AQMP Advisory Group

February 3, 2021

Cleaning The Air That We Breathe...

Agenda

1. Welcome, Introductions, Approval of Minutes, and 2016 AQMP Updates
2. Updates on Other SIP Activities
3. Updates on 2022 AQMP Development

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 µg/m^3	Serious	Unclassifiable/ Attainment
2006 24-hour PM2.5	35 µg/m^3	Serious	Unclassifiable/ Attainment

**Voluntary reclassification from severe to extreme in July 2019*

2016 AQMP – U.S. EPA Actions

Standards		EPA Actions	Reference
South Coast Air Basin	1979 1-hour Ozone (120 ppb)	• Approved most plan elements; • Conditional approval* for the reasonable further progress contingency measure requirement	Effective Oct. 31, 2019; 84 FR 52005
	1997 8-hour Ozone (80 ppb)		
	2008 8-hour Ozone (75 ppb)		
	2006 24-hour PM2.5 (35 μg/m3)	• Approved most plan elements; • Conditional approval on contingency measures	Effective Mar. 14, 2019; 84 FR 3305 Effective Dec. 9, 2020; 85 FR 71264
	2012 Annual PM2.5 (12 μg/m3)	• Approved most plan elements; • Conditional approval on contingency measures • Reclassify the Basin from Moderate to Serious nonattainment	Effective Dec. 9, 2020; 85 FR 71264
Coachella Valley	2008 8-hour Ozone (75 ppb)	• Approved most plan elements; • Deferred actions on contingency measure requirement	Effective Oct. 16, 2020; 85 FR 57714

**Relied on South Coast AQMD's commitment to modify an existing rule or rules, or adopt a new rule(s), to include contingency provisions to provide for additional emissions reductions*

Contingency Measures

- **Clean Air Act requires contingency measures to take effect following a determination that the area has failed:**
  1. To meet any reasonable further progress (RFP) requirement
  2. To meet any quantitative milestone
  3. To submit a milestone report
  4. To attain the applicable NAAQS by the applicable attainment date
- **PM2.5 Contingency Measures**
  - Rule 445 (Wood-Burning Devices) adopted in June 2020 to address contingency provisions for PM2.5
    - Lower curtailment thresholds to be triggered following EPA findings of failure

Contingency Measures (cont.)

- Ozone Contingency Measures
  - South Coast Air Basin
    - EPA finalized a conditional approval for 2008 ozone standard effective October 31, 2019
      - Relied on South Coast AQMD's commitment (within one year) to adopt/amend a rule to include contingency provisions to provide for additional emissions reductions
    - Rule 445 (Wood-Burning Devices) amended in October 2020
      - Ozone curtailment thresholds added from September to April; to be triggered following EPA's findings of failure
  - Coachella Valley
    - A rule to be adopted/amended to address contingency measure requirements

2016 AQMP – U.S. EPA Actions (cont.)

- South Coast On-Road Heavy-Duty Vehicle Incentive Measures
  - Part of CARB 2016 State SIP Strategy
  - Six key components committed by CARB (2018-2020):
    - Monitor implementation of 1,300 repower and replacement projects
    - Achieve 1 tpd of NOx reductions by 2023
    - Submit annual reports to EPA (2020 to 2023)
    - Make annual reports publicly available or available upon request
    - Provide project-specific documents/data upon request
    - Adopt and submit substitute measures for any shortfall
  - Approved into the SIP on February 16 2021 (86 FR 3820)

Table 4: South Coast Expected Emission Reductions from State SIP Measures
All emission reductions in tons per day (tpd)

Proposed Measure	2023		2031	
	NOx	ROG	NOx	ROG
On-Road Light-Duty				
Advanced Clean Cars 2	--	--	0.6	0.4
Lower In-Use Emission Performance Assessment	NYQ	NYQ	NYQ	NYQ
Further Deployment of Cleaner Technologies*	7	16	5	16
Total Category Reductions	7	16	6	16
On-Road Heavy-Duty				
Lower In-Use Emission Performance Level	NYQ	<0.1	NYQ	<0.1
Low-NOx Engine Standard – California Action	--	--	5	--
Low-NOx Engine Standard – Federal Action*	--	--	7	--
Medium and Heavy-Duty GHG Phase 2	NYQ	NYQ	NYQ	NYQ
Innovative Clean Transit	<0.1	<0.1	0.1	<0.1
Last Mile Delivery	<0.1	<0.1	0.4	<0.1
Innovative Technology Certification Flexibility	NYQ	NYQ	NYQ	NYQ
Zero-Emission Airport Shuttle Buses	NYQ	NYQ	NYQ	NYQ
Incentive Funding to Achieve Further Emission Reductions from On-Road Heavy-Duty Vehicles	3	0.4	3	0.4
Further Deployment of Cleaner Technologies*	34	4	11	1
Total Category Reductions	37	4	27	2
Off-Road Federal and International Sources*				
Aircraft				
Further Deployment of Cleaner Technologies*	9	NYQ	13	NYQ
Locomotives				
More Stringent National Locomotive Emission Standards*	<0.1	<0.1	2	<0.1
Further Deployment of Cleaner Technologies*	7	0.3	3	0.3
Ocean-Going Vessels				
Tier 4 Vessel Standards*	--	--	NYQ	NYQ
Incentivize Low Emission Efficient Ship Visits	NYQ	NYQ	NYQ	NYQ
At-Berth Regulation Amendments	0.3	<0.1	1	<0.1
Further Deployment of Cleaner Technologies*	30	NYQ	38	NYQ
Total Off-Road Federal and International Reductions	46	0.3	57	0.3
Off-Road Equipment				
Zero-Emission Off-Road Forklift Regulation Phase 1	--	--	1	0.1
Zero-Emission Off-Road Emission Reduction Assessment	NYQ	NYQ	NYQ	NYQ
Zero-Emission Off-Road Worksite Emission Reduction Assessment	NYQ	NYQ	NYQ	NYQ
Zero-Emission Airport Ground Support Equipment	<0.1	<0.1	<0.1	<0.1
Small Off-Road Engines	0.7	7	2	16
Transport Refrigeration Units Used for Cold Storage	NYQ	NYQ	NYQ	NYQ
Low-Emission Diesel Requirement	0.3	NYQ	1	NYQ
Further Deployment of Cleaner Technologies*	21	21	18	20
Total Off-Road Equipment Reductions	22	28	22	36
Consumer Products				
Consumer Products Program	--	1 – 2	--	4 – 5
Total Consumer Products Reductions	--	1 – 2	--	4 – 5
Aggregate Emission Reductions	113	50 - 51	111	59 - 60

