Turbines	4/5/19	2026	2.8	CMB-01; CMB-05
Rule 1110.2 – Gaseous- and Liquid-Fueled Engines	11/1/19	2023	0.29	CMB-01; CMB-05
Facility-Based Mobile Source Measure for Commercial Airports*	12/6/19	2023 / 2031	0.52 / 0.37**	MOB-04
Rule 1117 – Container Glass Melting and Sodium Silicate Furnaces	6/5/20	2023	0.57	CMB-05
Rule 1150.3 – Combustion Equipment at Landfills	2/5/21	2021 / 2031	0.04 / 0.11	CMB-05
Rule 2305 – Warehouse Indirect Source Rule	5/7/21	2031	~1.5–3.0**	MOB-03

* Adopted as Memorandum of Understanding (MOU)

** SIP credit subject to EPA's approval



CARB NOx Regulations Adopted Since 2016

AQMP

Regulation	Adoption	Implementation	Est. Reductions (NOx, tpd) (2023/2031)
ATCM for Portable Engines, and the Statewide Portable Equipment Registration Program Regulation	November 2017	2020	0.25
South Coast On-Road Heavy Duty Vehicle Incentive Measure	March 2018	2023	1
Low Carbon Fuel Standard and Alternative Diesel Fuels Regulation	September 2018	2019	1.7
Innovative Clean Transit Regulation	December 2018	2023-2029	<0.1 / 0.2
Zero-Emission Airport Shuttle Bus Regulation	June 2019	2027-2035	<0.1 / <0.1
Advanced Clean Trucks (ACT) and HD Omnibus Regulations	June/August 2020	2024-2027 (Omnibus) 2024-2035 (ACT)	<0.1/7
Ocean Going Vessels At Berth	August 2020	2023-2025	1.1/3.6



Agenda Item #2

**Certification of Nonattainment New Source Review
and Clean Fuels for Boilers Compliance Demonstration**



Background – 2015 8-hour Ozone Standard

- In 2015, the U.S. EPA strengthened the National Ambient Air Quality Standards (NAAQS) for ozone to 70 parts per billion (ppb)
- Nonattainment classifications for South Coast Air Basin and Coachella Valley

Standard	Level	South Coast Classification	Coachella Valley Classification	Attainment Date
2015 8-hour Ozone	70 ppb	Extreme	Severe	August 3, 2038 (South Coast) August 3, 2033 (Coachella Valley)
2008 8-hour Ozone	75 ppb	Extreme	Severe	July 20, 2032 (South Coast) July 20, 2027 (Coachella Valley)
1997 8-hour Ozone	80 ppb	Extreme	Extreme	June 15, 2024 (both South Coast and Coachella Valley)
1979 1-hour Ozone	120 ppb	Extreme	Attainment	February 6, 2023 (South Coast)



Key SIP Elements and Due Dates for Severe and Extreme Nonattainment Areas

	8/3/2020	8/3/2021	8/3/2022	8/3/2028
Severe and Extreme Areas	Baseline Year Emissions Inventory	Nonattainment New Source Review (NSR)	Attainment Demonstration	Section 185 Fee Program (Failure to attain)
	Emissions Statement		Reasonably Available Control Measures	
	Reasonably Available Control Technology Demonstration		Reasonable Further Progress	
	Vehicle Miles Traveled Offset		Conformity	
			Contingency Measures	
Extreme Area Only		Clean Fuels for Boilers	Enhanced Inspection and Maintenance Program	

Nonattainment NSR - Background

- **Nonattainment New Source Review (NSR) Requirements**
 - ❑ Pre-construction review permit program for new or modified sources located in a nonattainment area (*40 CFR 51.165*)
 - ❑ Requirements
 - Installation of the lowest achievable emission rate (LAER)
 - Offset emissions increase from new or modified sources
 - Public participation in permitting process
 - ❑ Prior certification for 2008 ozone standard
 - In 2017, a certification of Nonattainment NSR Compliance Demonstration for 2008 Ozone NAAQS was submitted and approved by U.S. EPA in 2018 (*83 FR 64026*)





Nonattainment NSR – South Coast AQMD NSR Regulations

- **South Coast AQMD's Existing Nonattainment NSR Program**
 - ❑ Implements the federal regulatory requirements for NSR
 - ❑ Covers both South Coast Air Basin and Coachella Valley
- **Requirements in Reg XIII (NSR), Reg XX (RECLAIM), and Reg II (Permits) consistent with Clean Air Act requirements**
 - ❑ Cover ozone precursors (VOC and NO_x)
 - ❑ Definitions for major stationary source, major modification, and significant emissions
 - ❑ Provisions for emission reduction credits and offset ratios
 - ❑ Public participation



Nonattainment NSR – Interpollutant Trading Provisions for Emission Offsets

- **Interpollutant Trading (IPT)**
 - ❑ A voluntary program that allows the use of reductions by one pollutant to offset emission increases by another pollutant (PM and ozone)
- **Rule 1309 (Emission Reduction Credits)**
 - ❑ Allows the use of IPT for emissions offset contingent upon U.S. EPA's review and approval on a case by case basis
- **Recent Court Decision Vacated IPT (January 2021)**
 - ❑ IPT violates Clean Air Act
 - Increases of VOC must be offset by VOC reductions so there can be no trading with NO_x reductions

South Coast AQMD certifies not to use the IPT provision in the NSR program and also commits to remove the IPT provision from Rule 1309 in the future



Clean Fuels for Boilers – Extreme Ozone Nonattainment Areas

- Clean Air Act requires the use of clean fuels or advanced control technologies for electric utility and industrial and commercial boilers emitting more than 25 tons per year of NO_x
- In South Coast AQMD, boilers are required to use clean fuel or advanced control technologies through
 - ❑ Rule 1146 (NO_x Emissions from Industrial and Commercial Boilers)
 - ❑ Rule 2002 (Allocations for NO_x and SO_x)
 - ❑ Rule 2004 (Requirements)
 - ❑ Rule 1303 (Requirements for NSR)





Certification for 2015 Ozone Standard

- **Certifying that South Coast AQMD's rules and regulations meet the Clean Air Act requirements for nonattainment NSR and clean fuels for boilers for the 2015 ozone standard**
- **No changes are necessary to comply with the 2015 ozone standard NSR/clean fuels requirements**
 - ❑ **South Coast AQMD commits to amend Rule 1309 in a future rulemaking to remove the IPT provision**

Public Process and Next Steps





Agenda Item #3

Updates on 2022 AQMP Emissions Inventory



Base and Future Milestone Years

- **Base Year**
 - 2018
 - Rich measurement data to evaluate modeling performance
- **Future attainment years for ozone NAAQS**
 - SCAB
 - 2037
 - 2023 and 2031
 - Coachella Valley
 - 2032
 - 2023 and 2026



Emissions Inventory Development

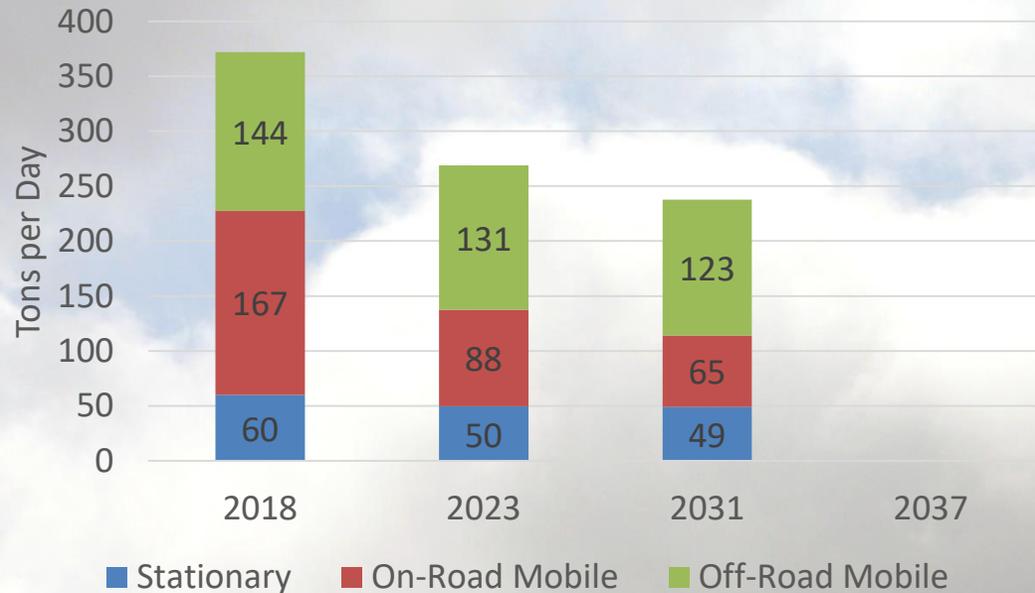
- **Base Year**
 - ❑ **Point sources: Reported emissions from AER**
 - ❑ **Area sources: 2018 activity, consumption or throughput data, if available**
 - ❑ **On-Road mobile sources:**
 - **Travel activity data from 2020 Regional Transportation Plan**
 - **Vehicular emission rates from EMFAC2017 with adjustments for CARB's regulations adopted since the release of EMFAC2017**
 - ❑ **Off-Road mobile sources:**
 - **Category by category approach**
 - **Latest updates as of Apr 30, 2021**
 - **Additional updates on OGV, Cargo Handling Equipment (CHE) and construction equipment expected this summer**



