Workshop on Mobile Source Strategy Discussion Draft

October 16, 2015
• Overview of Strategy Development
• Proposed Measure Concepts
  – On-Road Sources
  – Fuels and Off-Road Sources
• Environmental Analysis
• Next Steps
California’s Air Quality and Climate Goals

• Federal air quality standards
  – 2023 and 2031 ozone attainment
  – 2021 to 2025 PM2.5 attainment
• Greenhouse gas reduction target
  – 40% below 1990 levels by 2030
• Petroleum reduction target
  – 50% reduction by 2030
• Minimize health risk
  – Reduce exposure to toxic air contaminants
• Renewable energy targets
  – Increase energy efficiency
  – 50% electricity from renewable sources by 2030
Mobile Source Reductions Key to Meeting Multiple Goals

• Largest contributor to smog-forming, greenhouse gas, and diesel PM emissions
  – 80 percent of ozone-forming NOx
  – 50 percent of greenhouse gases
  – 95 percent of diesel PM

• Will require combination of cleaner technologies, fuels, and energy sources
Importance of Integrated Planning

- Consider how actions can best meet multiple goals
- Assess scope and timing of needed change
- Identify interactions between measures
- Maximize program effectiveness
Strategy provides framework for ongoing planning efforts:

- State Implementation Plans
- Scoping Plan Update
- California Sustainable Freight Action Plan
- Short Lived Climate Pollutant Plan
• SIP development is next planning effort: regional attainment plans due in 2016
• South Coast ozone defines emission reduction needs for attainment deadlines - 2023 & 2031
• Coordination with South Coast on development of mobile source SIP measures
South Coast Attainment Needs

- Current programs achieve two thirds of needed NOx reductions
- Further efforts will need to address all mobile sectors
- Reduction targets represent equal share from mobile sector
• Current programs provide blueprint for successful strategies
• Technology assessments identify status of advanced technologies and fuels
• Scenario analysis provides framework for coordinated air quality and climate assessment
Portfolio approach includes:
- Engine standards for new vehicles
- Durability and inspection requirements
- Sales requirements for advanced technologies
- Pilot and demonstration projects
- Incentive programs

Requires action at State, local, and federal level
Technology Assessments

• Comprehensive review conducted by ARB, South Coast, U.S. EPA

• Assessments identify:
  – Technology performance
  – Necessary fuels
  – Market readiness
  – Cost
  – Current deployment challenges
Technology and Fuels Assessment Reports:

Draft Reports available online*

- Heavy-Duty Technology and Fuels Assessment: Overview
- Engine/Powerplant and Drivetrain Optimization and Vehicle Efficiency
- Transport Refrigerators
- Commercial Harbor Craft
- Lower NOx Heavy-Duty Diesel Engines
- Low Emission Natural Gas and Other Alternative Fuel Heavy-Duty Engines
- Heavy-Duty Battery Electric Vehicles

* Draft assessments at: [http://www.arb.ca.gov/msprog/tech/report.htm](http://www.arb.ca.gov/msprog/tech/report.htm)
SCENARIO ANALYSIS
Scenario Analysis

• Uses ARB’s Vision model built from official inventories
• Assesses interplay between pollutants and strategies
• Identifies scope and timing of needed deployment of technologies, fuels, and energy sources
• Vision 2.0 now available online*

* Vision 2.0 at http://www.arb.ca.gov/planning/vision/downloads.htm#vision2
Scenario Development

- Scenario development informed by foundational technical work and technology assessments.
- Initial scenario results provide feedback to understand the interplay between strategies and their impact on emissions.

- Through this iterative process, the Vision Tool provides a unique opportunity to understand the intertwined nature of different policies.
Scenario developed to address climate, petroleum reduction and air quality targets by 2030 / 2031.

Focused on deployment of advanced technologies identified from the technology assessment.