Agenda Item #2

Updates on Other SIP Activities

2006 24-hour PM2.5 Standard For South Coast Air Basin

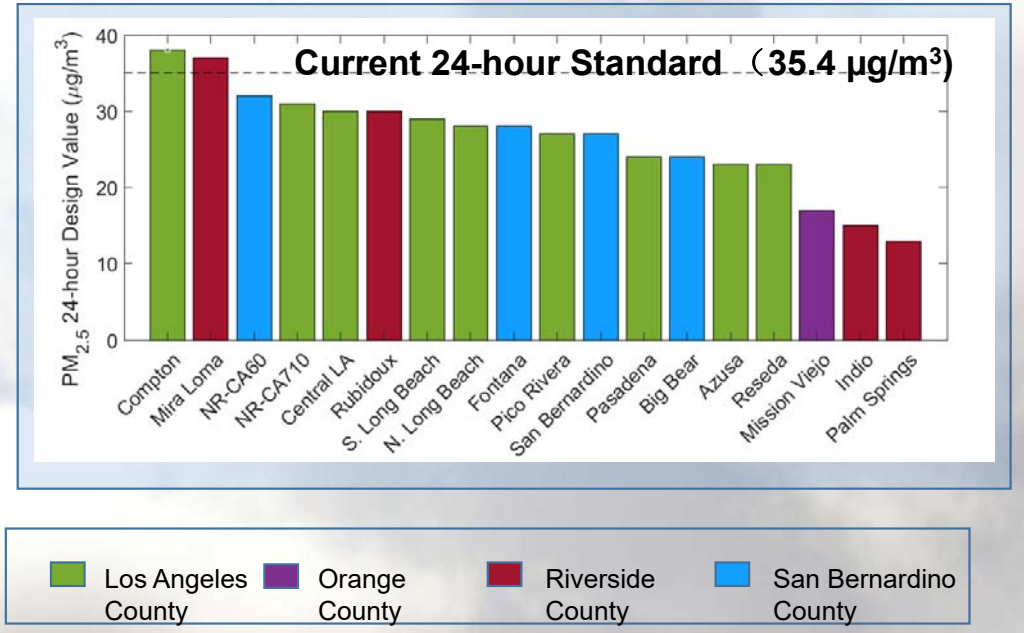
South Coast Air Basin Attainment Status

Standard	Level	Attainment Deadline	Attainment Status
1997 Annual PM2.5	15 µg/m^3	2015	Attained in 2013
1997 24-hour PM2.5	65 µg/m^3	2015	Attained in 2013
2006 24-hour PM2.5	**35 µg/m^3**	**2019**	**Serious Nonattainment**
2012 Annual PM2.5	12 µg/m^3	2025	Serious Nonattainment

2017-2019 3-year PM2.5 Design Values*

Based on the design value for 2017-2019, South Coast Air Basin failed to attain the 2006 PM2.5 standard by December 31, 2019

- **Contingency provisions triggered in Rule 445 (Wood-Burning Devices)**
  - **Curtailment threshold lowered from 30 to 29 µg/m3**
- **A SIP update required to be submitted to U.S. EPA by December 31, 2020**



** Data likely to be approved as exceptional events by U.S. EPA removed from analysis*

South Coast Air Basin PM2.5 Attainment Plan

- Developed to address Clean Air Act requirements triggered by the failure to attain by the December 2019 deadline
- Updated emissions inventory, modeling, and attainment demonstration
  - Attainment expected by 2023 based on ongoing emission reductions from adopted rules and regulations
  - Recently-adopted regulations and programs provide further assurance for attainment
- The Plan was adopted by South Coast AQMD Governing Board on December 4, 2020, and submitted to EPA through CARB

Attainment Status Update

- Based on the preliminary design value for 2018-2020*, South Coast Air Basin has attained the 2006 PM2.5 standard
  - Exceptional events such as wildfire and fireworks need to be addressed; these exceedances are excluded in design value calculations
  - Potential Clean Data Determination by U.S. EPA
    - Final Clean Data Determination suspends attainment-related SIP requirements

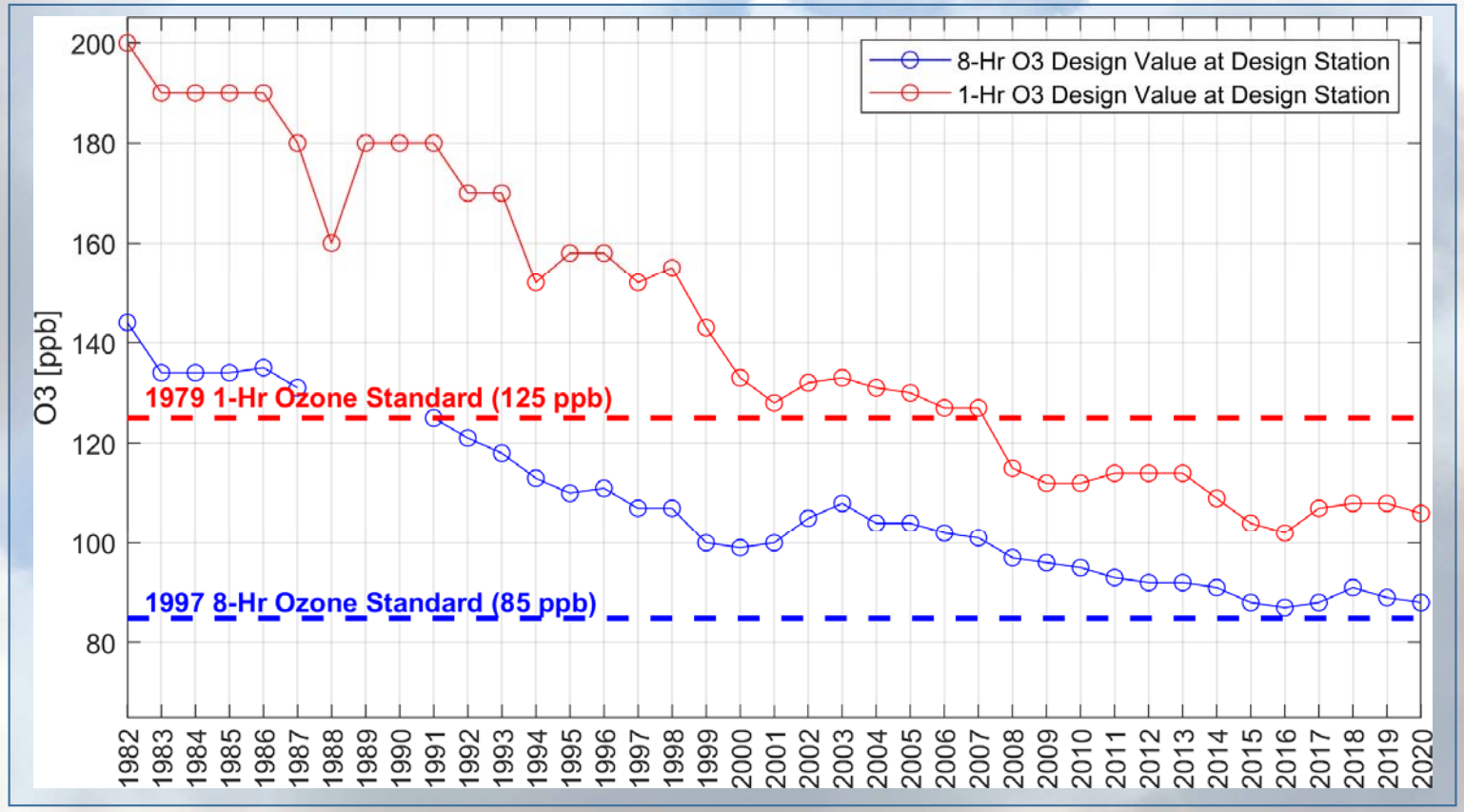
** Data likely to be approved as exceptional events by U.S. EPA removed from analysis*