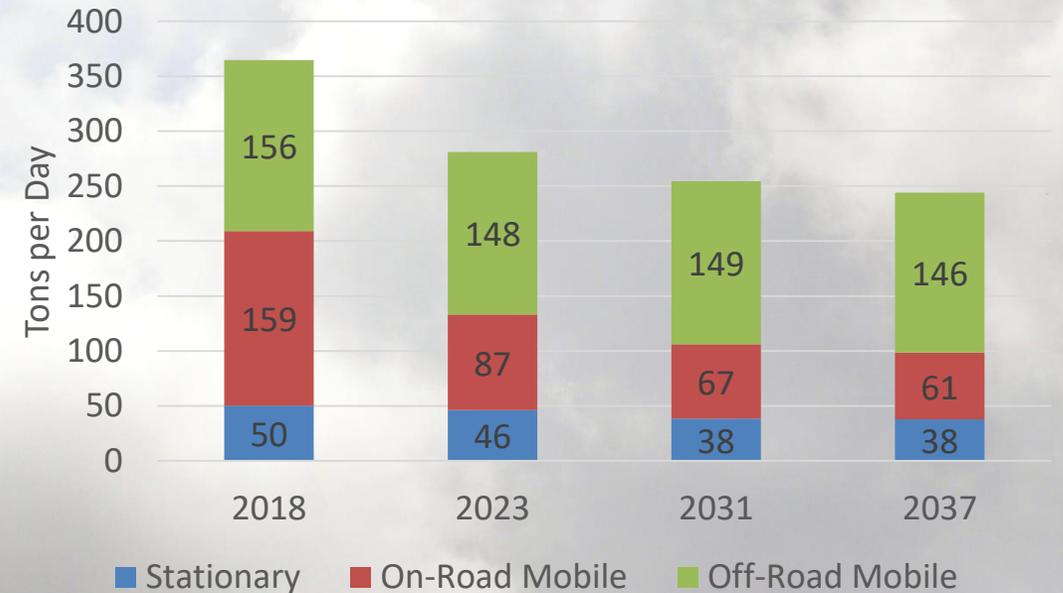
South Coast Air Basin Total NOx Emissions

Basin Total NOx Emissions (tpd)	2018	2023	2031	2037
2016 AQMP with OGV update	372	269	238	-
2022 AQMP Preliminary	365	281	255	244

2016 AQMP NOx



2022 AQMP Preliminary NOx

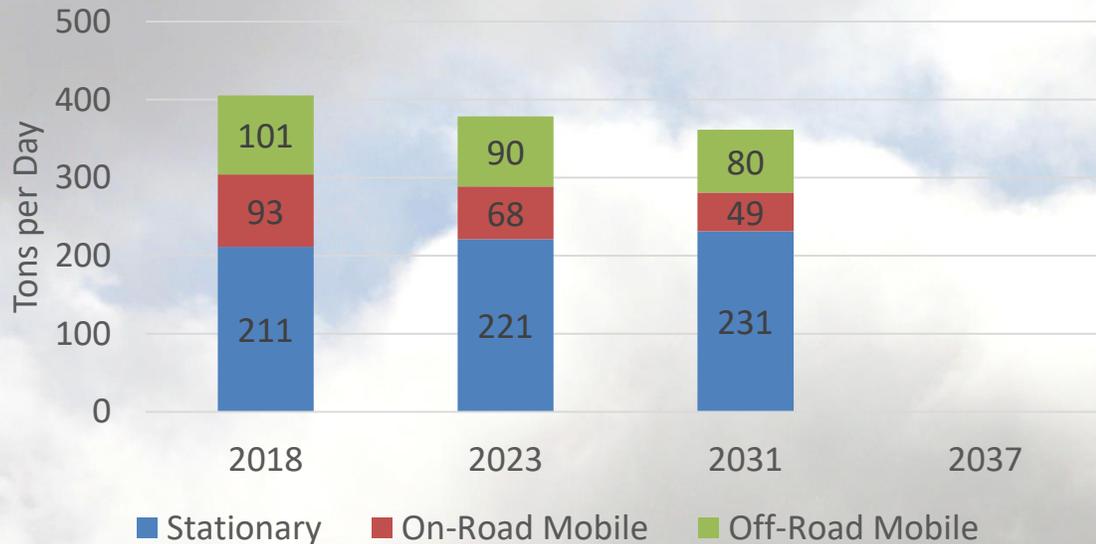




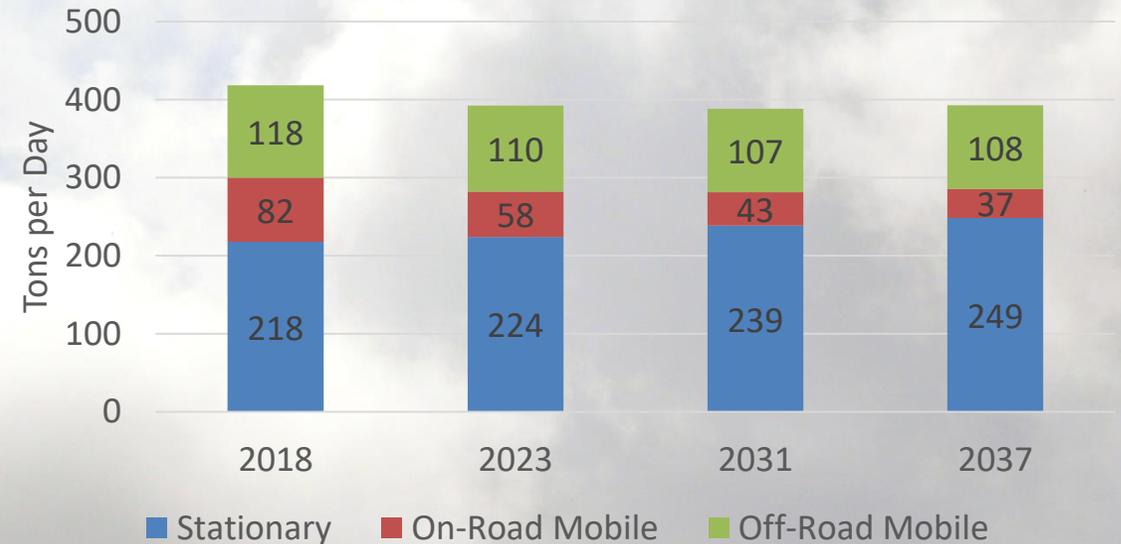
South Coast Air Basin Total VOC Emissions

Basin Total VOC Emissions (tpd)	2018	2023	2031	2037
2016 AQMP with OGV update	405	379	361	-
2022 AQMP	418	392	388	393