Primary mechanism for technology penetration is natural turnover, coupled with increasing renewables.
Scenario Analysis Results for On-Road Cars and Trucks

WTW GHG Emissions

- Current Control Programs
- Cleaner Technology and Fuels
- Targets

Petroleum Consumption

- Current Control Programs
- Cleaner Technology and Fuels
- Target
Scenario Analysis Results for On-Road Cars and Trucks

HDV In-Use NOx Emission Rates

LDV In-Use NOx Emission Rates
Transformation of Passenger Vehicle Fleet Technology Mix

2025: 0.7M ZEVs, 1.7M ZEVs+PHEVs
2030: 1.8M ZEVs, 4.3M ZEVs+PHEVs
2050: 16M ZEVs, 25M ZEVs+PHEVs
## Transformation of Passenger Vehicle Fleet

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<th>Technology/Fuel/System</th>
<th>Today</th>
<th>2030</th>
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<td>Population of ZEVs/PHEVs</td>
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<td>Fuel Economy</td>
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<td>Renewable Energy Generation</td>
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## Transformation of Truck Fleet

<table>
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<th>Technology/Fuel/System</th>
<th>Today</th>
<th>2030</th>
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<tbody>
<tr>
<td>Population of Low-NOx Trucks</td>
<td>demos</td>
<td>1 million</td>
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<tr>
<td>Fuel Economy</td>
<td>7 mpg</td>
<td>9-10 mpg</td>
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<tr>
<td>Renewable Fuels</td>
<td>8%</td>
<td>50%</td>
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KEY FINDINGS FROM SCENARIO ANALYSIS
Key Findings: Essential Elements of Meeting Air Quality and Climate Goals

• Transformation of fleet to advanced technologies
  – Increase penetration of pure ZEVs in LDVs
• Concurrent transformation in energy towards renewables
• Lower emission performance standards
  – Federal and international standards for heavy duty trucks, off-road, aviation, locomotives, and marine
The Importance of Federal Standards for Heavy Duty Vehicles
Key Findings: Essential Elements of Meeting Air Quality and Climate Goals

- Increased system efficiencies in the passenger and freight sectors.
- Limited renewable fuels should be targeted where advanced technologies like ZEVs need more time to develop.
  - trucks, rail, off-road, marine, and aviation
- Natural turnover alone, is not sufficient to meet air quality goals.
SIP MEASURE DEVELOPMENT
• Clean Air Act requires specific actions and identified emission reductions
• ARB staff worked closely with South Coast staff on initial measure concepts
• South Coast will identify additional local mechanisms to achieve further mobile source reductions
• Measures outline actions to achieve needed reductions for attainment.
Key Actions in SIP Measure Concepts

- Establish more stringent engine performance standards for cleaner combustion technologies
- Ensure durability of emission control systems
- Increase penetration of ZEV technology
- Expand cleaner low carbon diesel fuel requirements
- Conduct pilot studies to demonstrate new technologies
- Further deployment of cleaner technologies
Key Actions to Achieve Transformation for Cars and Trucks

Passenger Fleet:

• Increase PHEV / ZEV sales fraction to 40 percent via fleet standards, ZEV regulation, and/or incentives by 2030.
• Increase stringency of fleet wide emission standards

Truck Fleet:

• Establish low-NOx performance standard 90 percent cleaner than today by 2024.
• Expand share of renewable fuels to nearly half of diesel fuel.
• Introduce ZEVs into targeted applications.
• Measure concepts map pathway for remaining reductions.
• Scope of technology deployment identified in analysis.
• Mechanisms for further reductions
  – Incentive programs for accelerated deployment
  – Increased efficiency in the freight sector
  – Advanced transportation technologies
  – Further Federal actions
OVERVIEW OF STRATEGY DEVELOPMENT

QUESTIONS AND ANSWERS

Email: auditorium@calepa.ca.gov
PROPOSED MEASURE CONCEPTS:
ON-ROAD SOURCES
Proposed Measure Concepts: On-Road Light-Duty Vehicles
• **Regulations**: *Advanced Clean Cars rules to 2025*
  – LEV III Criteria Emission Fleet Standards
  – LEV III GHG Emission Fleet Standards
  – ZEV Mandate

• **Incentives**: *Low Carbon Transportation Funds*

• **Regional Planning**: *Streamlining ZEV markets*
  – H2/EV station siting; Consumer awareness

• **Partnerships**: *Collaboratively addressing barriers*
  – CA Fuel Cell Partnership (CaFCP); CA Plug-in Electric Vehicle Collaborative (PEVC)
  – GO ZEV Action Plan (multi-agency partnerships)
Progress Towards Emission Targets

Baseline Projected Emissions Inventory

**LDV Sector**

- % of NOx Inventory: 16% → 6%
- % of GHG Inventory: 33% → 19%

**SCAB NOx Emissions**

**Statewide GHG Emissions**
Scenario analysis: Exploring strategies to achieve emissions targets

Advanced technology fleet penetration is an essential strategy

- 2025: 0.7M ZEVs, 1.7M ZEVs+PHEVs
- 2030: 1.8M ZEVs, 4.3M ZEVs+PHEVs
- 2050: 16M ZEVs, 25M ZEVs+PHEVs