1997 8-hour Ozone Standard for Coachella Valley

- Coachella Valley was classified as a "Severe" nonattainment area, with an attainment date of June 15, 2019
  - Monitoring data (2016-2018) showed that the area did not attain the standard by the deadline
- On July 10, 2019, Coachella Valley was granted a voluntary reclassification from "Severe" to "Extreme" by the U.S. EPA
  - A revision to the State Implementation Plan (SIP) is required (due February 2021)

Criteria Pollutant	Averaging Time	Designation	Attainment Date
Ozone (O_3)	(1979) 1-Hour (0.12 ppm)	Attainment	11/15/2007 (attained 12/31/2013)
	(1997) 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	(2008) 8-Hour (0.075 ppm)	Nonattainment (Severe)	7/20/2027
	(2015) 8-Hour (0.070 ppm)	Nonattainment (Severe)	8/3/2033

Ozone Trend in Coachella Valley (Design Value)



Coachella Valley Extreme Area Ozone Plan

- Developed to address Clean Air Act requirements trigged by the Extreme area reclassification
- Updated inventory and modeling shows attainment by 2023 based on ongoing emission reductions from adopted rules and regulations
- The Plan was adopted by South Coast AQMD Governing Board on December 4, 2020, and submitted to EPA through CARB
- Contingency measure requirement to be addressed through a separate rulemaking process
- Vehicle Miles Travelled Offset Demonstration to be addressed through CARB

Agenda Item #3

Updates on 2022 AQMP Development

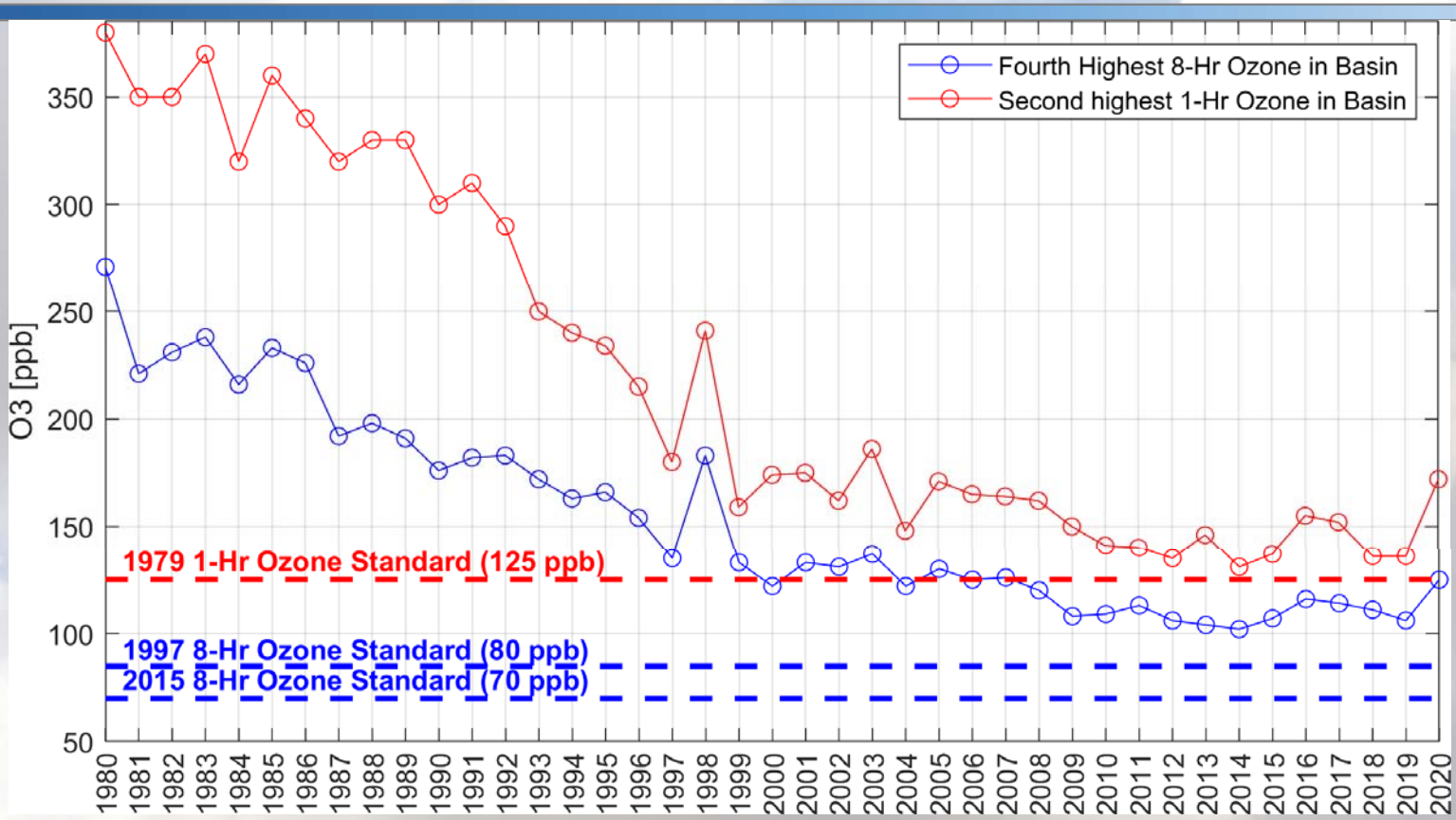
Background – 2015 8-hour Ozone Standard

- **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)

**Voluntary reclassification from severe to extreme in July 2019*

Progress Towards Attaining Ozone Standards in the Basin



* As of 10/21/2020. Data is preliminary.