2016 AQMP VOC



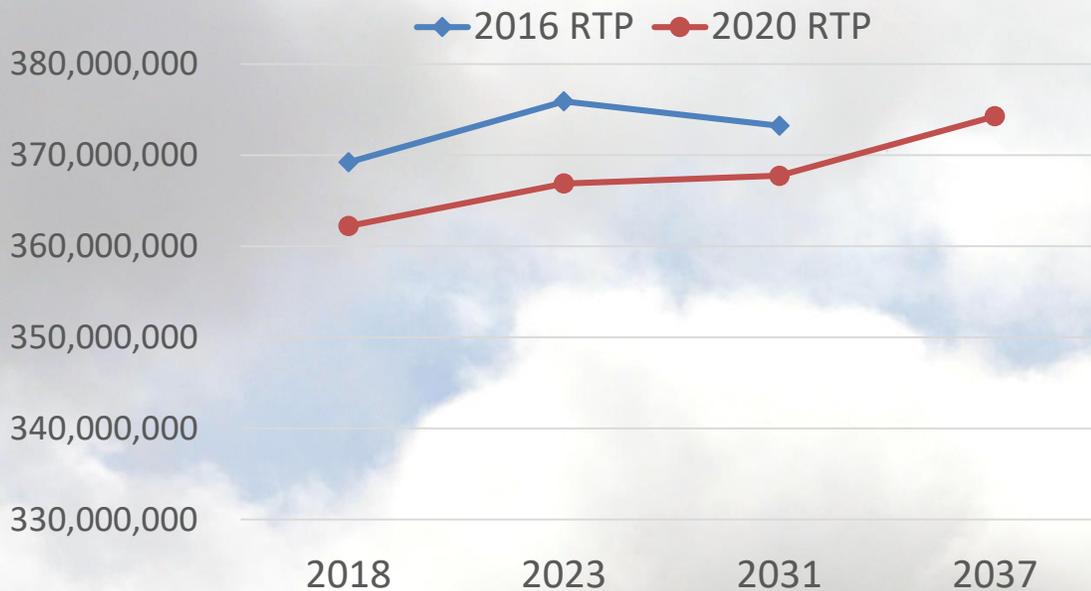
2022 AQMP Preliminary VOC



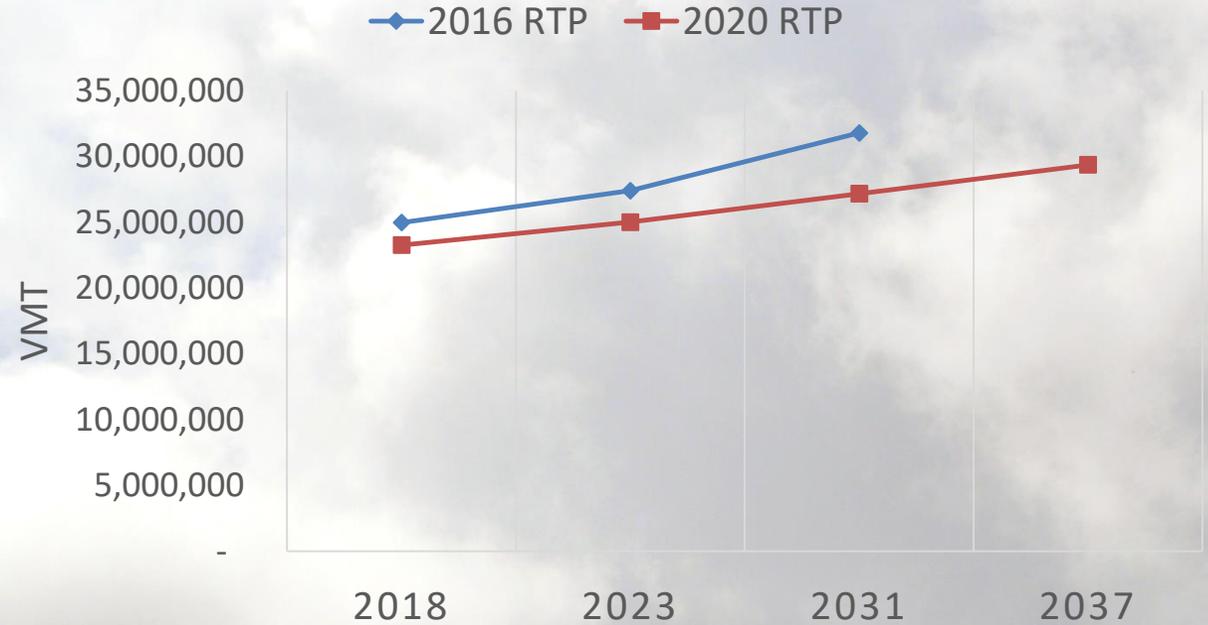


Vehicle Miles Traveled

Light- and Medium-Duty Vehicles VMTs



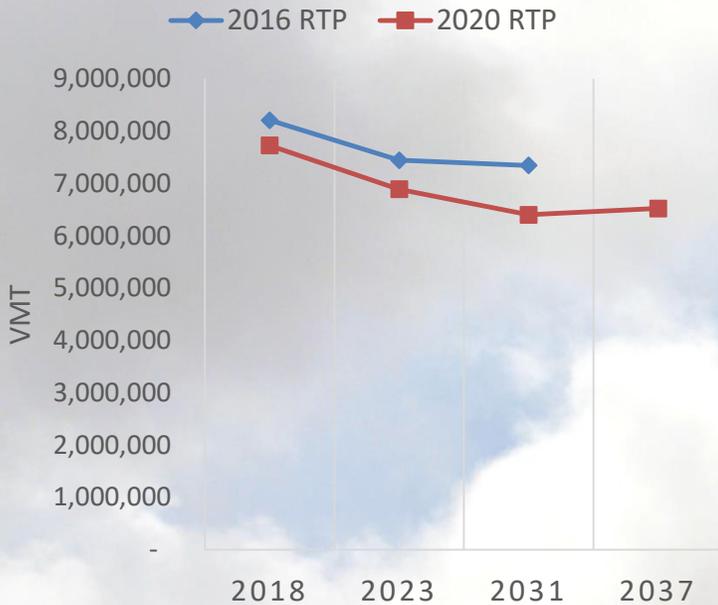
HEAVY DUTY VEHICLES VMTs



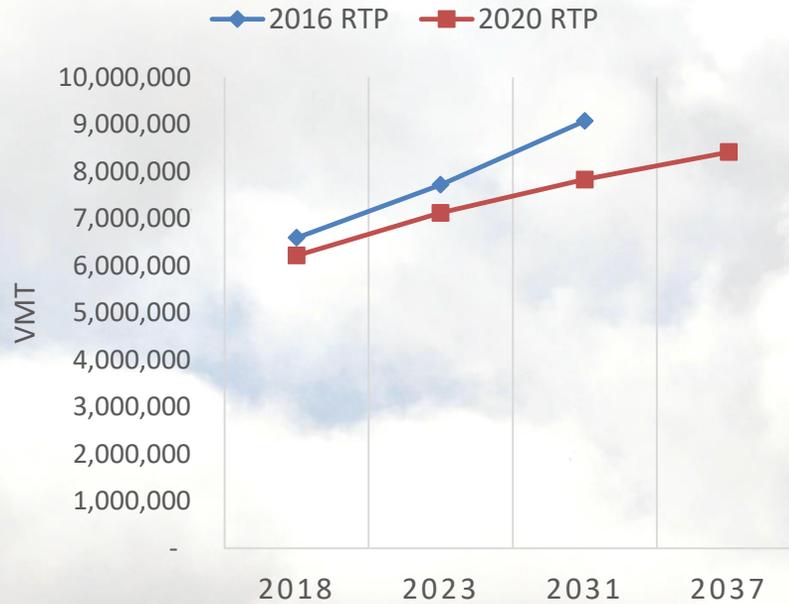


Heavy Duty Vehicle Miles Traveled

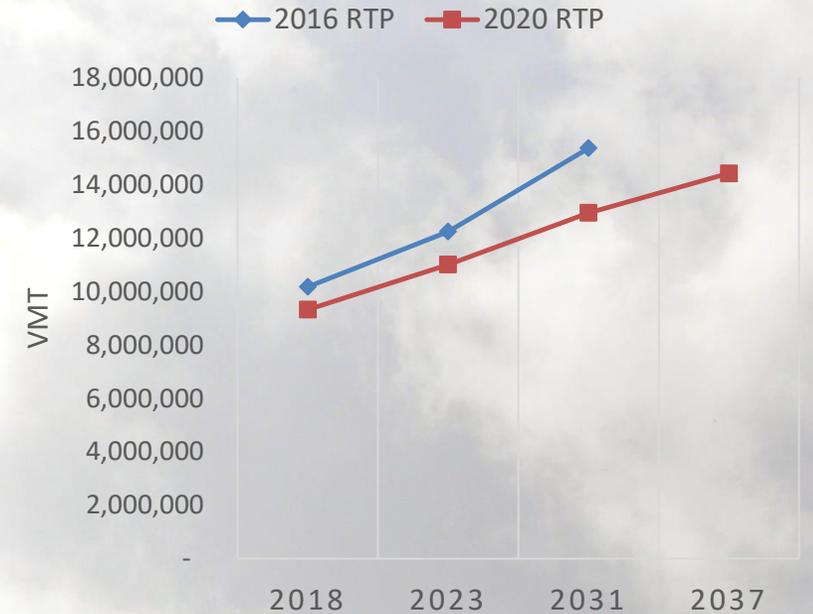
LIGHT-HEAVY DUTY VEHICLES



MEDIUM-HEAVY DUTY VEHICLES

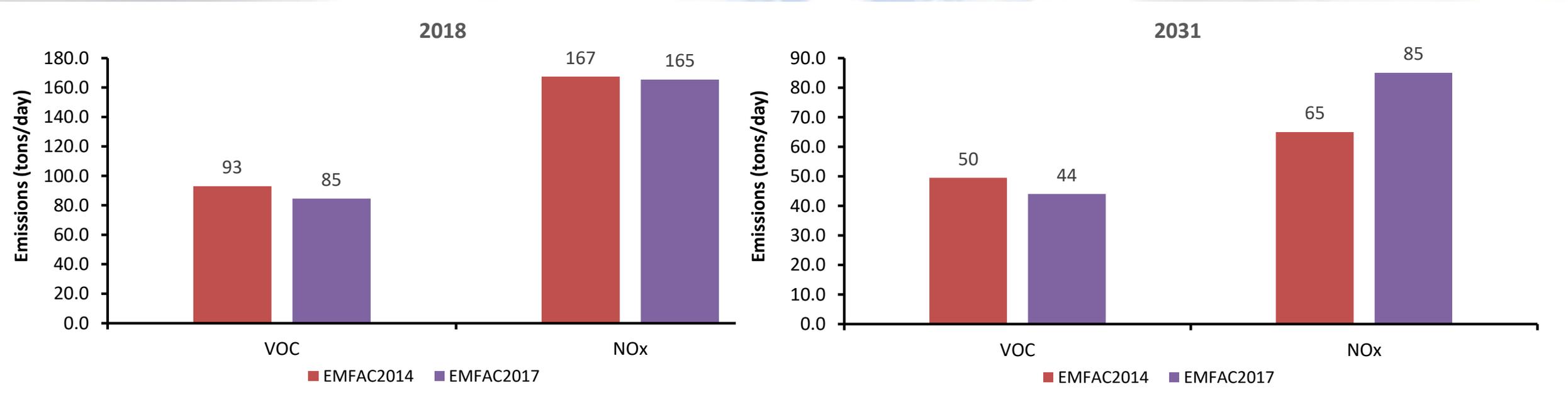


HEAVY-HEAVY DUTY VEHICLES





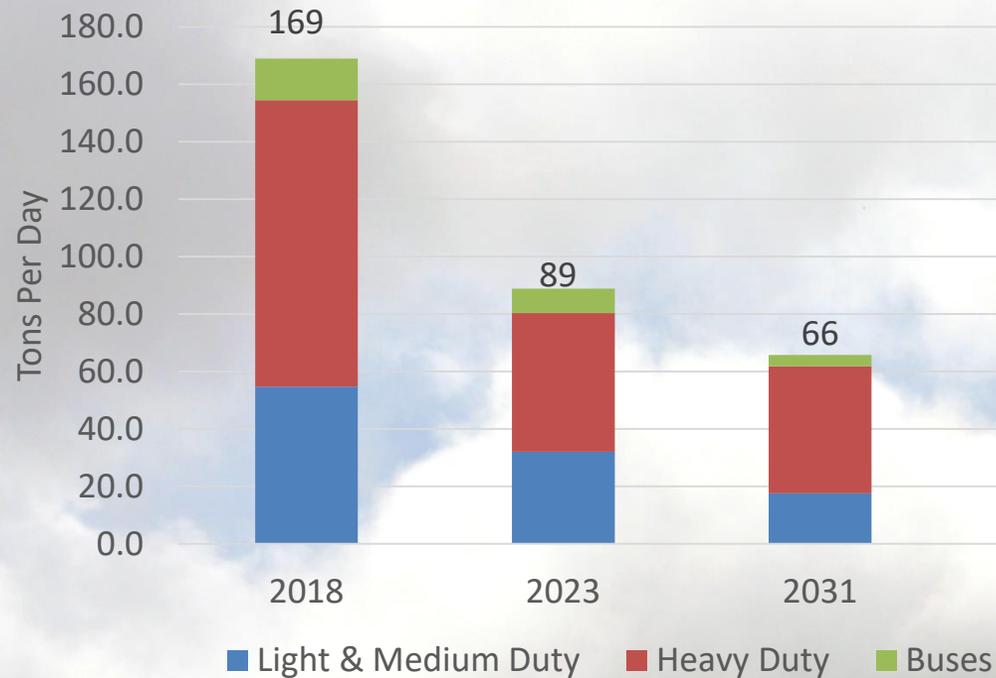
EMFAC 2014 vs EMFAC 2017*



* Based on 2016 RTP VMT data

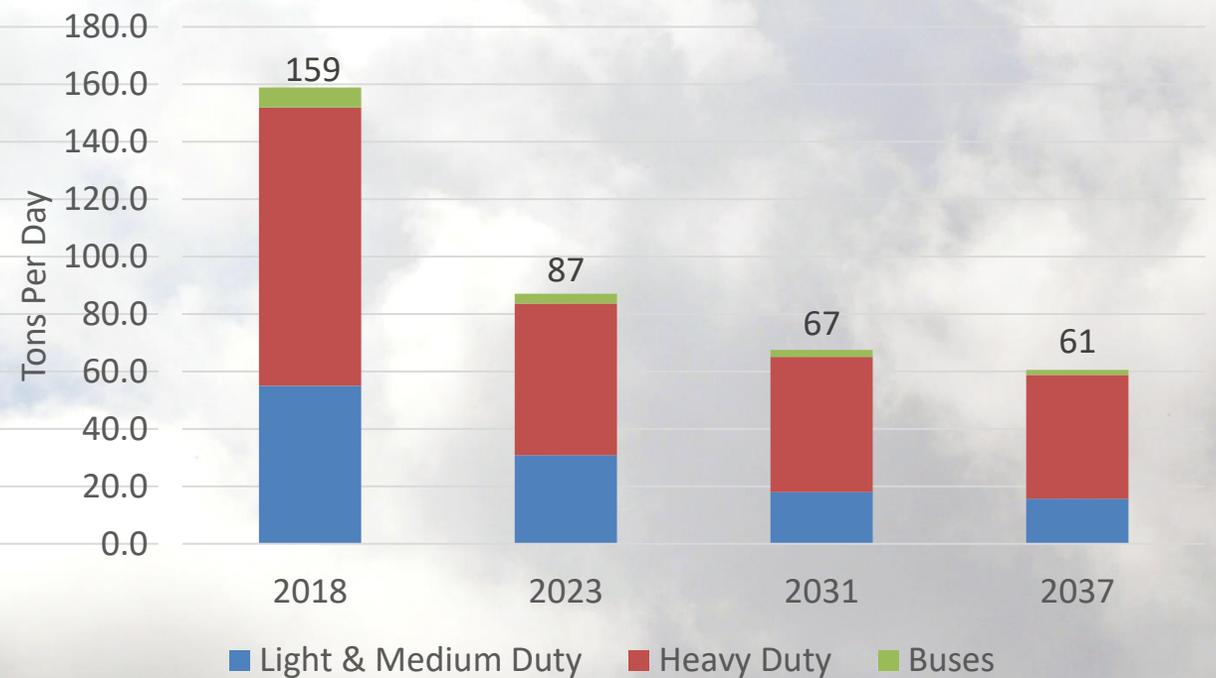
On-Road NOx Emissions

2016 AQMP NOx Emissions*



