



2022 Truck and Engine Manufacturers Association Compliance Workshop

General Compliance Session

April 19, 2022

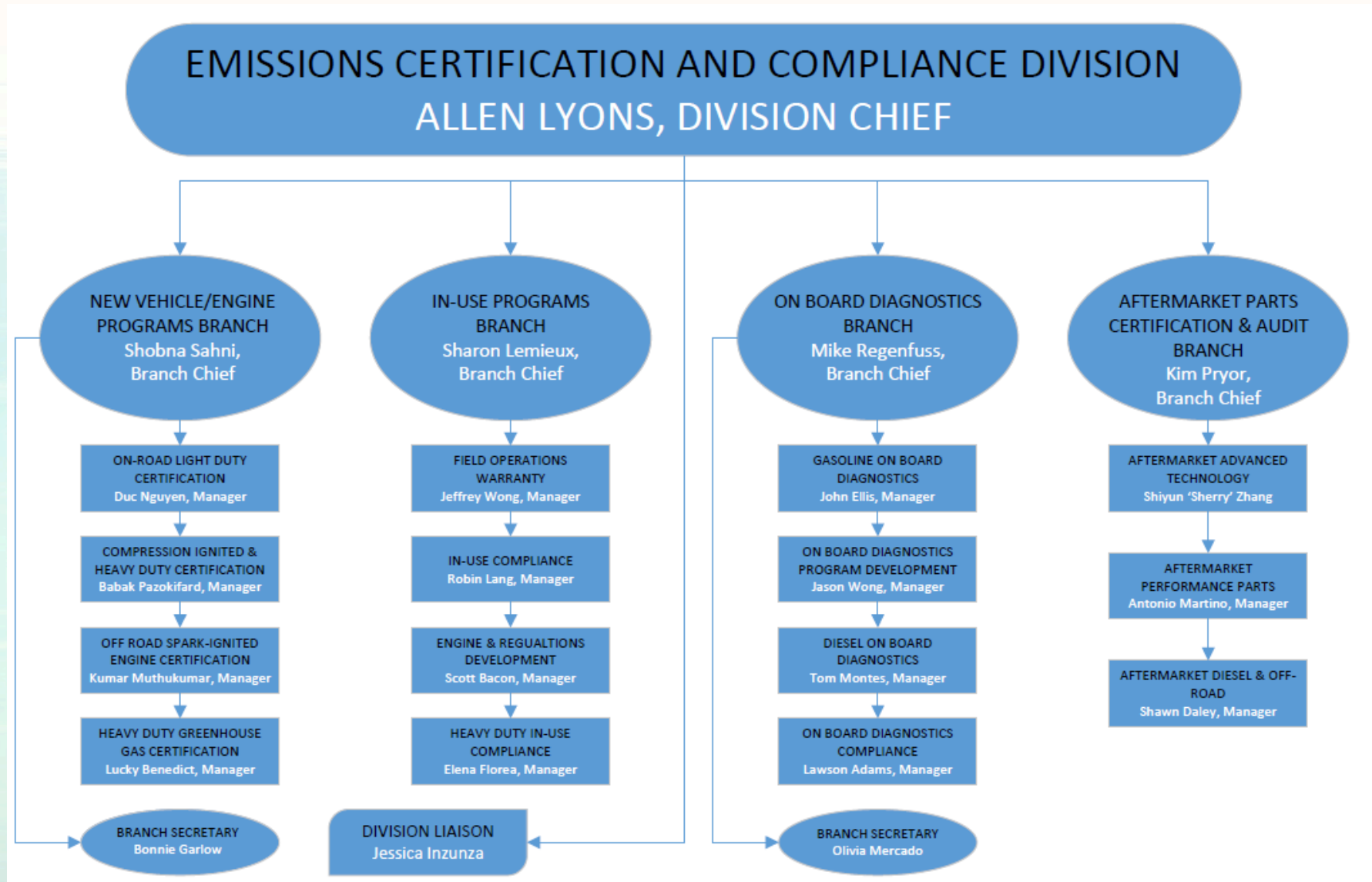
Outline

- Introduction
- Certification Fees
- CIHD Section
- Heavy-Duty GHG Section
- In-Use Programs Branch
- SIP Update

CARB's Southern California Headquarters



Emissions Certification and Compliance Division Organization Update



Certification Fee

Mobile Source Certification Fee Regulation Background

- Legislative Authority: Senate Bill 854 (2018) and Senate Bill 85 (2019)
- Regulation Adopted April 2021/Approved by OAL on January 18, 2022
 - <https://ww2.arb.ca.gov/rulemaking/2021/mobilesourcefee2021>
- Fee per application, not by vehicle
- Effective April 1, 2022
 - Fees to be paid at the time of application submittal starting MY 2023.
Review process will not start until fee is paid.