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	Attainment Demonstration	Section 185 Fee Program (Failure to attain)
	Emissions Statement		Reasonably Available Control Measures	
	Reasonably Available Control Technology Demonstration		Reasonable Further Progress	
			Conformity	
			Contingency Measures	
	Vehicle Miles Traveled Offset		Enhanced Inspection and Maintenance Program	
Extreme Area Only		Clean Fuels for Boilers		

SIP Requirements Due August 2021

- **Nonattainment New Source Review (NNSR) Compliance Demonstration**
  - **Requirements**
    - To demonstrate South Coast AQMD's NSR program implements the federal statutory and regulatory requirements for NSR
    - To ensure that construction and operation of new, relocated, and modified stationary sources do not interfere with progress towards attainment of NAAQS
  - **For 2008 ozone standard, a NNSR Compliance Demonstration was approved**
    - An analysis of the South Coast AQMD NSR rules (Reg XIII) and the NSR requirements under the District's RECLAIM program
    - Approved by U.S. EPA in 2018 (83 FR 64026)
  - **For 2015 ozone standard, option to certify existing SIP-approved program**

SIP Requirements Due August 2021 (cont.)

- **Clean Fuel for Boilers (Extreme Nonattainment Areas)**
  - **Requirements**
    - **Each new, modified, and existing electric utility and industrial and commercial boiler emitting > 25 tons per year of NOx either use clean fuels as its primary fuel or use advanced control technologies**
  - **For 2008 ozone standard, requirements satisfied through South Coast AQMD's Rule 1146, Rule 2004, and Rule 1303 (84 FR 52005)**
  - **For 2015 ozone standard, option to certify existing SIP-approved program**

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	Attainment Demonstration	Section 185 Fee Program (Failure to attain)
	Emissions Statement		Reasonably Available Control Measures	
	Reasonably Available Control Technology Demonstration		Reasonable Further Progress	
			Conformity	
			Contingency Measures	
	Vehicle Miles Traveled Offset		Enhanced Inspection and Maintenance Program	
Extreme Area Only		Clean Fuels for Boilers	**2022 AQMP**	

Emissions Inventory Development

- **Emissions for the following years are underdevelopment.**

Base year	Future years
• 2018	• 2026 - Ventura • 2032 - Coachella Valley and Mojave • 2037 – South Coast Air Basin • Other years for Reasonable Further Progress (RFP) and milestone years

Emissions Inventory Updates

Key Areas of Emissions Updates

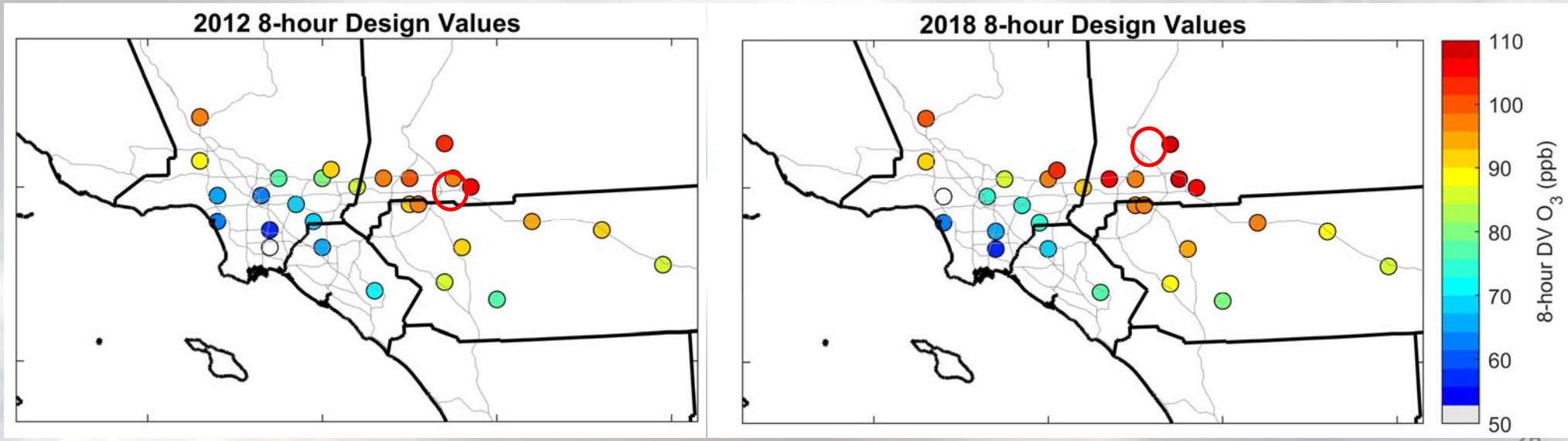
- Fuel combustion using Natural Gas and LPG in residential, commercial and industrial sectors
- Architectural coatings and Adhesives
- Paved road and unpaved road dusts
- Composting processes and livestock
- Aircraft
- Fugitive emissions from tanker ships
- Consumer products
- Lawn and Garden Equipment

Projection to Future Years

- Growth forecast from SCAG's 2020 RTP
- District regulations adopted since January 2016
- RECLAIM sunset after 2024 for NOx and 2025 for SOx

Air Quality Modeling Design Value

- Modeling Attainment Demonstration uses 5-year weighted design values
- The new 8-hour ozone design value for the Basin is 110.3 ppb, which is 5.6 ppb higher than the 2016 AQMP design values