* Based on EMFAC2014 and 2016 RTP VMT data

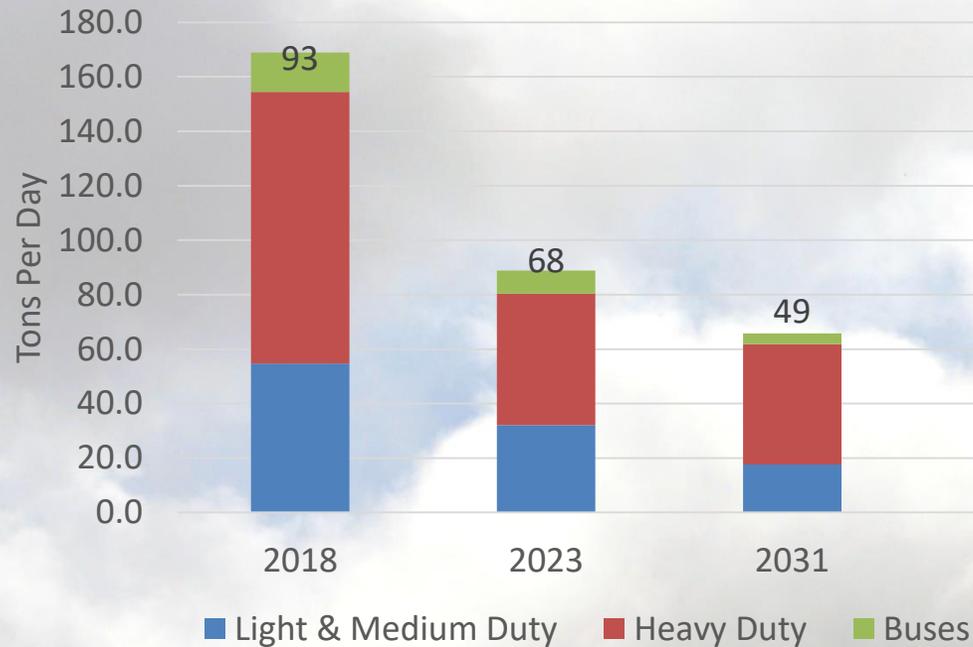
2022 AQMP NOx Emissions**



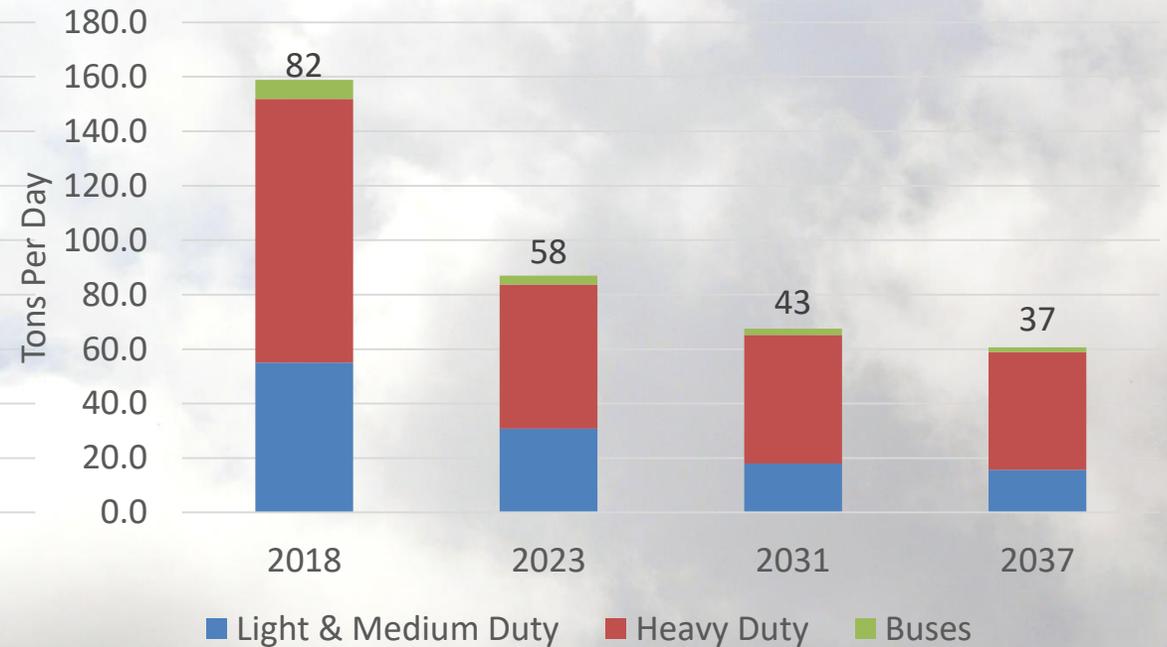
** Based on EMFAC2017 and 2020 RTP VMT data

On-Road VOC Emissions

2016 AQMP VOC Emissions



2022 AQMP VOC Emissions





Summary

- **Preliminary emissions inventory for 2022 AQMP is developed for base and future milestone years**
- **South Coast Air Basin total and on-road mobile emissions are slightly higher than the 2016 AQMP emissions in the future attainment years**
- **Off-Road mobile emissions are higher than the 2016 AQMP inventory. Several off-road mobile source categories are still under-development and will be updated during summer**



