

# Air Resources Board Certification Update

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2015 EMA Certification Workshop

April 21, 2015

# Outline

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- Organization
- Certification Statistics
- Certification Streamlining
- E-Cert Update
- GHG Certification
- Warranty/Label Updates
- Tamper Resistance
- OFCI End-of-Year Reports
- Compliance Testing
- Defects Reports
- SORE Evaporative Testing

# NVEPB Organizational Chart

## ECARS

New Vehicle/Engine Programs Branch

### Branch Chief

Jackie Lourenco

### Branch Secretary

Bonnie Garlow

## On-Road Light-Duty Certification Section

### Manager

Duc Nguyen

### Staff

Ivonne Guzman-Cicero

Veronica Longhi

Steven Hada

Bill McDuffee

Seongyup Kim

Joseph Salmingo

Depinder Paul

Lucky Benedict

Shobna Sahni

Alan Leung

Lan Nguyen

Daniel Adame

## Off-Road Spark-Ignited Engine Certification Section

### Manager

Kumar Muthukumar

### Staff

Alan Chow

Geeta Osborn

Joseph Jegede

Michael Lin

Kevin Curley

Janie Han-Luu

David Pino

Byron Ng

Sophia Mahmood

Gileyn Bernal

Ani Nazari

## Aftermarket Parts Section

### Manager

Antonio Martino