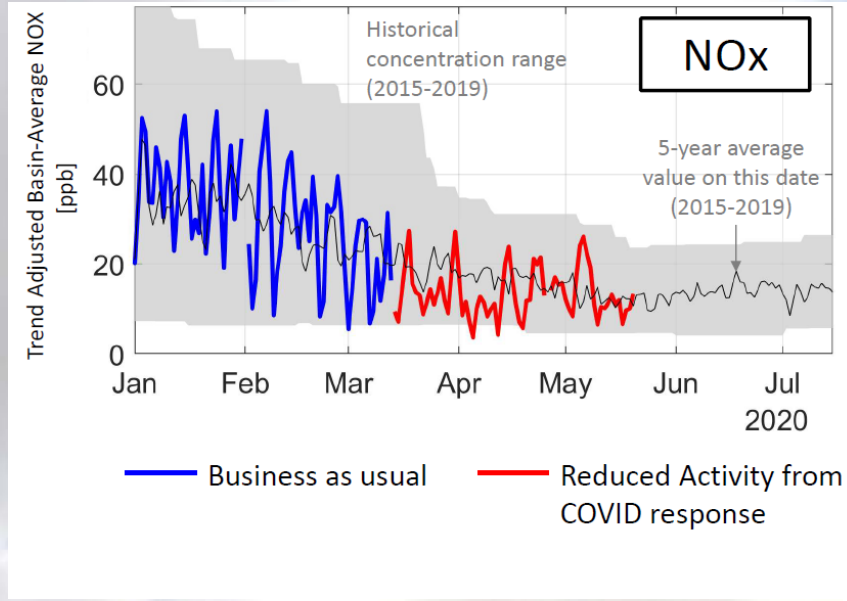


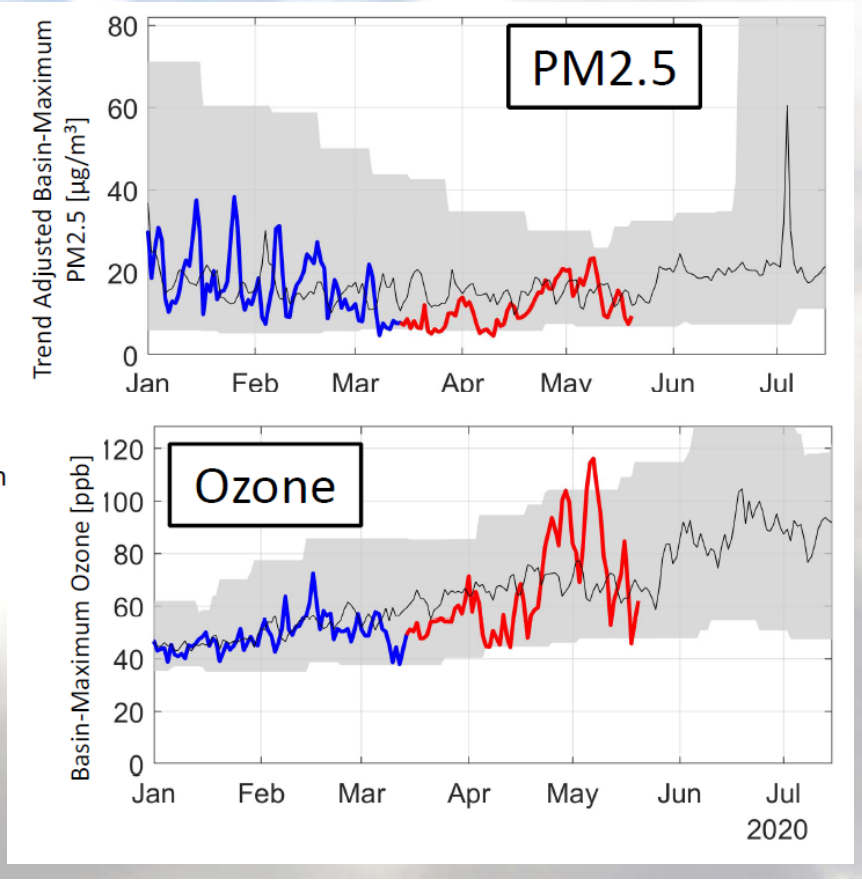
On-Going Modeling Development

- Working with a hybrid version of emissions inventory reflecting 2016 AQMP EI and EMFAC2017, since new emissions inventory is not available yet
- Modeling was conducted for COVID-19 shelter-in-place period (March to May 2020)
- Updating emissions and modeling platform using the latest available versions
- Updating biological emissions from urban areas using various satellite data and urban tree inventories
- Evaluating meteorological impact on Basin's ozone and PM2.5 levels

COVID-19 Shelter-in-Place Period:

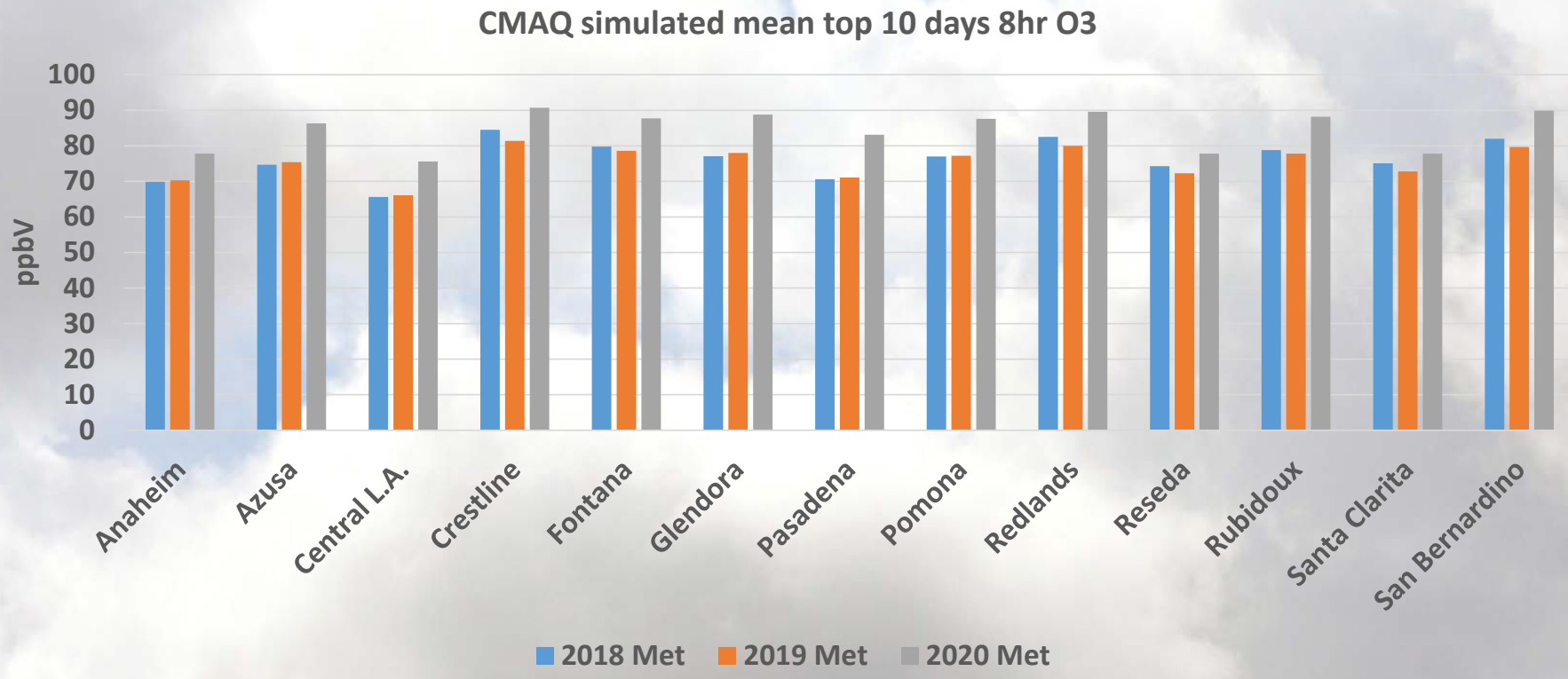
March 15 – May 15, 2020



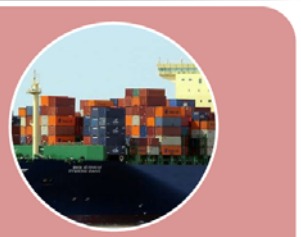


Impact of Meteorology: 2018, 2019 vs 2020

March 15 – May 15



Changes in Economic Activities & Emissions during March 15-May15, 2020



Cargo at Ports of LA & Long Beach[1]

↓~11%

Flights at Major Airports in Jurisdiction[2]