Agenda Item #4

Updates on 2022 AQMP Working Group Meetings



Working Groups for 2022 AQMP

- Residential and Commercial Buildings
- Heavy-Duty Trucks
- Construction and Industrial Equipment
- Ocean-Going Vessels
- Aircraft



- Three working group meetings in December 2020, February 2021 and May 2021:
 - ❑ Emission inventory of space and water heating
 - ❑ 2016 AQMP control measures and existing area source rules
 - ❑ AQMD funded technology demonstration projects and programs
 - ❑ Federal, state, and other local agency programs
 - ❑ Incentive and rebate programs
 - ❑ Key challenges moving forward
 - Affordability
 - Product availability
 - Consumer interest
 - Legal authority



Residential and Commercial Buildings Working Group (cont'd)



- At May 6th Working Group Meeting, four organizations presented various aspects of building decarbonization
 - ❑ California Air Resources Board - Building Decarbonization
 - ❑ Energy Solutions - Introduction to the California Technology and Equipment for the Clean Heating (TECH) heat pump program
 - ❑ Southern California Edison - Pathway to Building Electrification
 - ❑ Southern California Gas Company - Decarbonizing the Gas Grid & Reducing Building Emissions





Residential and Commercial Buildings Working Group (cont'd)



- **Next steps**
 - Assess 2016 AQMP control measures for enhancements**
 - Concepts for measures for the 2022 AQMP**



2022 AQMP Working Group Meetings for HD Trucks



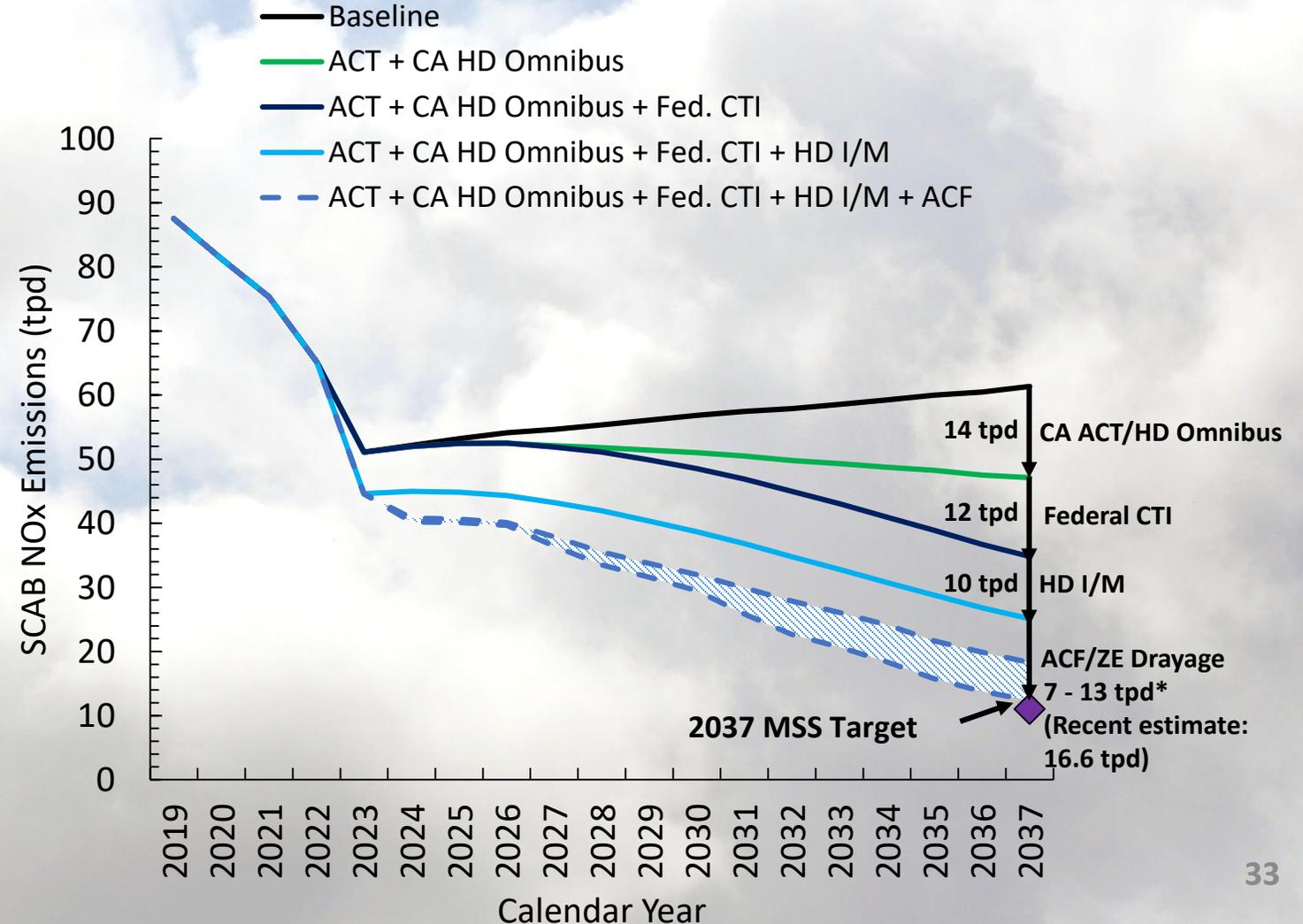
- Two working group meetings held on January 26 and March 24
- Topics Covered
 - CARB concepts from Draft Mobile Source Strategy
 - Proposed CARB regulations update
 - HD Vehicle Inspection/Maintenance Program
 - Advanced Clean Fleets
 - South Coast AQMD incentive programs update
 - Go-Biz ZEV market development strategy
 - Infrastructure needs for MD and HD ZEVs
 - U.S. EPA Cleaner Trucks Initiative



HD Trucks – Strategies and Emission Reductions



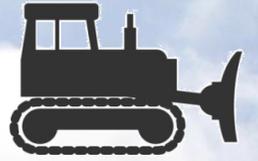
- HD Omnibus Regulation
- Advanced Clean Truck (ACT)
- Federal Clean Truck Initiative (CTI)
- Heavy Duty Inspection and Maintenance (HD I/M)
- Advanced Clean Fleet (ACF)/ZE Drayage Truck



Note: Baseline and reductions in the graph are based on EMFAC2017 and 2016 RTP VMT data.



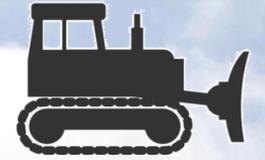
2022 AQMP Working Group Meetings for Construction and Industrial Equipment



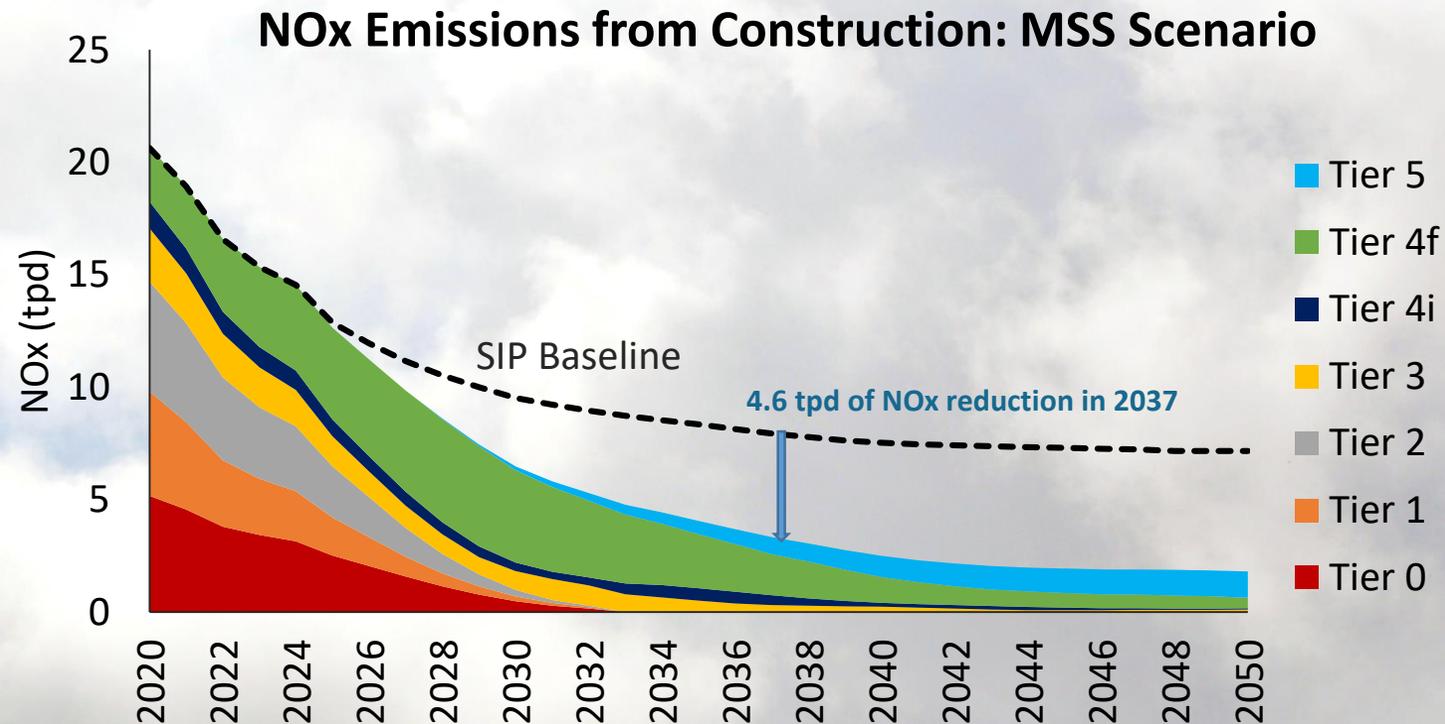
- Two working group meetings held on January 27 and April 7
- Topics Covered
 - ❑ CARB concepts from Draft Mobile Source Strategies
 - ❑ South Coast AQMD incentive programs update
 - ❑ Clean technology adoption in off-road sectors
 - ❑ LA Metro Green Construction Policy