### Staff

Jae Do

Rich Muradliyan

Sidd Futaba

Richard Carranza

Curt Schrieber

Jose Arguelles

Yun Hui Park

Jason Flores

Ramy Hariz

Evan Ford

## Compression Ignition and Heavy Duty Certification Section

### Manager

Kimberly Pryor

### Staff

Paul Adnani

James Pang

Tsatsu Nukunya

Zachary Evans

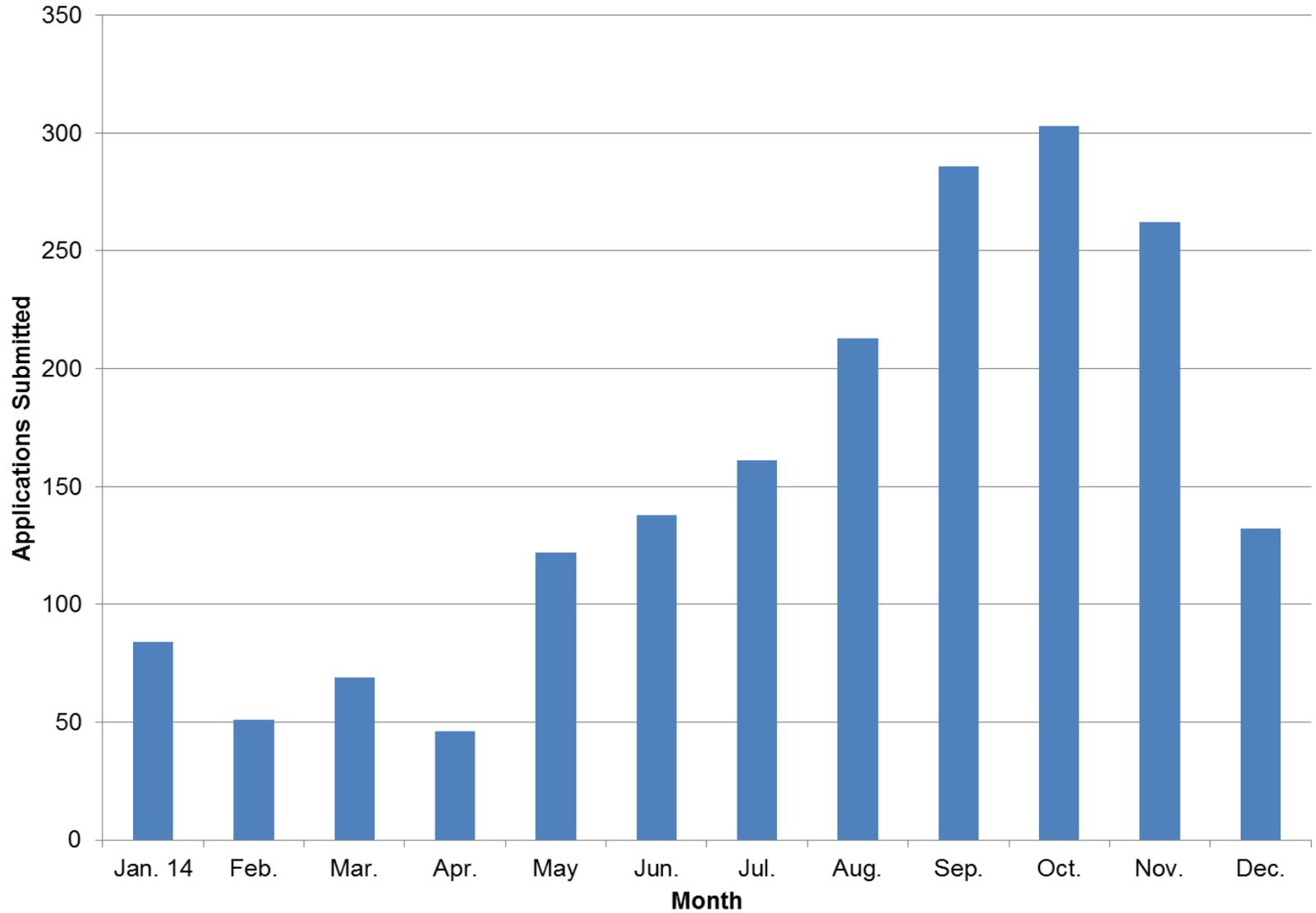
Babak Pazokifard

Mel Capistrano

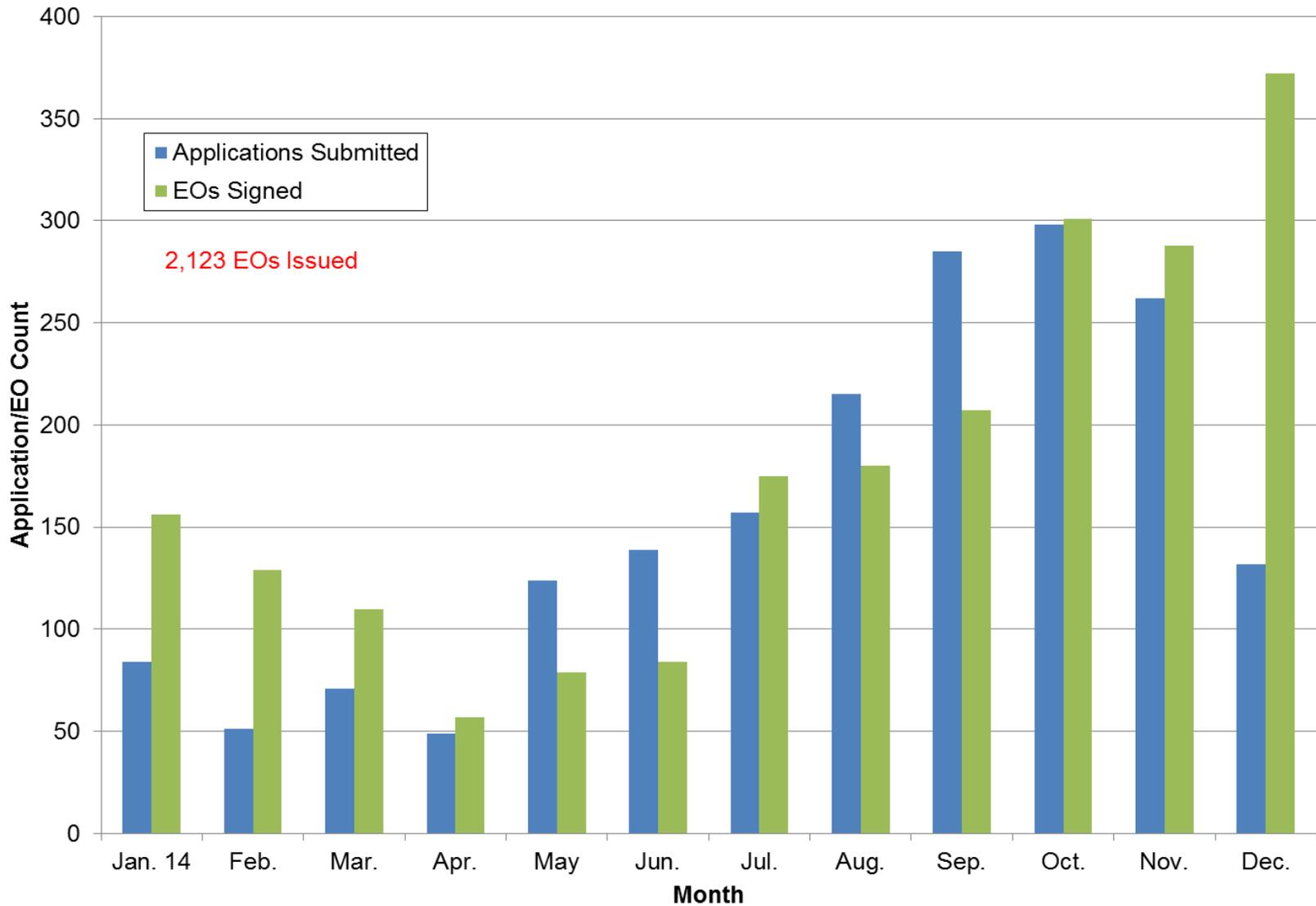
Michael Pham

Luke Gibson

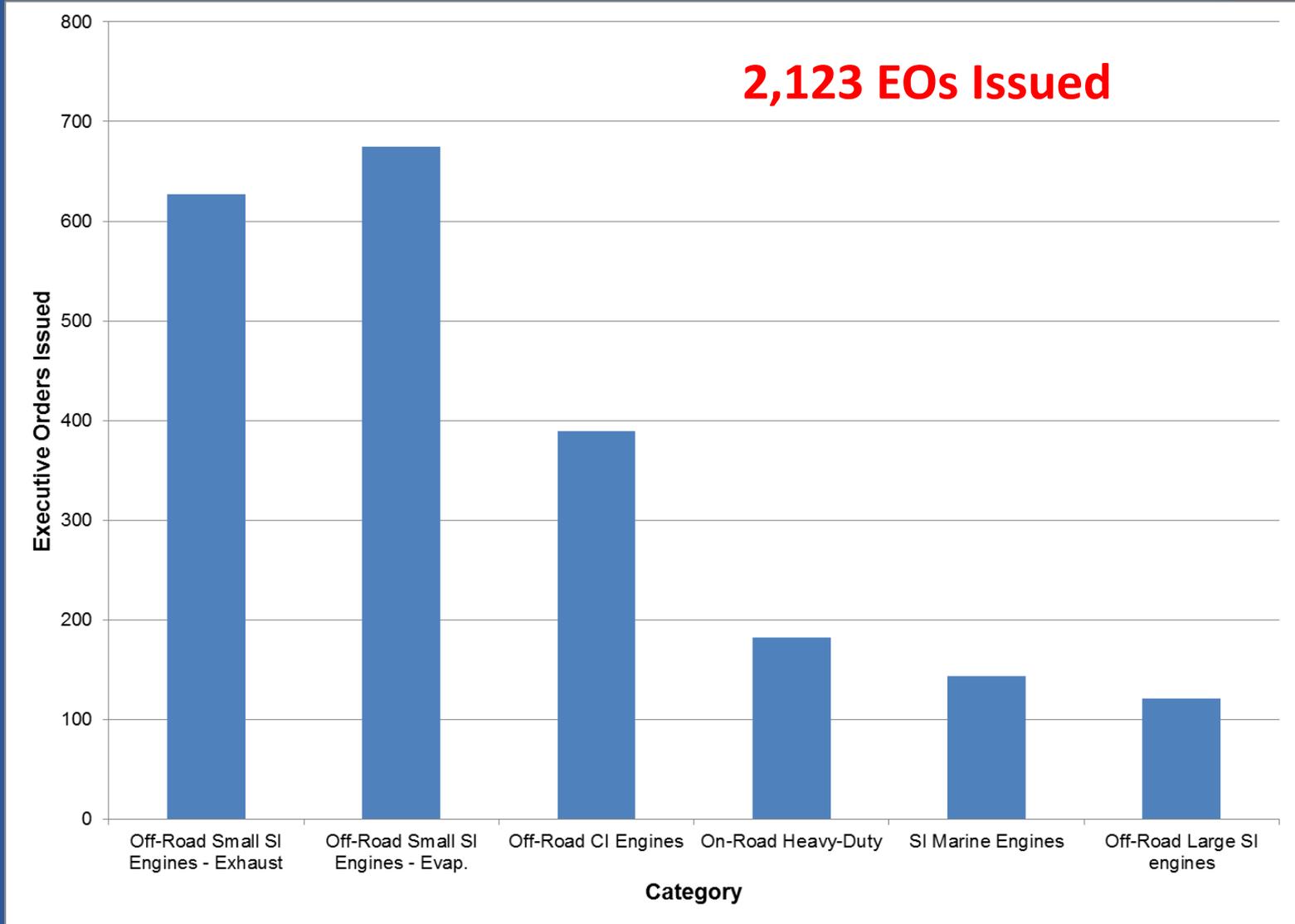
## 2014 Calendar Year New Engine Application Submittals (CIHD+OFSEC)