MS Fee Invoicing and Payment Process

Step 1: Obtain FI\$Cal Account Number through your assigned certification staff

Step 2: Generate invoice - Tutorials and Step-by-Step instructions:

w2.arb.ca.gov/mobile-source-certification-and-compliance-fee-regulation-meetings-workshops

Step 3: Complete payment process through <https://ww2.arb.ca.gov/payments>;
include invoice number

Step 4: Submit Final Invoice with Application

Compression Ignition & Heavy-Duty Certification Section

Diesel-SCR DF Validation Reminders

- When applicable, MY23 Diesel SCR-equipped engine families need:
 - DF Validation plan approved prior to testing
 - DF Validation data to be submitted and approved prior to first MY23 EO
- DF Validation Resource Links:
 - On-Road Certification Program Webpage:
<https://ww2.arb.ca.gov/our-work/programs/road-heavy-duty-certification-program>
 - Off-Road Compression Ignition Program Webpage:
<https://ww2.arb.ca.gov/our-work/programs/road-compression-ignition-certification-program>

Omnibus Changes for MY24

- Please refer to the Omnibus rulemaking for all changes for MY24+
<https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox>
- Examples of changes:
 - Exhaust Emission Standard Update
 - Durability Demonstration Procedure Update

DPF Ash Cleaning

- Effects on Durability Demonstration
 - What is performed on DF engine vs. in-field practice
- DPF ash cleaning instructions should be included on the Service Information Websites

Reminder to Submit Required Manufacturer's Reports

- The following reports are required to be submitted annually
 - Emergency Usage (OFCI)
 - ABT
 - Criteria
 - Engine GHG
 - Engine Replacement
 - Production
 - Service Information
 - Flex Engine
 - Warranty
 - Defect

Certification Preview Plan (CPP)

- CARB encourages manufacturers to hold CPP meetings every year

EMA Q+A

- Q: What is CARB's policy on hydrogen in ICEs? What is currently permitted/required if an end user wants to add hydrogen to NG for reducing GHGs? Any guidance/information for certifying engines to operate on H2 mix/blend for SI and CI engines?
- A: Certification pathways are available. Please discuss with CARB.

EMA Q+A

- Q: Does CARB still require ULSD Fuel Inlet labels on OFCI engines? If so, why?
- A: The label is required per current CARB regulations and test procedures.

EMA Q+A

- Q: Please provide an update on expectations for new DF tests to be conducted to full useful life for MY2024+ certification, specifically in the context of non/off-road. The only mention of this policy change is in CARB's November 24th, 2020, Mail-Out. Do CARB and EPA both still plan to require this of non/off-road manufacturers and, if so, will they be providing further guidance to clarify procedures? Does either agency plan to issue new regulations prior to enforcing this as a requirement?
- A: New OFCI engine families may propose less than full useful life durability demonstration for certification similar to past practice and validate their deterioration factors per DF Validation Mail-Out. (Mail-Out #ECC 2020-07)

Heavy-Duty GHG Certification Section

Outline

- Certification Activities
- Regulatory Activities
- Zero Emissions Powertrain Certification
- Air Conditioning Package Submissions
- Future GHG Standards

HDGHG Certification Activities

- Manufacturers Advisory Correspondence (MAC) - Clarifications on California Phase 2 Greenhouse Gas Air Conditioning (A/C) Leakage Requirements- MAC 2022-01, February 2022
- Application Templates for:
 - GHG Phase 2 Vehicle Certification (version 2.0)- August 2021
- Issued 323 EOs from 3/1/2021 through 3/1/2022. 99% of these were for tractors and vocational vehicles

HDGHG Regulatory Activities

- CARB aligned with certain provisions of the U.S EPA's Phase 2 Technical Amendments as part of Omnibus Regulations
 - Adopted by OAL in Dec 2021

Zero Emissions Powertrain Certification

(Alternate Pathway)

- Heavy-duty fuel cell and battery vehicle and powertrain manufacturers have a few certification paths:
 - **PATH 1:** a) Certify powertrain using ZEP Cert Procedures
b) Certify vehicle using Enhanced Fuel Cell and Electric Vehicle procedures
 - **PATH 2:** Use the standard Phase 2 GHG pathway (i.e. without going through ZEP certification)
- The Enhanced Fuel Cell and Electric Vehicle certification (which requires a certified ZEP) will be required for compliance with certain CARB programs - Advanced Clean Truck (ACT), Zero Emissions Airport Shuttle, and HVIP program.