Construction and Industrial Equipment – Strategies and Emission Reductions



- In-Use Off-Road Diesel Fleet Regulation (phase-out Tier 0/1/2 equipment by 2033)
- New Tier 5 engine standards
- ZE forklift requirements
- Targeted ZE manufacturers requirements
- Green fleet recognition program
- Voucher incentives





2022 AQMP Working Group Meetings for Ocean-Going Vessels



- Two working group meetings on February 3 and April 1
- Topics Covered
 - Concepts from Draft Mobile Source Strategy
 - OGV operations and emissions in South Coast AQMD
 - Current marine diesel engine emission requirements
 - Pacific Rim Initiatives for Maritime Emission Reductions (PRIMER)
 - Potential future measures for reducing OGV emissions
 - CAAP status update on OGV measures and efforts
 - Incentive-Based Vessel Speed Reduction Program





Ocean-Going Vessels – Potential Strategies (1)



- **Possible Initiatives/Programs for EPA’s Consideration**
 - EPA/IMO Tier 4 marine engine standards
 - Optional engine standards based on verified retrofit control technologies
 - Potential limits in ECAs for older vessels and Tier II+ requirements
- **Potential CARB Regulations**
 - At-Berth – additional vessel types & anchorage emissions
 - Transit and maneuvering operations



Ocean-Going Vessels – Potential Strategies (2)

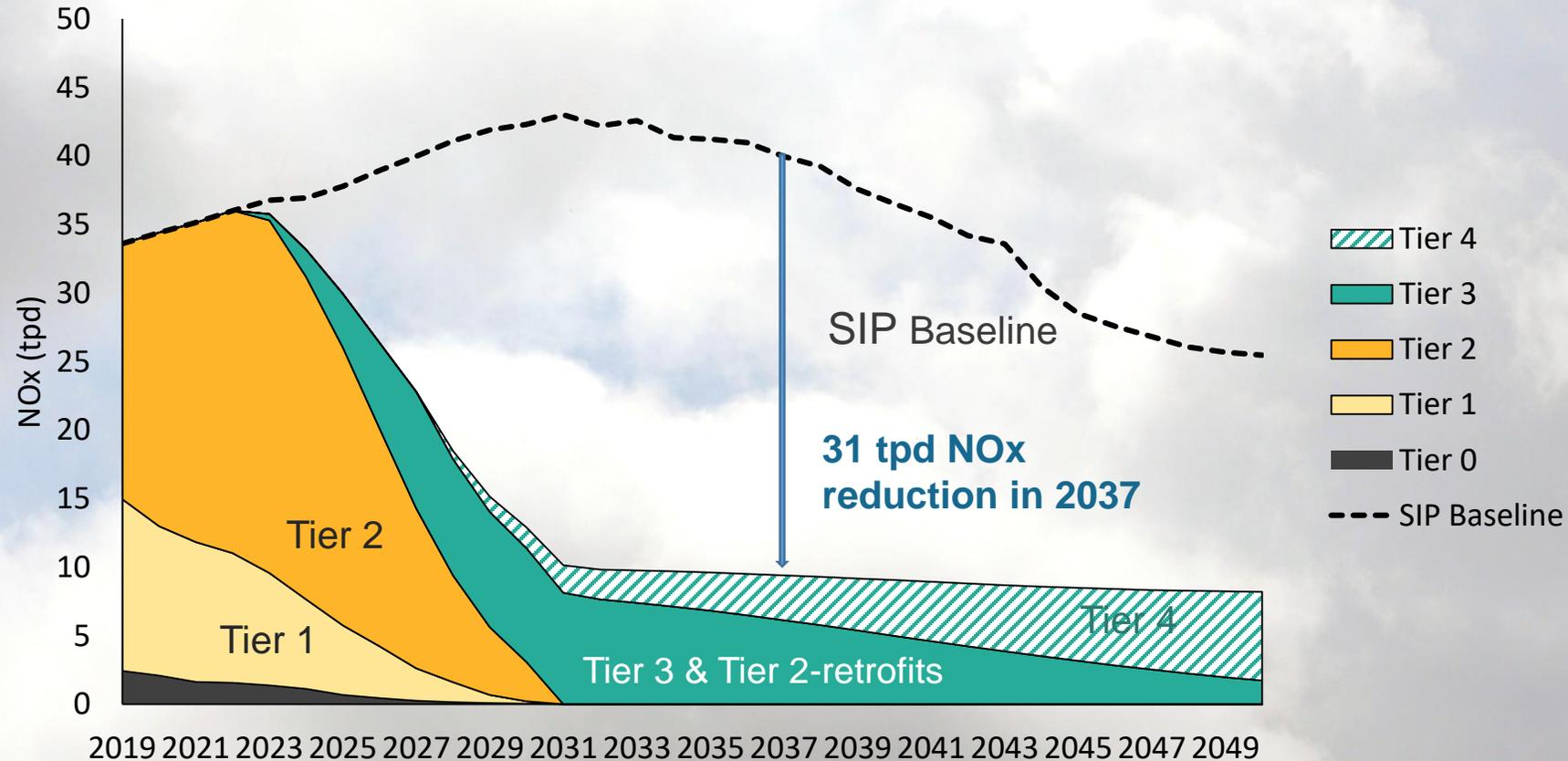


- **San Pedro Bay Ports Clean Air Action Plan (CAAP) Measures**
 - Improve VSR and other existing incentive programs
 - Variable rates on ships; higher fees for Tier 0 and Tier I
 - Demonstration of retrofit technologies and operational efficiency improvements
- **Possible South Coast AQMD Programs and Actions**
 - Pacific Rim Initiative for Maritime Emission Reductions (PRIMER)
 - Develop & demonstrate retrofit technologies
 - Petition to EPA for additional requirements
 - Legislative efforts

Ocean-Going Vessels – Potential Emission Reductions



SC NOx Emissions from All OGV Modes: MSS Scenario





2022 AQMP Working Group Meetings for Aircraft



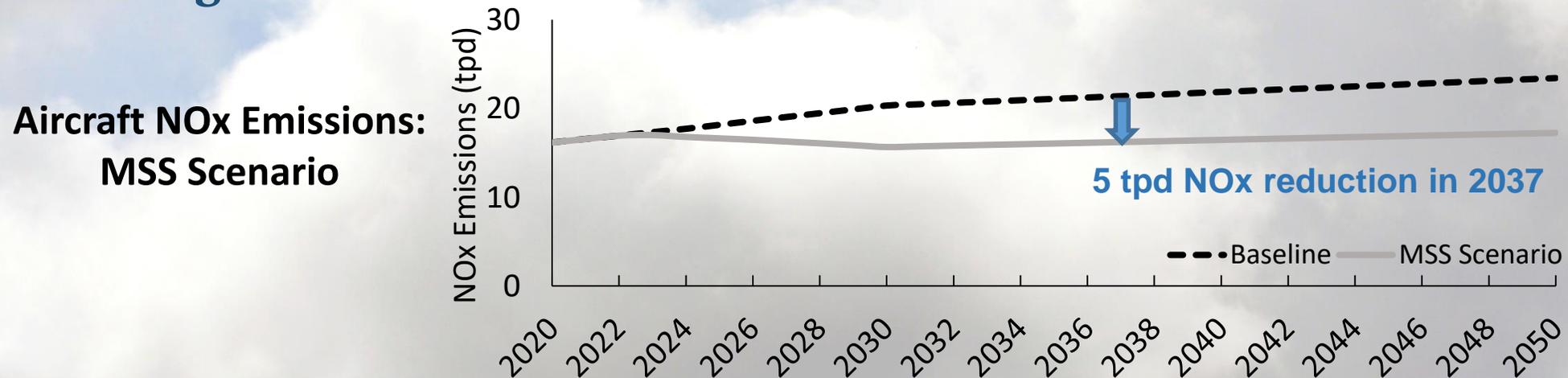
- Two working group meetings held on February 4 and April 6
- Topics Covered
 - Concepts from Draft Mobile Source Strategies
 - Aircraft operations and emissions in South Coast AQMD
 - Update on aircraft emission standards
 - Federal initiatives addressing aviation emissions
 - Draft aircraft emissions inventory and potential control strategies



Aircraft – Strategies and Emission Reductions



- Refining Aircraft Emission Inventory (Latest FAA forecast, aircraft turnover)
- Potential strategies
 - ❑ New aircraft engine and APU standards (EPA/ICAO)
 - ❑ Incentives for de-rated take-off, reduced engine taxing, flying cleanest aircraft, reduced APU usage, and zero emission APU
 - ❑ Promoting zero emission aviation