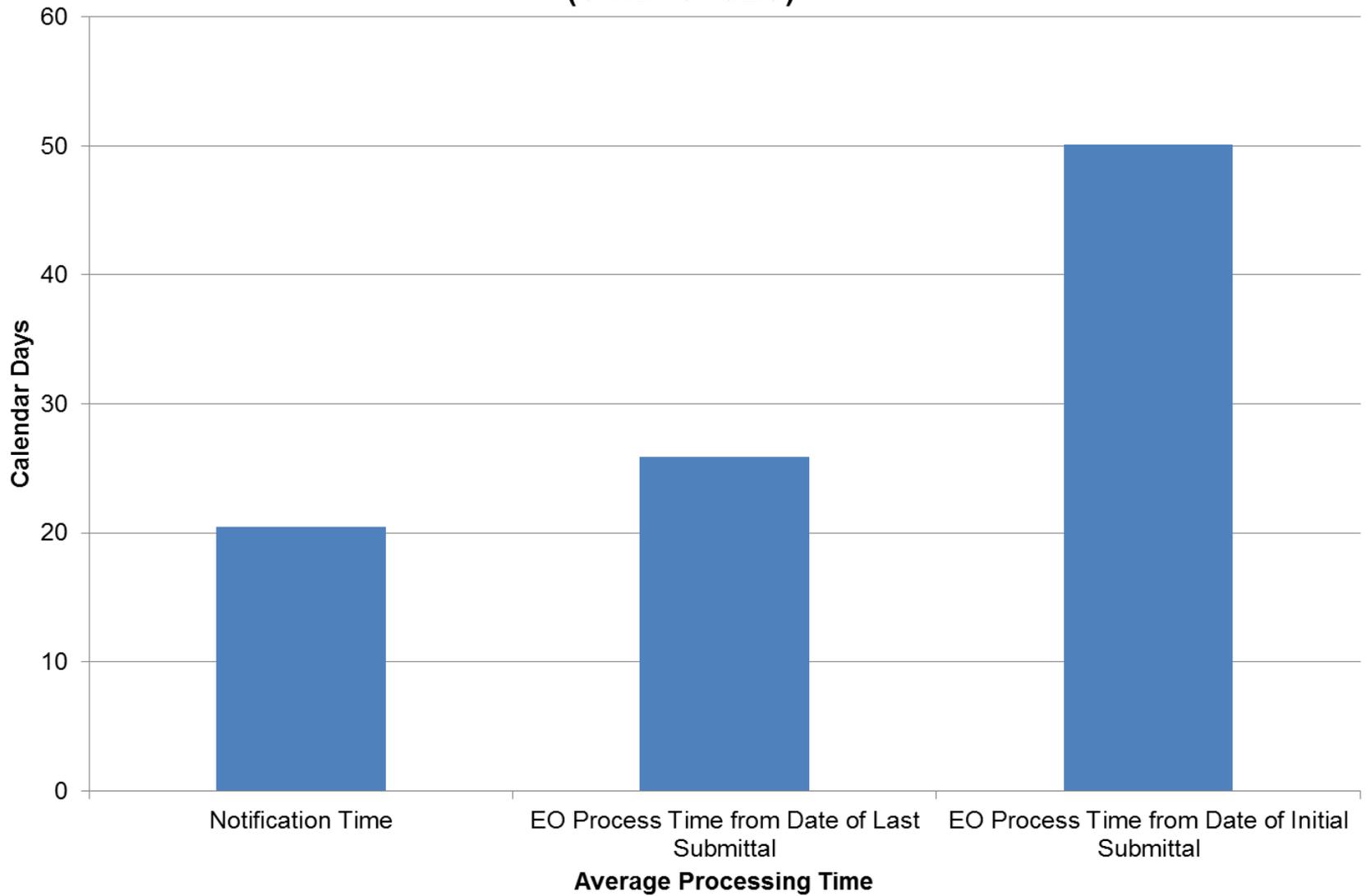
## 2014 Calendar Year New Engine Application Tracking (CIHD+OFSEC)