Graph showing the increase in electric vehicles (BEV, PHEV, FCEV) over time from 2010 to 2050.
Scenario analysis: Exploring strategies to achieve emissions targets

- SULEV+ Scenario shows NOx reductions increase beyond 2031
- ZEV+LEV Scenario shows substantial GHG & petroleum reductions
LDV Measure Concept #1: Advanced Clean Cars 2

• **Measure Overview** (regulatory)
  – Increase stringency of fleet-wide emission standards
  – Ensure ZEVs continue to expand in the market

• **Description**
  – Regulation may include further reductions below current SULEV criteria emission standard, and GHG standard
  – Evaluate appropriate policy mechanism (ZEV mandate and fleet standards) to ensure ZEV market continues to expand

• **Timeframe**: Board adoption by 2020
  – Implementation 2026 – 2035 (preliminary)
LDV Measure Concept #2: Lower In-Use Emission Performance Assessment

• **Measure Overview**
  – Ensure in-use vehicles continue to operate at their cleanest possible level
  – On-going study of inspection and maintenance program performance and on board diagnostic (OBD) system based inspections

• **Description**
  – Evaluate in-use performance focused inspection procedures; make improvements if necessary
  – Analysis of Smog-Check database; vehicle sampling via BAR’s Random Roadside Inspection Program; laboratory investigation as needed

• **Timeframe**: N/A, on-going
Proposed Measure Concepts: On-Road Heavy-Duty Vehicles
Near-zero combustion technologies entering the market.
  - Low-NOx natural gas engines (0.02 g/bhp-hr) could be available within the next year
  - Low-NOx diesel engines (0.05-0.1 g/bhp-hr) available shortly thereafter.

Renewable fuels can provide significant GHG and petroleum reductions

Heavy-duty zero emission technologies are currently being developed.
  - Airport ground support equipment available now
  - Battery electric and fuel cell buses are in the early commercialization phase
  - Zero-emission drayage and delivery truck demonstrations
Establish more stringent criteria and greenhouse gas emission standards
Establish requirements to ensure durability of HDVs
Deployment of ZEV technologies into focused heavy-duty applications
Create incentive funding for the cleanest engine technologies
Increase use of renewable fuels
Increase freight transport system efficiencies and use of intelligent transportation systems
**Low-NOx Engine Standard**

- **Goal:** Introduce near-zero emission engine technologies that will substantially lower NOx emissions
  - Develop a heavy-duty low-NOx engine standard
  - Petition U.S. EPA to establish new federal low-NOx engine standard

- **Type of Action:** ARB Regulation/ARB Petition/U.S. EPA Regulation

- **Timeframe:**
  - ARB Board adoption date: 2019
  - U.S. EPA Rulemaking: 2019
  - Implementation schedule: 2023 - 2027
Heavy-Duty GHG Phase 2

• **Goal:** Establish next generation of Heavy-Duty Truck GHG standards building upon Phase 1 standards
  – 32% reduction in CO2 (tractor-trailers) compared to Phase 1
  – Federal Phase 2 scheduled to be adopted Spring 2016
  – California Phase 2 scheduled for adoption in late 2016 or early 2017 (may include more stringent requirements)

• **Type of Action:** U.S. EPA Regulation/ARB Regulation

• **Timeframe:**
  – ARB Board adoption date (CA Phase 2): 2016 - 2017
  – Implementation schedule: 2018-2027
• **Goal:** Ensure in-use vehicles continue to operate at their cleanest levels
  – Revise Warranty and Useful Life Period
  – Revise Periodic Smoke Inspection Program (opacity limit, smog check for trucks)
  – Revise Certification Requirements (e.g., test cycles)
  – Revise NTE Protocol

• **Type of Action:** ARB Regulation

• **Timeframe:**
  – ARB Board adoption date: 2018
  – Implementation schedule: 2021 - 2026
Advanced Clean Transit (ACT)

• **Goal:** Increase penetration of clean engine technologies and zero emission buses into transit bus fleets by developing ACT rule amendments
  – Phase-in zero-emission bus purchases from 2018 through 2040 (100% transition by 2040)
  – Require renewable fuel/cleanest engines for conventional buses
  – Develop flexibility provisions
  – Promote innovative transit technologies