↓~61%

Vehicle Activity on Freeways in Jurisdiction

↓~25-43% Cars

↓~12-26% Trucks

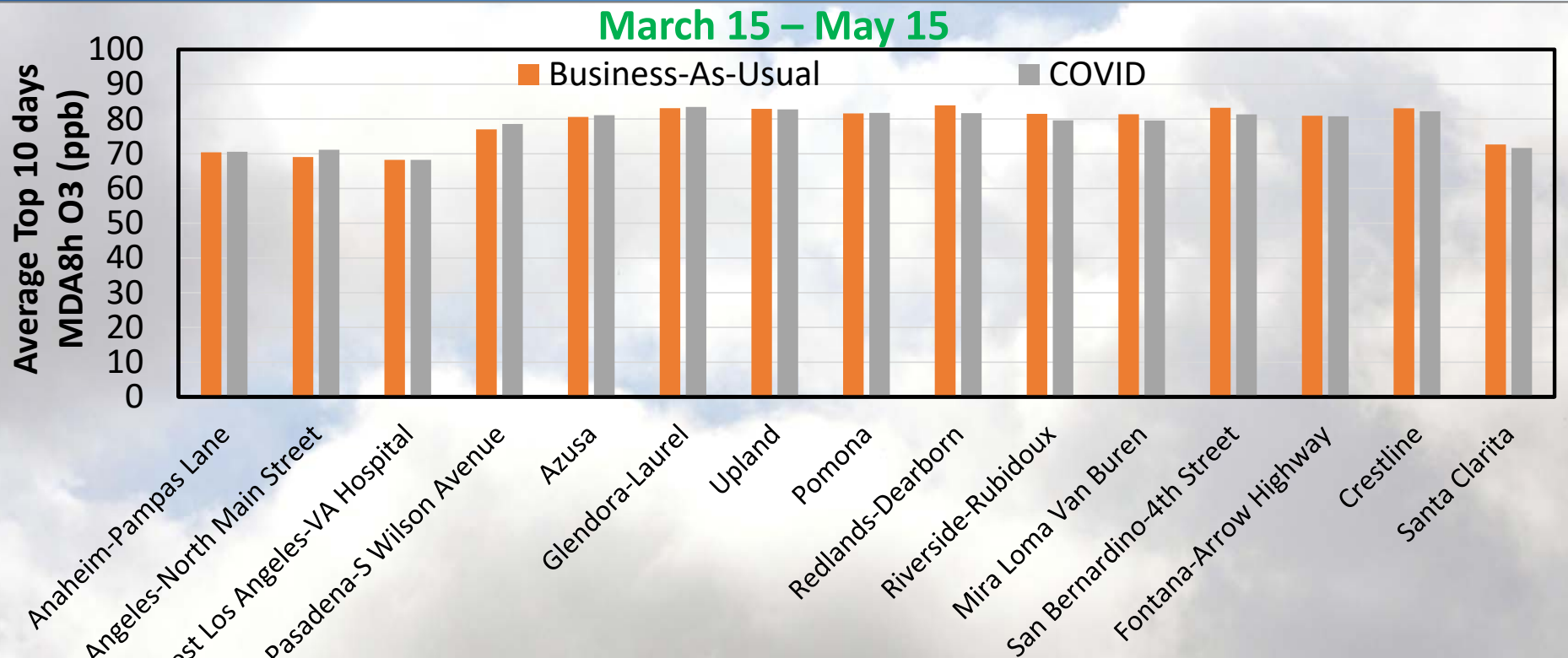
1) Approximate change in TEUs (Twenty foot equivalent units) comparing April 2020 to April 2019
2) Approximate change in aircraft operations at LAX, LGB, SNA, BUR, PSP, ONT from April 2020 to April 2019 from FAA Operations Network (OPSNET)
3) Approximate change in car and truck flow from pre-COVID orders (Feb 1 – Mar 7) to post-COVID orders (Apr 9 to May 7) calculated from CalTrans PeMS data.

Modeling Emission Changes

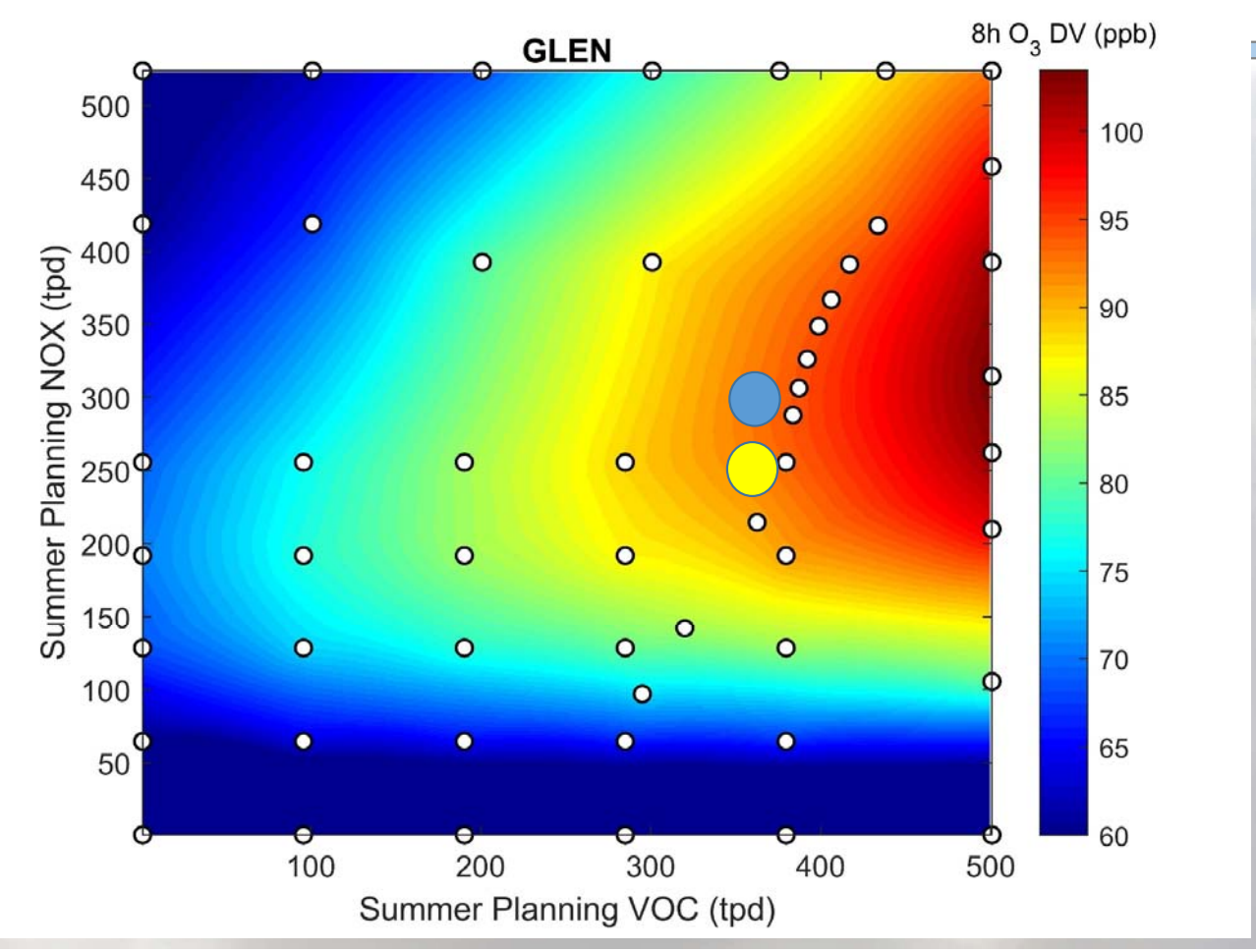
Approximately 23% NOx and 5% VOC Reductions from Business-As-Usual Condition