# Volume of EOs issued in 2014



## 2014 Calendar Year Average Application Processing Time (CIHD+OFSEC)



# Certification Streamlining

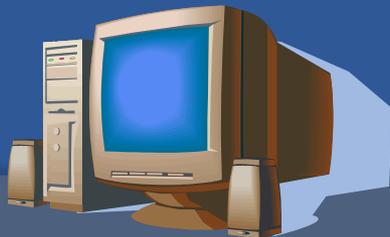
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- Workshop was held on November 18, 2014
- Draft mail-out was provided for comments
- Streamlined application categories will include:
  - Carryover,
  - Partial carryover,
  - Carryover/partial carryover requiring OBD approval.
- Final mail-out will be published soon
- Streamlined process will begin in July.

# E-Cert Update

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- Design revamped to include:
  - Diesel and Otto cycle engines and vehicles
  - Carryover and Partial Carryover applications
  - Greenhouse gas certification
- Data Requirements will be published Summer 2015
- Pilot Program will begin Spring 2016



# Transition Period for On-Road HD Phase I GHG

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- ARB issued transition period guidance letter (CIHD-2014-053) to EMA on Dec. 22, 2014.
- ARB staff is assisting vehicle and engine manufacturers to comply with the new GHG standards during the transition period.
- Staff is issuing EOs with GHG data to both engine and vehicle manufacturers.
- Please include GHG data in the ABT reports.
- Mail-out will be published soon.



# Warranty & Label Updates

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- Issues regarding Labels and Warranty statements were identified in 2013.
- Certification staff worked with manufacturers in 2014 to resolve issues.
- All issues have been resolved for the 2015 model year certification.

# Staff Will Be Reviewing Adjustable Parameters

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- ARB has the authority to check the hardware for preventing adjustments to emissions related components under §86.094-21 and §1039.205.
- Staff is reviewing the tamper resistance hardware on engines.
- Manufacturers will be asked to send ARB hardware for review if:
  - Not received an approval from ARB, or
  - Current approval is more than 5 years old.
- Please coordinate with your certification representative.



# OFCI End-of-Year Reports Need To Be Submitted

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- Production reports needed for:
  - Certified engines, and
  - Flex engines (TPEM)
- Production reports due 45 days from the end of model year (§1039.250(a)).
- As of today 94% of the reports have been received



# ARB Is Initiating In-Use Compliance Testing on HDD Engines

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- NTE testing will be performed both on road and/or on a chassis dynamometer
- NTE testing will be compared to the applicable NTE standard
- Select engines may be removed from trucks for further engine dynamometer testing
- Engine dynamometer emissions will be compared to the applicable certification standard
- Engine manufacturers will be invited to participate
- Data acquired will be used to help refine existing HDIUT (NTE) regulations

# HDD In-Use Compliance Testing

- ARB may select engine families based on HD IUVP results submitted to EPA
- Preliminary work on implementing a NTE database
  - Manufacturer would submit NTE data electronically
  - NTE data submittals are reviewed for completeness
  - NTE data must be standardized
- Active AECD's during NTE events may invalidate a NTE event
  - Accurate AECD descriptions and triggering information is necessary
  - AECD event broadcast must be standardized