• **Type of Action:** ARB Regulation

• **Timeframe:**
  – ARB Board adoption date: 2016
  – Implementation schedule: 2018 - 2040
Last Mile Delivery

- **Goal**: Increase the penetration of zero-emission class 3-6 trucks used for last mile delivery
  - Similar to ACT regulation
  - Phase in zero-emission last mile delivery trucks from 2020 through 2030 (75% of new purchases in 2030 = ZEV)

- **Type of Action**: ARB Regulation

- **Timeframe**:
  - ARB Board adoption date: 2017
  - Implementation schedule: 2020 - 2050
Innovative Technology Certification Flexibility

• **Goal:** Provide regulatory flexibility for innovative technologies that expand zero emission technologies in heavy-duty truck applications
  – Provide near-term engine and vehicle certification flexibility for medium- and heavy-duty trucks
  – Greatest flexibility for transformational technologies (robust hybrids and low-NOx engines and vehicles)

• **Type of Action:** ARB Regulation

• **Timeframe:**
  – ARB Board adoption date: 2016
  – Implementation schedule: 2016 - 2031
Zero Emission Airport Shuttle Buses

• **Goal:** Promote deployment of zero emission airport shuttle buses
  – Encourage early introduction of zero emission buses
  – Establish future phase-in requirements

• **Type of Action:** ARB Regulation/Incentives/MOU

• **Timeframe:**
  – ARB Board adoption date: 2017-2018
  – Implementation schedule: 2020+
Incentive Funding to Achieve Further Emission reductions from On-Road Heavy-Duty Vehicles

• **Goal**: Provide incentive funding to accelerate the penetration of zero and near-zero equipment beyond the rate of turnover achieved through implementation of other measures
  
  – ARB’s Low Carbon Transportation funds and AQIP (~$7 million per year for low-NOx trucks using renewable fuels (2015-2020))
  – District’s AB 923 and Carl Moyer (~$28 million per year for cleaner trucks (2015-2020))
  – ARB’s Proposition 1B: Goods Movement Emission Reduction Program funds (~$165 million for cleaner trucks (2016-2018))

• **Type of Action**: Funding programs

• **Timeframe**:
  – ARB Board adoption date: 2016 and annually thereafter
  – Implementation schedule: 2016 - 2023
PROPOSED ON-ROAD MEASURE CONCEPTS

QUESTIONS AND ANSWERS

Email: auditorium@calepa.ca.gov
PROPOSED MEASURE CONCEPTS:
FUELS AND OFF-ROAD SOURCES
Proposed Measure Concept: Fuels
• Low NOx & PM fuels
• Reduce petroleum use in transportation
  – Consistent with Governor's climate change pillars
• Works w/LCFS but different objectives
  – CI maximum consistent with LCFS
• **Goal**: Replace 50 percent of diesel demand with Low Emissions Diesel (LED) by 2031

• LED specifications overview:
  – <1 percent aromatics hydrocarbon content
  – Virtually sulfur free
  – Carbon Intensity Maximum 30-60 gCO2e/MJ

• South Coast regional targets implement before Statewide, target off-road, legacy

• **Type of Action/Timeframe**: ARB to adopt measure by 2020
Fuels Under Consideration as Potential LED Fuels

• Renewable Hydrocarbon Diesel (RD)
  – Dedicated biorefinery or co-processed
  – RD from gasified biomass
  – RD from pyrolysis oil
  – Potentially most readily available LED in 2030

• Renewable Natural Gas

• NOx-reducing biodiesel

• Future LED fuels
Renewable Diesel Availability

• Potential RD availability analysis conducted
• 2020 availability analysis contained in 2014 LCFS staff report, Appendix B
  – Bottom up analysis; ~900-1500 MGPY in U.S.
  – 400 MGPY to California; ~15% of diesel demand
• 2030 availability analysis conducted by staff
  – Top down analysis
  – Uses conservative assumptions
RD 2030 Availability Methodology

- Theoretical availability of feedstock
- Harvesting feasibility
- Competing biomass use
- Techno-Economic feasibility factor for RD
- RD availability in CA
- Geographical allocation factor
- RD yield per tonne
RD 2030 Availability (cont.)