South Coast AQMD Governing Board presentation on June 5, 2020

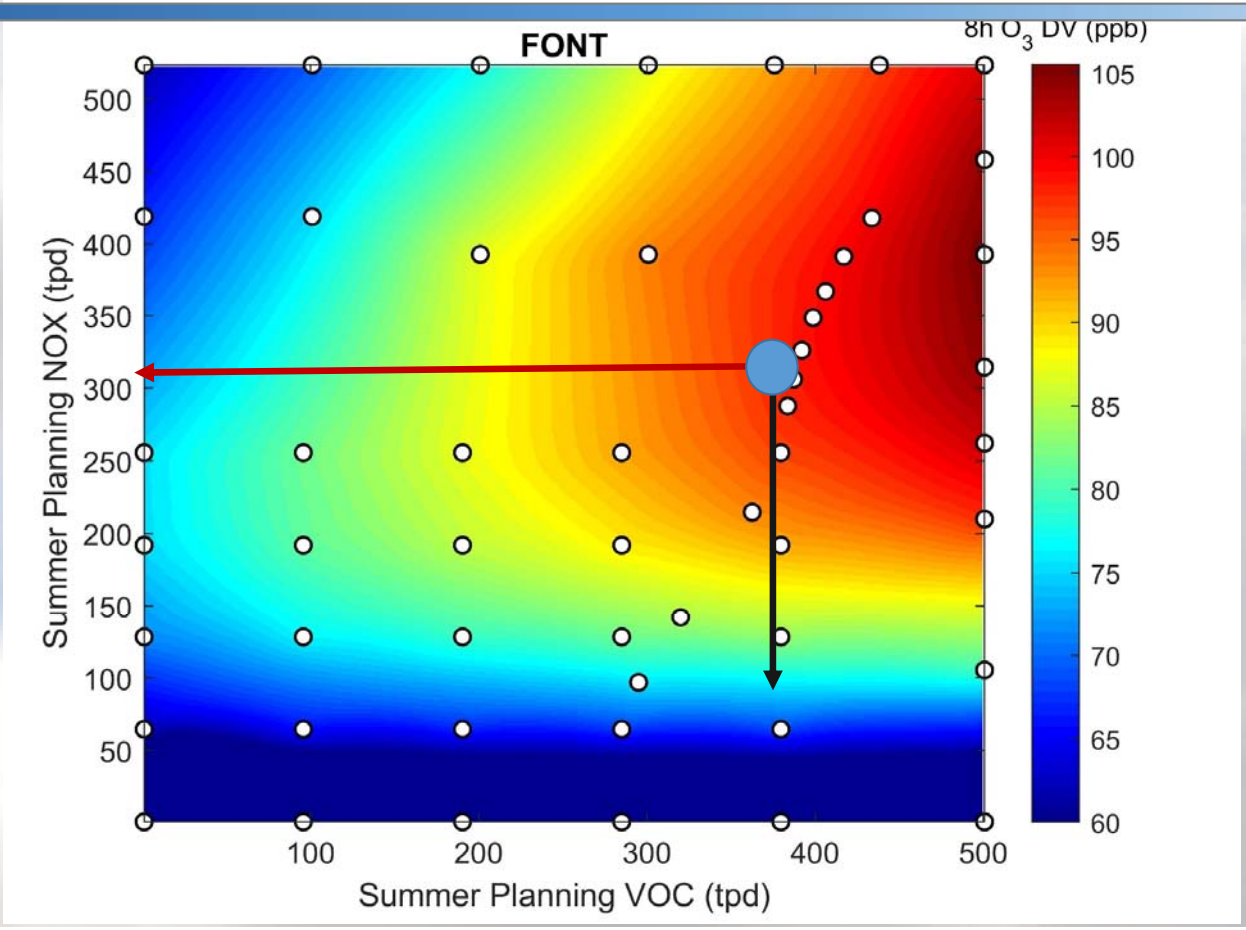
Impact of Emissions changes



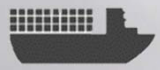
Implication on Ozone Attainment Strategy



NOx Control Path

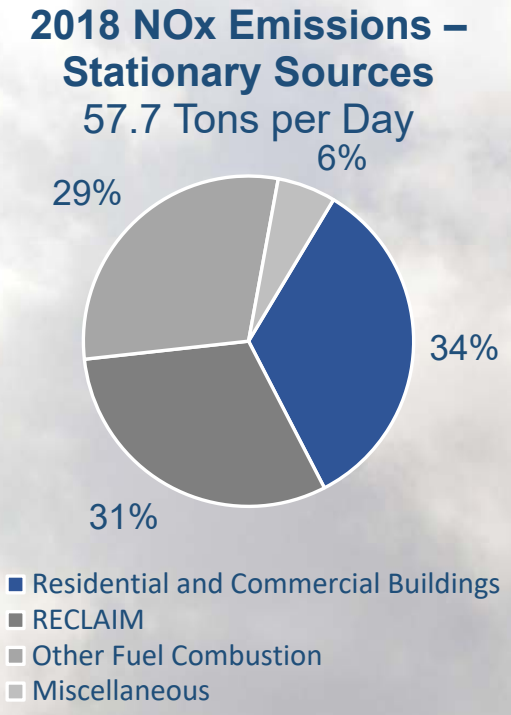


Control Measure Development

- **Five working groups established**
  -  Residential and Commercial Buildings
  -  Ocean-Going Vessels
  -  Aircraft
  -  Heavy-Duty Trucks
  -  Construction and Industrial Equipment
- **2022 AQMP control measures**
  - 2016 AQMP control measures to be updated where applicable; new measures

Working Group Update – Residential and Commercial Buildings

- Primary goal: explore measures to further reduce NOx emissions from residential and commercial appliances
- First meeting held December 17, 2020
  - Topics covered
    - Framework and objectives
    - Emissions inventory
    - 2016 AQMP control measures
    - South Coast AQMD rules and incentive programs
    - South Coast AQMD Roles
    - Federal, State, and other local agency programs



