70 ppb Challenge Across the State

- U.S. EPA revised the 8-hour ozone standard to 70 ppb in 2015
- 19 nonattainment areas in California
  - Attainment years 2020-2037
- 10 areas must submit SIPs
- San Joaquin Valley and South Coast most challenging but other areas will also need commitments
- SIPs due August 2022
- Continue to identify and implement measures for 75 and 80 ppb
Ozone Levels in South Coast

1-Hour Design Value

8-Hour Design Value

1-Hour Standard (125 ppb)

8-Hour Standards (80 ppb, 75 ppb, 70 ppb)
How is Ozone Formed?

VOC, CO → OH → NO₂ → O₂
CO₂, H₂O → HO₂ → NO → O₃
Ozone Formation Process

Sunlight

NOx
What is the Ozone Weekend Effect?

NOx reductions decrease ozone

NOx reductions may increase ozone

CARB
Changes in the Weekend Effect Show NOx Reductions Are Critical
Science Drives SIP Development: NOx Reductions Required
Attainment Plans and 2022 State SIP Strategy

- District Measures
- Federal Actions Needed
- Transportation Planning
  Agency Activity & Actions
- CARB Measures

Attainment Plan (SIP)
• Draft Released on January 31, 2022
• Unprecedented variety of new measures to reduce emissions using all mechanisms available
• Level of action is necessary to meet all air quality standards and protect public health
• Drives pace and scale of CARB rulemakings
• Prioritizes near-term reductions for earlier SIP deadlines
Public Process to Date

- July 2021: Public Workshop
- Summer 2021: Stakeholder Meetings
- Oct/Nov 2021: Participated in SJVAPCD & SCAQMD Control Measure Workshops
- January 2022: Release Draft 2022 State SIP Strategy
- February 2022: 3rd Public Workshop
Focused Outreach to Low-Income and Disadvantaged Communities

- DACs and people of color are disproportionately affected by both mobile and stationary source pollution
- Measures will benefit DACs
- Staff engaged with community-based organizations
- Continue to develop relationships, solicit ideas and obtain feedback
Strategy Overview

• Transition away from combustion and reduce emissions to levels modeling predicts will support attainment of the 70 ppb standard, as well as earlier SIP deadlines

• Drive to Zero through:
  • regulations,
  • incentives, and
  • voluntary programs
## Proposed 2022 State SIP Strategy Measures

### On-Road
- Advanced Clean Fleets Regulation
- Zero-Emission Trucks
- On-Road Motorcycle New Emissions Standards
- Clean Miles Standard*
- Enhanced Regional Emission Analysis in State Implementation Plans

### Off-Road
- Tier 5 Off-Road Engine Standard
- Amendments to In-Use Diesel-Fueled Fleets Regulation
- Zero-Emission TRU Part II
- Commercial Harbor craft
- Cargo Handling Equipment
- Off-Road Zero-Emission Targeted Manufacturer Rule
- Clean Off-Road Fleet Recognition Program
- Spark-Ignition Marine Engine Standards

### Primarily Federally-Regulated
- In-Use Loco Regulation
- Future Measures for Aviation Emissions Reductions
- Future Measures for OGV Emissions Reductions

### Other
- Consumer Products
- Zero-Emission Standard for Space and Water Heaters

*Already adopted by Board
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On-Road Mobile Sources

- Advanced Clean Fleets Regulation
- Zero-Emission Trucks
- Advanced Clean Cars II (2016 SSS Measure)
- On-Road Motorcycles New Emissions Standards
- Clean Miles Standard Regulation (Adopted)
- Enhanced Regional Emissions Analysis in SIPs
Off-Road Vehicles and Equipment

- Tier 5 Off-Road Engine Standards
- In-Use Off-Road Diesel Fuel Fleets Regulation Amendments
- Transport Refrigeration Unit Regulation – Part II
- Commercial Harbor Craft Amendments (2nd Hearing)
- Cargo Handling Equipment Amendments
- Off-Road Zero-Emission Targeted Manufacturer Rule
- Clean Off-Road Fleet Recognition Program
- Spark-Ignition Marine Engine Standards
Non-Mobile Control Measures

- Consumer Products Regulation Amendments
- Zero-Emission Standards for Space and Water Heaters
Sources Primarily Regulated at the Federal and International Level – CARB Measures

• In-Use Locomotive Regulation
• Future Measures for Aviation Emissions Reductions
• Future Measures for Ocean-Going Vessel Emissions Reductions
Federal Action is Critical

California-Regulated Sources: Cars, Trucks, & Equipment

Reductions from California Sources:
>70% as of 2020
>85% by 2037

Primarily Federally Regulated Sources: Interstate Trucks, Planes, Trains, & Ships

Primarily Federally Regulated Source Emissions Surpassed CA Source Emissions in 2020, & will be Double CA Source Emissions by 2030

Federal Actions Needed

- **On-Road Heavy-Duty Vehicles**
  - Low-NOx Engine Standards
  - Zero-Emission Engine Standards

- **Off-Road Equipment**
  - Tier V Standards
  - Zero-Emission Standards Where Feasible

- **Locomotives**
  - More Stringent National Emission Standards
  - Zero-Emissions Standards for Switcher
  - Address Remanufacturing Loophole

- **Ocean-Going Vessels**
  - More Stringent NOx and PM Standards Requirements
  - Cleaner Fuel and Visit Requirements

- **Aviation**
  - More Stringent Engine Standards
  - Cleaner Fuel and Visit Requirements
  - Zero-Emission Airport On Ground Support Requirements
CARB NOx Strategy Benefits

Total NOx Reductions in 2037

2022 SSS Reductions in 2037
Additional Reductions Needed in South Coast

South Coast NOx (tpd out to 100nm)

- 2018: 65 tpd
- 2037: 39 tpd
- 2037 with CARB/District Measures: 24 tpd
- 2037 with CARB/District Measures & Federal Actions: 20 tpd

Preliminary Carrying Capacity:
- 60 tpd
Work Continues

- South Coast demonstrated attainment with a 60 tpd carrying capacity, including new reductions from aviation and stationary and areawide sources
- Draft 2022 SSS aggressively utilizes mechanisms within CARB authority
- CARB staff continue to explore additional opportunities:
  - Largest Categories – Off-road Equipment, Passenger Vehicles
  - Public Measure Suggestions – Indirect Source Rule, Additional Building/Appliance Standards, BACT/BARCT Determinations
SIP and Scoping Plan Complement One Another

- 2020 Mobile Source Strategy blueprint addresses climate change, air quality, and community risk
- SIP and Scoping Plan both drive technology towards zero
- CARB regulatory efforts support climate change, air quality, and community risk reduction goals
February 2022 SSS Workshop

• Announced in conjunction with release of Draft 2022 SSS
• Provided update on development
• Listened to input from stakeholders
• Solicited ideas
• Answered questions
February Workshop Comments

Thank you!

• Zero-Emissions Trucks Measure
• Enhanced Regional Emission Analysis in SIPs
• In-Use Locomotive

More Opportunities

• Pesticides
• ISR – SCM or Regulation
• BACT/BARCT Determinations
Next Steps

Today: Solicit Board Feedback and Ideas

Ongoing: Identify commitments for other nonattainment areas, Identify more measures to provide for South Coast attainment in 2037

March 2022: Release CEQA 2022 State SIP Strategy Draft Environmental Analysis

Summer 2022: Release Proposed 2022 State SIP Strategy

Summer 2022: Board Consideration of 2022 State SIP Strategy & District SIPs

2022 - 2037: 2022 State SIP Strategy Ongoing Regulatory Development and Implementation
Thank you