Reminders

- Submit applications early – At least 90 days before start of production.
- Manufacturers are reminded to submit 2021MY end of year reports due now or soon.
 - CA production reports (90 days from end of production) and
 - ABT (90 days and 270 days from end of production)
- Please get CARB preliminary approval for aerodynamic test plans (new or any major amendments).
- CARB will only issue the EO to the manufacturer of record who has the design control of the vehicles.
- It is recommended that manufacturers ensure that the vehicle make and model (that is listed on the application) is visible on their production vehicles.

Improving AC Package Submissions

- Starting from the 2023 model year, manufacturers are required to provide schematics representing 100% of the projected volume of vehicles that are produced and delivered for sale in California.

Future GHG Standards

- CARB is evaluating the EPA Clean Trucks Plan (CTP) Notice of Proposed Rulemaking (NPRM) issued in March 2022
- Potential Phase 3 GHG standards for MY 2030+
- Phase 2 GHG last step down is in MY2027
- Phase 3 GHG needs to take into account significant deployment of HD ZEVs

In-Use Programs Branch

HD Manufacturer In-Use Testing Updates

- Engine screening requirements
 - No major emission control components should be replaced prior to testing
 - Owner incentives are not precluded per the HDIUT – incentives (monetary, services, etc.) are very common in other compliance programs like LD In-Use Verification and HD In-Use Compliance Programs
 - CARB is still working on an updated guidance and will circulate to industry for comment
- CARB Low NOx Omnibus 3B-MAW
 - New schema will be developed once EPA's Clean Truck Program 3B-MAW is close to finalization
 - Intention is for CARB, EPA and industry to work collectively on development

HD Off-Road IUC Program



Off-Road CI testing program

Pilot program: started end of 2019

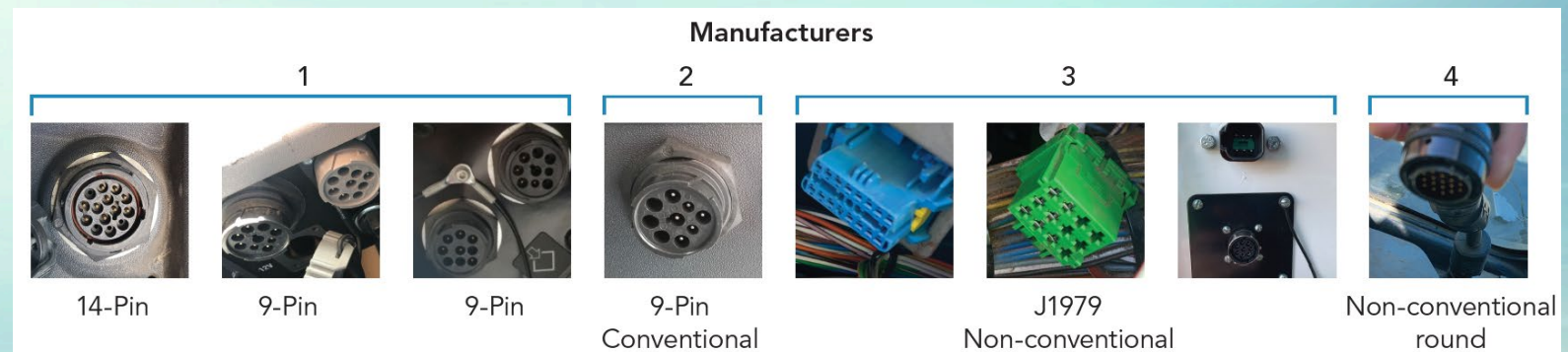
	Phase 1- Data logging	Phase 2 – Field testing	
Program structure	Data logging parameters from engine control unit	PEMS emission measurements	SCR Inducement verification, AECD testing
Progress on testing	Data logged 24 equipment	PEMS tested 7 equipment	Inducement tested 5 equipment
	8 different engine manufacture	4 different engine manufacture	3 different engine manufacture
	7 different type of equipment (wheel loaders, excavators, dozers, backhoe, graders, skid-steers, and off-road water truck)	4 different type of equipment (wheel loaders, excavators, dozers, and backhoe)	2 different type of equipment (wheel loaders and backhoe)