South Coast AQMD Roles

New Construction

- No land use authority, but can comment on planning decisions based on CEQA impacts
- Subject to new and existing state and local building codes
- Regulations for certain appliances in new home builds (similar to no wood burning fireplaces in new developments under Rule 445 or new units meeting a standard)
- Coordinate efforts and develop programs in partnership with state and local governments
- Minimal short-term emissions benefits

Existing Housing Stock

- Evaluate opportunities for further reductions from existing rules or developing new rules to regulate emissions from new appliance sales and installations (e.g., household furnaces and water heaters)
- Given the low rate of new construction, most potential for reductions
- Can encourage turnover with financial incentives

Key Comments from Working Group Meeting

- Emissions from gas pilot lights
- Emissions from electricity generation
- Emissions and health impacts from cooking appliances
- Ventilation equipment and indoor air quality
- Estimated growth of housing units and impacts on emissions
- Intended end users and input data used for the Net Emission Analysis Tool (NEAT)
- SIP credits for incentive programs
- Potential regulatory approach on furnaces (flexibility for dual fuel or hybrid system)

Timeline for Development

Dec 2020 – August 2021

Conduct working group meetings to discuss ideas, challenges, and goals

- Next working group meeting tentatively scheduled in late February 2021

March – August 2021

Develop and refine control measure(s)with estimated emission reductions for 2022 AQMP with feedback from the Working Group

July 2021 - Ongoing

Preliminary rule development based on control measure concepts

Working Group Update - Mobile Source

- Introductory Working Group meeting held in conjunction with CARB staff on December 16, 2020
- Topics covered
  - Air quality challenges in South Coast Air Basin
  - Establishment of Working Groups for specific categories: heavy-duty trucks, construction & industrial equipment, ocean-going vessels, and aircraft
  - Overview of CARB's 2020 Mobile Source Strategy
  - Update on South Coast AQMD Facility Based Mobile Source Measures
  - Zero-emission charging infrastructure needs

Key Comments from Working Group Meeting

- The need for compatibility between air districts and CARB on mobile source strategies, with a focus on bringing in more private capitals, especially on charging infrastructure build-up
- Balanced approach between regulatory measures and incentives needed to achieve both near-term and long term goals
- Equal consideration should be given toward fuel cell technologies, rather than just focusing on battery technologies
- The need to evaluate the long term effect of battery waste and recycle technologies
- Disproportionate impact of diesel truck traffic in communities near goods movement corridor in Inland Empire

Mobile Source Working Groups Meeting Schedule

- **First Series of Specific Mobile Source Working Group Meetings:**
  - **Heavy-Duty Trucks: January 26, 2021**
  - **Construction and Industrial Equipment: January 27, 2021**
  - **Ocean-Going Vessels: February 3, 2021**
  - **Aircraft: February 4, 2021**
- **Subsequent meetings will be scheduled approximately every 5-6 weeks**

First Working Group Meetings for HD Trucks and Construction & Industrial Equipment

- First working group meetings held for HD Trucks and Construction & Industrial Equipment on January 26 and January 27, respectively
- Topics covered
  - CARB strategies for reducing emissions
  - South Coast AQMD incentive programs update
  - HD Trucks working group also covered
    - HD Vehicle Inspection and Maintenance Program
    - Advanced Clean Fleets Regulation
    - Infrastructure needs for MD and HD Zero-Emission Vehicles (ZEVs)
    - ZEV market development strategy

Key Comments from HD Trucks Working Group Meeting

- The need for rule effectiveness analysis and enforcement programs for successful implementation of HD I/M Program
- Strategies to achieve near-term reductions needed for 2023 goals
- Use of biogas and renewable energy to support ZEV operations
- Questions on adequacy of the proposed budgets and the need to leverage private capitals in ZEV deployment and infrastructure development
- Under-representation of hydrogen fueling stations in ZEV infrastructure development discussion and the need for business model analysis to identify more cost effective options

Key Comments from Construction & Industrial Equipment Working Group Meeting

- More aggressive approach needed for off-road strategies including accelerating phase-in schedules and stronger push for zero-emission equipment
- Questions on Tier 5 standard, including available Tier 5 technologies, development process and adoption timeline
- The need to consider the difference between the mining and construction industry fleets in rule development
- Suggestion for CARB to conduct merit reviews to assess effectiveness of existing regulations and programs

Overall Control Approach for Attaining 2015 8-hour Ozone Standard

- Extensive transition to near-zero (NZE) and zero-emissions (ZE) technologies in mobile and stationary sources, where feasible
- Transition to cleanest available technologies if NZE/ZE not feasible
- Regulatory measures; Incentive programs
- Eliminate/minimize reliance on 182(e)(5) measures
- Seek legislative authority where applicable
- Seek new sources of funding for new/existing incentive programs
- Work closely with state and local governments to maximize reductions from residential and commercial buildings

2022 AQMP Overall Schedule

Preliminary 2018 emissions inventory
January 2021

Control Strategy Workshop
May 2021

Final Control Measures
August 2021

Release Draft AQMP
Late November 2021

CARB Board Hearing
July 2022

August 3, 2022
SIP due to EPA

April 2021
Updated base and future emissions inventory

June 2021
Draft Control Measures

June/August 2021
Carrying Capacity

June 2022
South Coast AQMD Board Hearing

Working Groups
December 2020 – June /August 2021

Contact Information

Topic	Contact Info	
AQMP General	Zorik Pirveysian Planning and Rules Manager ZPirveysian@aqmd.gov	Kalam Cheung, Ph.D. Program Supervisor kcheung@aqmd.gov AQMP Team AQMPTeam@aqmd.gov
Mobile Source Working Groups	Zorik Pirveysian Planning and Rules Manager ZPirveysian@aqmd.gov Ian MacMillan Planning and Rules Manager imacmillan@aqmd.gov	Brian Choe Program Supervisor bchoe@aqmd.gov AQMP Mobile Source Working Groups AQMPMobileSources@aqmd.gov
CARB 2020 Mobile Source Strategy	Fang Yan Manager, On-Road Model Development Section Fang.Yan@arb.ca.gov Cory Parmer Manager, Off-Road Diesel Analysis Section Cory.Parmer@arb.ca.gov	2020 Mobile Source Strategy MSS@arb.ca.gov
Residential and Commercial Buildings Working Group	Michael Krause Planning and Rules Manager mkrause@aqmd.gov	Gary Quinn, P.E. Program Supervisor gquinn@aqmd.gov
Emissions Inventory & Regional Modeling	Zorik Pirveysian Planning and Rules Manager ZPirveysian@aqmd.gov	Sang-Mi Lee, Ph.D. Program Supervisor slee@aqmd.gov