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
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 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.
• 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

<table>
<thead>
<tr>
<th>Program structure</th>
<th>Phase 1 - Data logging</th>
<th>Phase 2 - Field testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data logging</td>
<td>Data logging parameters from engine control unit</td>
<td>PEMS emission measurements</td>
</tr>
<tr>
<td>Data logged 24 equipment</td>
<td>PEMS tested 7 equipment</td>
<td>Inducement tested 5 equipment</td>
</tr>
<tr>
<td>8 different engine manufacture</td>
<td>4 different engine manufacture</td>
<td>3 different engine manufacture</td>
</tr>
<tr>
<td>7 different type of equipment (wheel loaders, excavators, dozers, backhoe, graders, skid-steers, and off-road water truck)</td>
<td>4 different type of equipment (wheel loaders, excavators, dozers, and backhoe)</td>
<td>2 different type of equipment (wheel loaders and backhoe)</td>
</tr>
</tbody>
</table>
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
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

District Measures

Federal Actions Needed

CARB Measures

Transportation Planning Agency Activity & Actions

Attainment Plan (SIP)
## 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*
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

- **July 2021:** Public Workshop
- **Summer 2021:** Stakeholder Meetings
- **Oct 2021:** Release 2022 State SIP Strategy Draft Measures, 2nd Public Workshop
- **Oct/Nov 2021:** Participated in SJVAPCD & SCAQMD Control Measure Workshops
- **January 2022:** Release Draft 2022 State SIP Strategy
- **February 2022:** 3rd Public Workshop
- **February 2022:** Informational Update CARB Board Hearing
- **Summer 2022:** Board Consideration of 2022 SSS & District SIPS
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Questions