• RD feedstock use assumptions
  • 100% of CA feeds
  • 20% of rest of US
  • 1% of rest of world

• More than 50 percent of CA diesel demand available as RD in 2030
  – Utilizing various technology types (hydro-treatment, pyrolysis, FT): about 2,400 MGPY available in 2030
Emissions benefits of RD

• NOx and PM emission reductions
  – NOx – 6-25 percent
    • SCR equipped engines may not see NOx reductions
    • Older on-road, and current off-road engines have no SCR, will see NOx reductions
  – PM – 28-46 percent

• GHG emission reductions
  – For sustainably sourced renewable diesel 30% to 60% GHG reductions achievable

• Benefits of LED fuels vary
Proposed Measure Concepts: Off-Road
Federal and International Sources

Locomotives
Two major operators: UP and BNSF

- Interstate Line Haul Locomotives (~4,400 hp)
  - Represent up to 10,000 locomotives that primarily operate across the North American rail system
  - Up to ~80 primarily operating within/around the South Coast

- Medium Horsepower Locomotives (2,301-4,000 hp) and Switchers (<2,301 hp)
  - Up to 225 operating within/around the South Coast

Passenger Locomotives
- ~65 operating within/around the South Coast

Shortline/Industrial Railroads
- ~40 operating within/around the South Coast
Locomotive Technology Assessment

• Engine and aftertreatment technologies
• Alternative fuels (e.g., CNG/LNG)
• Fuel cells
• Batteries (hybrid and tenders)
• Freight railroad electrification
• Advanced freight locomotive propulsion systems (e.g., magnetic levitation)
Petition U.S. EPA for Tier 5 Emission Standards

- **Goal:** U.S. EPA rulemaking for new Tier 5 Emission Standards
- **NOx and PM Control Levels:** 50 percent lower than Tier 4
- **Proposed Timeframe:**
  - U.S. EPA rulemaking: 2018
  - Implementation: 2025-2031
• **Goal:** Provide for upgrades to in-use locomotives to achieve lower NOx, PM, and GHG emissions
  – Regulation for most non-new locomotives in California
  – Requirement to meet Tier 4 levels

• **Proposed Timeframe:**
  – U.S. EPA rulemaking: 2018
  – ARB adoption: 2018
  – Implementation: 2022-2030
Proposed Measure Concepts: Off-Road Federal and International Sources

Ocean-going Vessels (OGV)
Ocean-going Vessels (OGVs)

- Large vessels designed for deep water navigation
  - Containerships, tankers, bulk carriers, car carriers, passenger cruise ships
  - Travel internationally and may be registered by the US Coast Guard or by another country
- Mostly powered by unique large, slow-speed engines up to 100,000 horsepower
- Also have auxiliary engines for generating electricity and boilers for steam/heating
• Evaluated a range of different technologies
  – Alternative fuels, engine technologies, exhaust after-treatment, at-berth technologies, alternative supplemental power, vessel efficiency, technologies specific to marine boilers

• Long-term goal of 90% NOx, 50% GHG reductions through technology and efficiency improvements
**Goal:** Advocate with international partners to the International Maritime Organization (IMO) for stricter marine vessel standards

- Tier 4 NOx standards 50% lower than the existing 2016 tier 3 standards
- PM standards (currently no international standards)
- Vessel efficiency standards for vessels not covered by existing international regulations

**Proposed Timeframe:**

- ARB action: 2015-2018
- IMO action, ratification, implementation: 2020-2025
Incentivize Super Low Emission Efficient Ship Visits

• **Goal:** Develop programs in cooperation with ports and other stakeholders to incentivize cleaner vessels to visit California ports
  – Define criteria for “Super Low Emission Efficient Ships”
  – Identify funding and implementation mechanisms
  – Evaluate existing incentive programs

• **Proposed timeframe:**
  – ARB action: 2016
  – Implementation: 2018
At-Berth Regulation Amendments

• **Goal:** Investigate the feasibility and cost effectiveness of expanding ARB’s At-Berth Regulation
  – targeting additional NOx and PM reductions

• Looking at smaller fleets and/or additional vessel types
  – Roll-on/roll-off vehicle carriers
  – Bulk cargo carriers
  – Tankers

• **Proposed timeframe:**
  – ARB action: 2016
  – Implementation: 2020-2030
Proposed Measure Concepts: Off-Road Equipment Category
Off-Road Equipment Category Strategy