Mobile Source Working Groups Meeting Schedule

- **Third series of Mobile Source Working Group meetings:**
 - Ocean Going Vessels: June 2, 2021**
 - Heavy-Duty Trucks: June 3, 2021**
 - Aircraft: June 8, 2021**
 - Construction and Industrial Equipment: June 15, 2021**
- **Subsequent meetings will be scheduled approximately every 6-8 weeks**



Contact Information

Topic	Contact Info	
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Emissions Inventory & Regional Modeling	<p>Zorik Pirveysian Planning and Rules Manager ZPirveysian@aqmd.gov</p>	<p>Sang-Mi Lee, Ph.D. Program Supervisor slee@aqmd.gov</p>



South Coast Air Basin PM10 Maintenance Plan for 1987 24-hour PM10 Standard

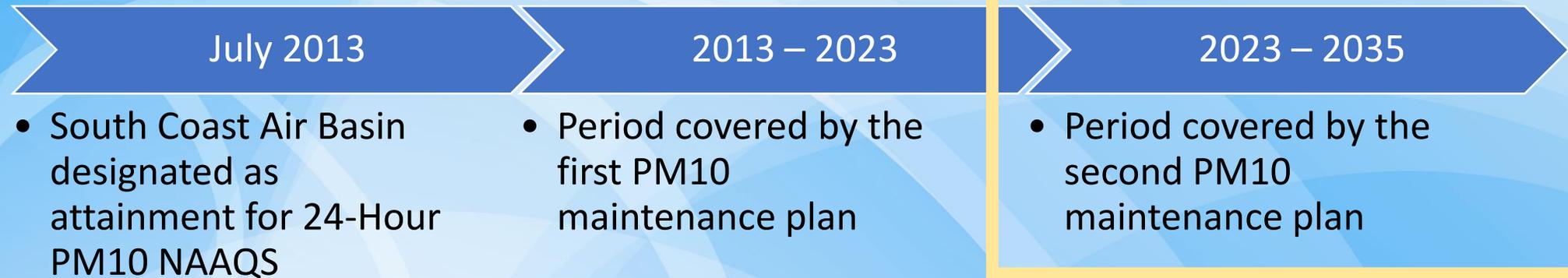
AQMP Advisory Group Meeting

May 18, 2021

South Coast Air Basin Attainment Status for PM10

- South Coast Air Basin was previously classified as moderate nonattainment
- In February 1993 South Coast Air Basin was reclassified from moderate to serious nonattainment
- South Coast AQMD developed control strategies for PM10 in the 1997, 2003, and 2007 Air Quality Management Plans (AQMPs)
- In July 2013 South Coast Air Basin was designated as attainment for PM10

Maintenance Plan



- **Maintenance plan** is a requirement for designation as attainment¹
- State must submit a second maintenance plan 8 years after designation as attainment²

¹ Section 107(d)(3)(E) of the Clean Air Act (CAA)

² Section 175A of the CAA

Maintenance Plan Requirements

1. Analysis of the first maintenance plan period (2013-present) to show that:
 - South Coast Air Basin has continued to attain NAAQS
 - Continued attainment was not solely a result of favorable meteorology
2. Maintenance demonstration to show that we will continue to attain the standard
3. Commitment to maintain a future monitoring network
4. Commitment to verify continued attainment
5. Establish contingency plan

PM10 Standard and Exceptional Events

PM10 Standard

- 24-hour NAAQS: 150 ug/m³
- Not to be exceeded more than once per year on average over a 3-year period (at each monitor)
 - Design Value ≤ 1

Exceptional Events

- Natural or manmade events, e.g. wildfires, high winds, fireworks
- These do not count as exceedances, since they are not reasonably controllable and not likely to recur in the same location

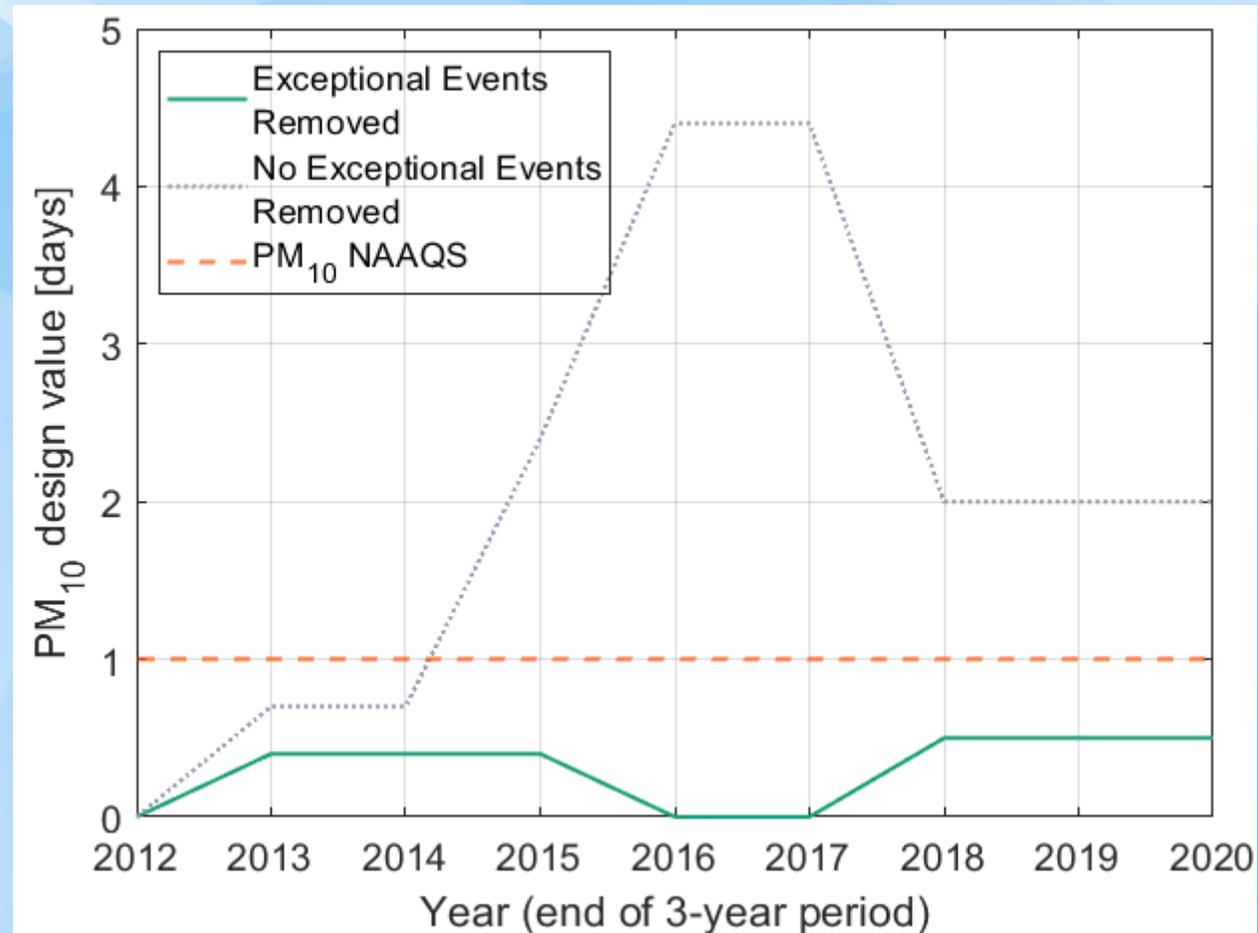


The Basin Continued to Attain the PM10 Standard (2013-present)

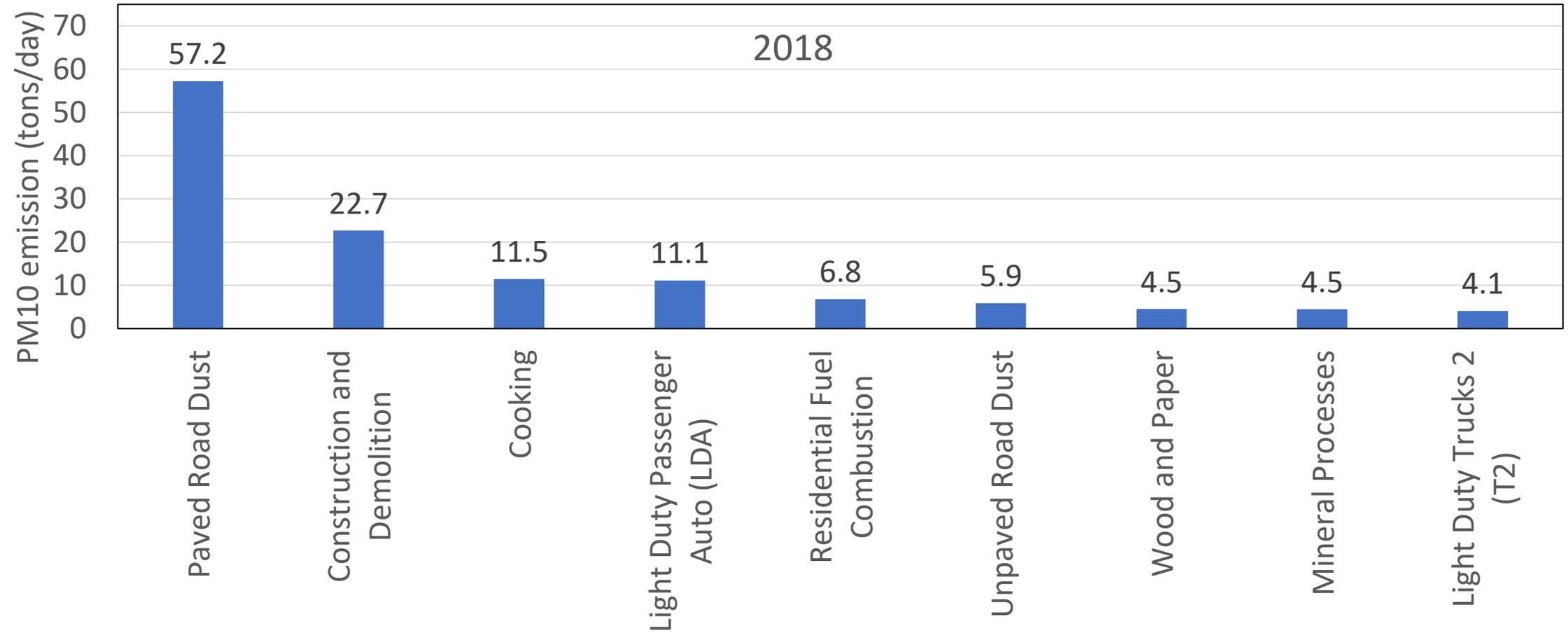
- Only two exceedances recorded over the first maintenance period (2013-2020)*
- No PM10 design values exceeded the NAAQS
- Attainment was maintained without abnormally favorable meteorology. Rainfall was below average during this period