HD Off-Road IUC Pilot Program



Findings

- 10 out of 24 data-logged engines had NTE events during normal operation
- All seven-equipment PEMS tested passed NTE
 - Most passed by default
 - For some, whole data was excluded due to not meeting SCR temperature
- **Limitation** on the publicly broadcasted CAN messages (engine speed only)
- High variety of OBD/CAN connectors
- Inducement testing revealed issues with **DEF Quality sensor** and **strategy implementation**
- Improvements needed in Tier V rulemaking (see next slide)



HD Off-Road IUC Program



- Off-Road CI Testing Program
 - Development of the Off-road In-Use Compliance program
 - In the process of completing the Standard Operating Procedures
 - Off-road In-Use Compliance program launch scheduled for Q2 2022
- Tier 5 Off-Road Rulemaking Recommendations
 - Pilot program revealed the need for:
 - Standardization of OBD/CAN connector and communication protocol
 - A more robust protocol than NTE to adequately capture low load operations
 - SCR inducement standardization
 - Evaluate NTE versus MAW post-processing for in-use compliance

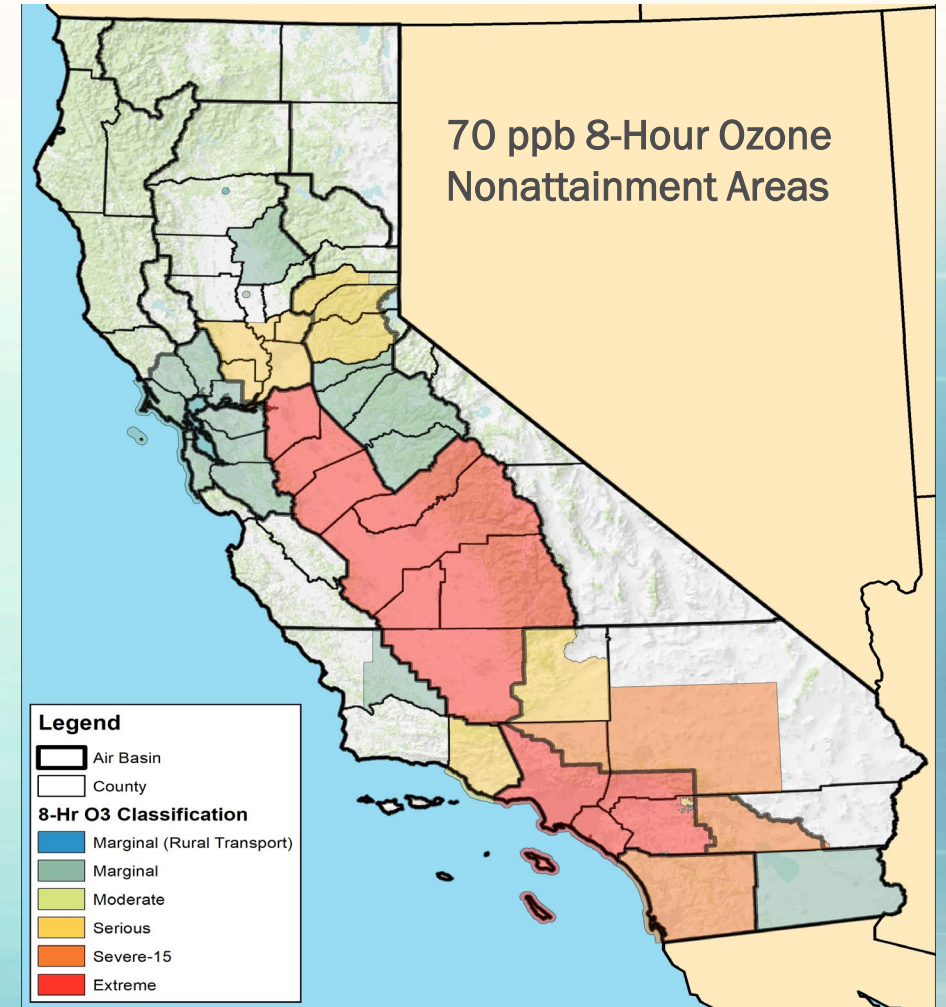
Recall Plan Reminders

- Recalls Plans
 - Must comply with Title 13 CCR Section 2111-2118
 - Should not have expiration dates
 - Specify owners that had previously paid for repairs prior to approval of an extended warranty or recall will be reimbursed
 - Should not start until a CARB has issued an approval letter