- Focus deployment of zero emission technologies where commercially available
- Demonstrate ZE technology in heavier equipment and duty-cycles
- Integrate worksite efficiencies, vehicle automation, and fleet management technologies
- Continue to assess the expansion of zero emission technologies throughout the off-road equipment sector
- Investigate need even cleaner new off-road compression ignition engine standards and related requirements
Small Off-Road Engines (SORE)

- **Goal:** Reduce emissions from small off-road engines
  - Tighten exhaust and evaporative emission standards
  - Increase penetration of zero emission technology
  - Enhance enforcement of current emission standards

- Incentivize production and deployment of zero emission technology

- 25 percent replacement of spark-ignited equipment with zero-emission equipment by 2030

- **Timeframe:**
  - Board Date: 2018
  - Implementation schedule: 2022 - 2030
Transportation Refrigeration Units for Cold Storage

• **Goal**: Advance zero and near-zero emission technology and support the needed infrastructure developments
  – TRU engine run-time limitation
  – Run-time limits get shorter over time
  – Zero emissions after time limit exceeded
    • Potential compliance option: plug-in to electric power grid while stationary
  – Phase-in affected location and fleet types

• **Timeframe**:
  – Board Date: 2017
  – Implementation: 2020 - 2030
Cold Storage Infrastructure Needs

- Electric power plug infrastructure is needed to support TRU cold storage limited operation
- Currently available $10.4 million for TRU infrastructure incentives through Prop 1B: Goods Movement Emission Reduction Program
Goal: Accelerate deployment of zero emission forklifts with a lift capacity ≤ 8,000 lbs

- Forklifts are primed for increased ZE technology deployment
- Provide pathway for technology to transfer to heavier equipment and other applications
- Encourage growth of ZE infrastructure at work sites

Type of Action: ARB Regulation

Timeframe:
- ARB Hearing Date: 2020
- Implementation: 2023-2035
Zero Emission Airport Ground Support Equipment

• **Goal**: Accelerate deployment of ZE technology in Ground Support Equipment
• GSE already moving towards electric
• Possible Strategies
  – Incentives for Demonstrations
  – Conservative Approach: Natural turnover + incentives
  – Aggressive Approach: MOU or regulatory program
• Pathway to transition ZE to heavier applications
• **Timeframe**:  
  – ARB Hearing Date: TBD
  – Implementation: 2020+
Emission Reduction Assessment: Zero Emission Off-Road

• **Goal:** Evaluate the state of advanced technologies
  – Identify opportunities to expand use of zero and near-zero emission technologies to larger, higher power-demand applications
  – Inform Phase 2 Regulation
• **Follows Zero Emission Forklift and Airport Ground Support Regulations**
• **Type of Action:** Technology Review
• **Timeframe:** Board Date: 2025+
Goal: Evaluate worksite efficiency technologies
- Review includes autonomous equipment and connected worksite technologies
- Evaluate current status of worksite efficiency technologies
- Develop metric for quantifying benefits
- Determine emission reductions and cost effectiveness

Recommend ways to encourage deployment through financial incentives or regulatory credits

Type of Action: Technology Review

Timeframe: ARB Hearing Date: TBD
PROPOSED FUELS AND OFF-ROAD MEASURE CONCEPTS

QUESTIONS AND ANSWERS

Email: auditorium@calepa.ca.gov
ENVIRONMENTAL ANALYSIS
ARB prepares an Environmental Analysis (EA) for proposed actions that may result in significant impacts on the environment.

Prepared according to the requirements of ARB’s certified program under the California Environmental Quality Act (CEQA)

The EA will be an Appendix to the Draft Statewide SIP Strategy
• The CEQA Environmental Checklist (Appendix G) is used to identify and evaluate potential impacts to the environment.

• The EA will include:
  – Beneficial Impacts
  – Foreseeable Methods of Compliance
  – Potential for Adverse Impacts
  – Feasible Alternatives and Mitigation Measures to reduce/avoid significant impacts
We welcome your input on the appropriate scope and content of the EA, as it’s developed:

— Foreseeable Methods of Compliance
— Potential for Adverse Impacts
— Feasible Mitigation Measures and Alternatives

Formal comment period for the Draft EA
NEXT STEPS
Next Steps

• Board and public input
• Continued work with Districts
• Development of concepts into SIP measures
  – Implementation mechanisms
  – Inventory growth assumptions
  – Funding sources and mechanisms
• Expand elements of mobile source strategy in related planning efforts