# Heavy-Duty EWIR Reporting

## 2014 Q4 EWIR Data

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- 770 unique components reported by HD manufacturers
- 92 parts with warranty claims rates >20%
- Warranty claims may have increased with partial implementation of HD OBD, while some warranty claims may have decreased due to improved design and durability
- Some manufacturers not submitting FIRs/EIRs
- EIRs continue to lack emissions data
- Manufacturer responses delayed and/or incomplete

# 2010-2014 MY Average HD EWIR Cumulative Claims Rate Based on 2014 Q4 Data

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<b>COMPONENT</b>	<b>CUMULATIVE CLAIMS</b>
Catalytic Converter	6%
EGR	14%
EGR Cooler	16%
Turbo	10%
Exhaust Manifold	10%
Injectors	12%
DPF	11%
SCR	6%
Other	6%

# Off-Road Engine Defect Reporting

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- ARB defect reporting requirements are same as EPA\* – 40 CFR 1068 Subpart F or Part I-E
- ARB believes manufacturers have underreported defects, since very few off-road defect reports are submitted to ARB on an annual basis
- ARB will coordinate with EPA to determine if there is a discrepancy in reporting

\*California Code of Regulations, Title 13, Section 2425.1

# Process for Corrective Action \*

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- Create improved parts or calibrations
- Work with ARB to implement corrective action in the form of an extended warranty and/or recall
- Contact customers so they are aware of the service campaign.

\*California Code of Regulations, Title 13, Sections 2035, 2111-2119

# Manufacturers Are Introducing Electronic Fuel Injection (EFI) SSIE Models

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- EFI technology significantly different than carbureted
  - Emissions and deterioration characteristics
  - Closed loop feedback control
- New Deterioration Factor (DF) testing required for EFI
- Carbureted DFs not representative of EFI and cannot be carried over to EFI

# Certifying Multi-Fuel SSIE Models

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- Manufacturers are introducing multi-fuel models:  
Tri-Fuel (Gasoline, LPG, CNG)
- DF Testing
  - Identify worst-case fuel and provide technical justification
  - Use worst-case fuel for service accumulation
  - Test using worst-case fuel at each test point
  - Calculate worst-case DF

# Averaging, Banking & Trading (ABT)

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- 13 CCR Section 2408(d)(4)
  - Starts with 2015 Model Year
  - Any unused certification credits will expire five years after generation
- ABT template and attachments in Mail-out MSO 00-14 have been updated  
<http://www.arb.ca.gov/msprog/offroad/sore/sorectp/sorectp.htm>

# MY 2013 SORE Evap. Validation Study Background

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- Follow-up to similar study performed in 2008
- 18 units obtained from SORE manufacturers
  - 15 certified to design based emissions standard (one eliminated due to engine failure)
  - 3 certified to performance based emissions standard
- 17 units SHED tested
  - Three, 24-hour diurnal tests per unit
  - Testing performed 2013 and 2014

# MY 2013 SORE Evap. Validation Study

## Passing Test Results

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- 40 percent of all systems passed testing
- 7 design based systems
  - 4 riding mowers, 3 generators
  - 4 systems with non-metal tank and the same fuel hose
  - 2 systems with metal tank and the same fuel hose
  - 1 system with metal tank and unique fuel hose



# MY 2013 SORE Evap. Validation Study

## Failing Test Results

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- 60 percent of all systems failed testing
- 7 design based systems
  - 6 generators, 1 riding mower
  - 5 systems with metal tank and the same fuel hose
  - 2 systems were unique
- 3 performance based systems
  - 3 walk behind mowers
  - None used the same fuel hose or tank material

# MY 2013 SORE Evap. Validation Study Summary of Results

## MY 2013 SORE Evap. Validation Study Summary

Certification Option	Number Tested	Passing Results			Failing Results		
		Units Passing	Average Result	Average Standard	Units Failing	Average Result	Average Standard
Design	14	7	1.44 g/day	2.37 g/day	7	6.18 g/day	1.84 g/day
Performance	3	0	NA	1.0 g/day	3	1.4 g/day	1.1 g/day

# Contact Information

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# Questions