*After removing suspected exceptional events

PM10 design value before and after removing suspected exceptional events



Major Sources of PM10 Emissions

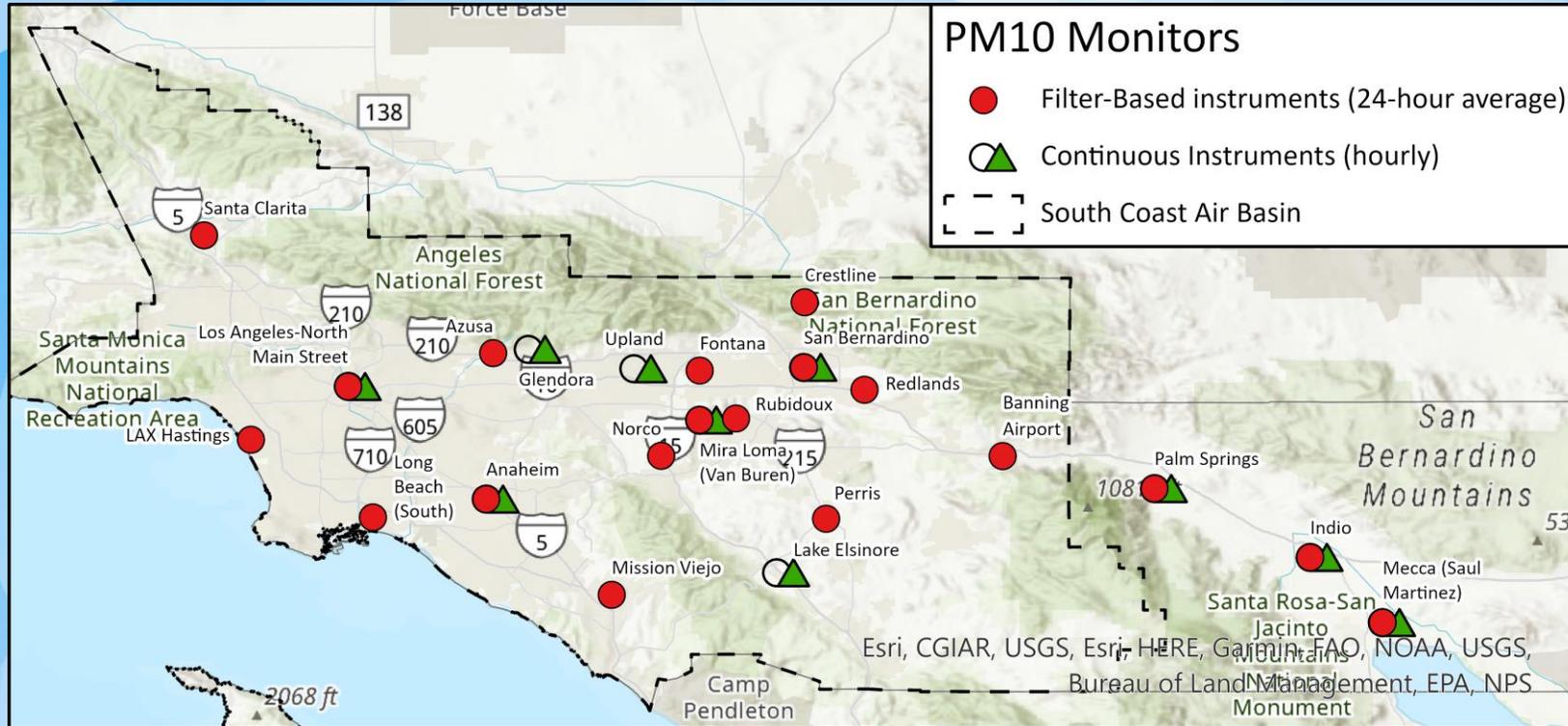


Emission Trends and Recent PM10 Levels Indicate that PM10 Attainment will be Maintained Through 2035

- NOx and VOC emissions decrease substantially in future years
- Direct PM10, ammonia, and sulfur dioxide emissions increase marginally in future years, but are expected to have *de minimis* impact
- Therefore, the South Coast Air Basin is expected to maintain attainment until at least 2035
- Emissions in this Plan are much lower than the emissions included in the 1st Plan due to regulations targeting PM and its precursors



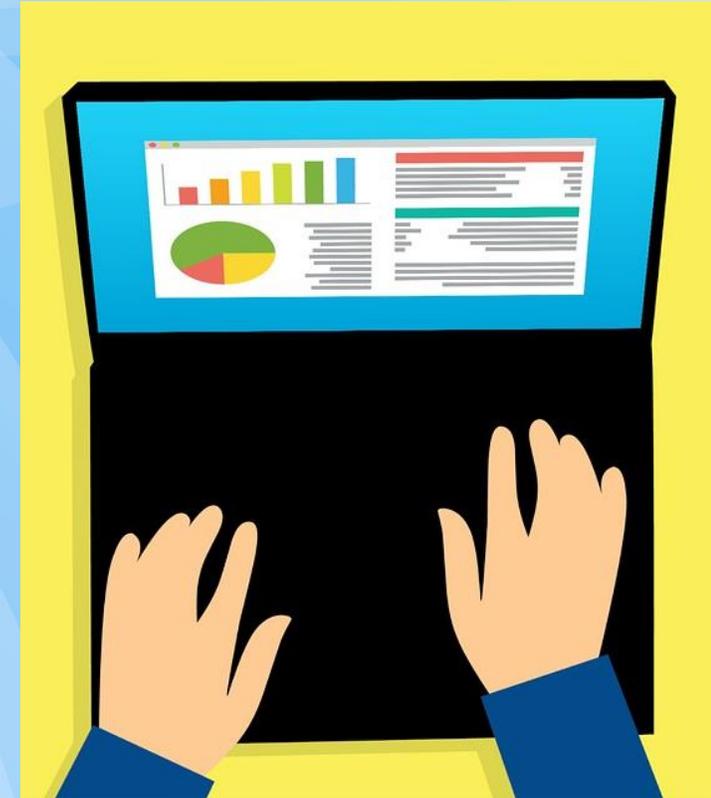
Commitment to Maintain Future PM10 Monitoring Network



- Current PM10 network exceeds all minimum monitoring requirements
- Plan to replace some 24-hour monitors with hourly monitors, providing better time resolution

Commitment to Verify Continued Attainment with Review of Emissions Inventory

- Review the inputs and assumptions used for the emission inventory when new information becomes available
- If inputs and assumptions have changed significantly, South Coast AQMD will:
 - Evaluate the potential impacts
 - Revise the emissions inventory, if needed
 - Collaborate with other agencies involved in inventory development



Contingency Plan will be Triggered if PM10 Standard is Violated Even with Exclusion of Exceptional Events

Consult with the regulated industry to determine if voluntary or incentive-based control measures could reduce emissions, if feasible

Evaluate whether **improved education and training** for mitigating fugitive dust emissions could reduce emissions

Evaluate whether **changes to enforcement of existing rules** could reduce emissions

Evaluate amending selected Rules to further strengthen prohibitions on particulate emissions

Propose new rules to reduce particulate emissions

Selected rules that may be evaluated if Contingency Plan is triggered

South Coast AQMD Rule

403: Fugitive Dust

444: Open Burning

1157: PM10 Emission Reductions from Aggregate and Related Operations

1158: Storage, Handling, and Transport of Coke, Coal, and Sulfur

1186: PM10 Emissions from Paved and Unpaved Roads and Livestock Operations

Public Process (2021)

April

- Draft Plan Released (April 8)
- Public Consultation Meeting (April 15)
- Public Comments Due (April 26)

May

- Draft Final Plan Released (May 4)
- AQMP Advisory Committee (May 18)

June

- South Coast AQMD Board Consideration (June 4)
- CARB Board Consideration (June 24-25)

July

- Submit to U.S. EPA for inclusion in the State Implementation Plan

- The PM10 Maintenance Plan is exempt from CEQA. A Notice of Exemption will be prepared pursuant to CEQA Guidelines Section 15062

Supporting Documentation

Draft Final 2021 PM10 Maintenance Plan for the South Coast Air Basin

[http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/other-state-implementation-plan-\(sip\)-revisions](http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/other-state-implementation-plan-(sip)-revisions)

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