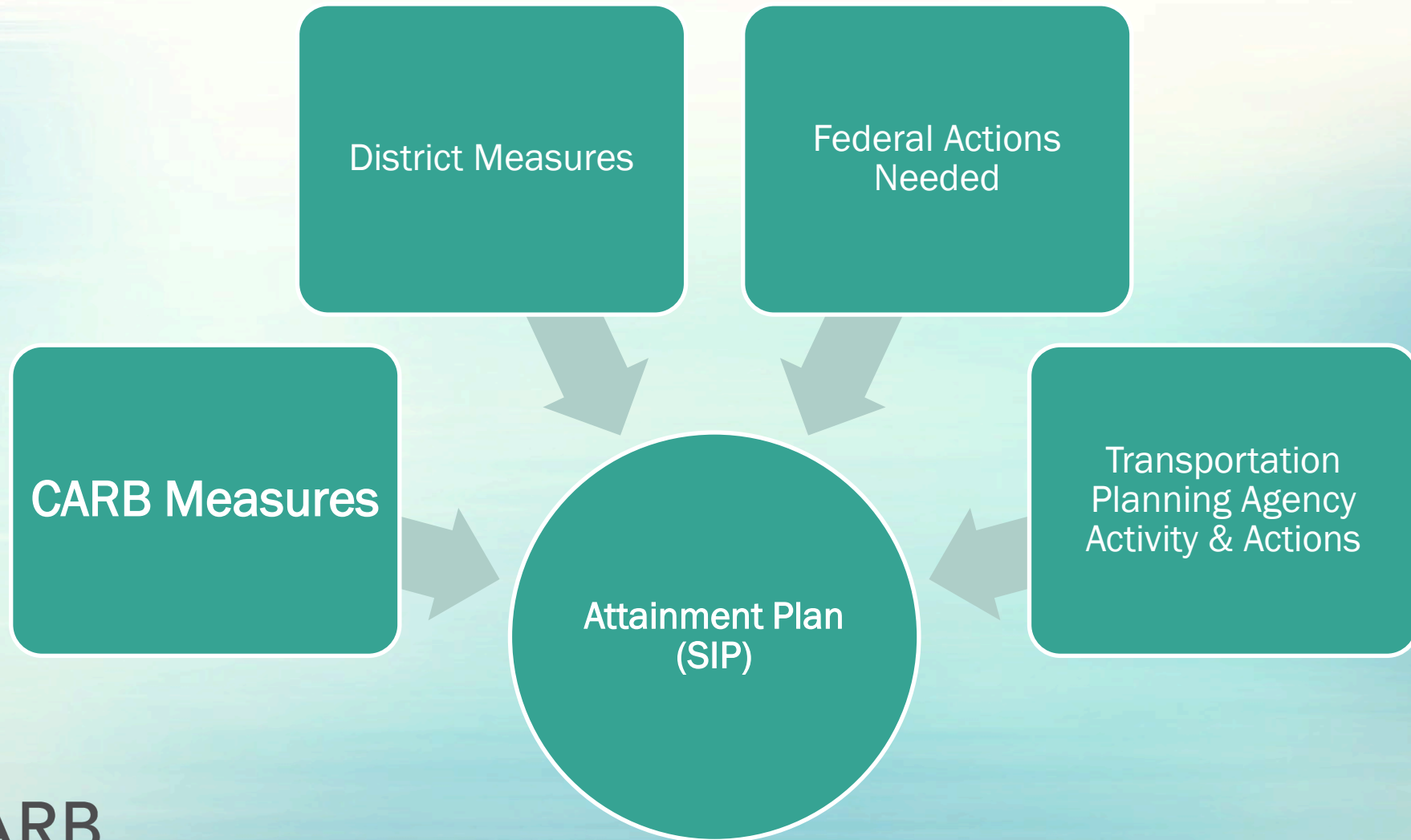
SIP Update

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
- 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



Attainment Plans and 2022 State SIP Strategy



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

*Already adopted by Board

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

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

Public Process & Next Steps



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Questions