

Implementing  
SB 513

Carl Moyer 2017  
Guidelines

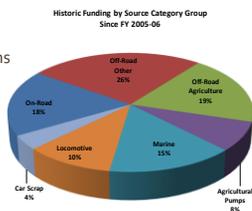
Workshop  
California Air Resources Board  
July 27, 2016

### Presentation Overview

- Background
- Latest thinking on program changes
- Next steps

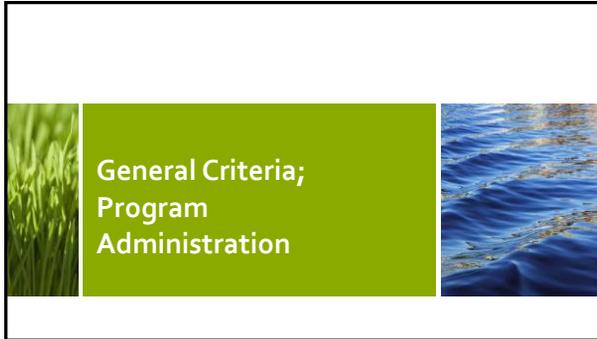
### Carl Moyer Program Background

- Grant program began in 1998
- Early or extra NO<sub>x</sub>, PM, ROG reductions
- ARB provides guidance and oversight
- Air districts administer funds and select projects



### Goals for the 2017 Guidelines

- Adjust cost-effectiveness limits based on costs of technology and regulations
  - Provide framework for leveraging of funds
  - Add infrastructure category to support the deployment of cleaner technology
- AND
- Maintain program accountability to ensure State Implementation Plan (SIP) credit
    - Surplus, quantifiable, enforceable and permanent emission reductions
  - Ensure opportunities for small and rural district participation
  - Ensure continued recognition of environmental justice
  - Streamline program implementation and simplify administration



**Program Administration and General Criteria**

- Update to simplify and clarify implementation
- Maintain program accountability but remove obsolete and unnecessary content
- Accommodate new leveraging and infrastructure needs



**Cost-Effectiveness Considering New Technology and Regulations**

- SIP goals require higher cost-effectiveness values to accelerate deployment of cleaner technologies
- Optional low NO<sub>x</sub>, zero and near-zero engines
- Update emission factors and include deterioration to better reflect real-world emissions
- Fleets most likely to use newer technologies tend to have cleaner vehicles (except school buses) and more routine maintenance

### On-Road Cost-Effectiveness by Usage/Compliance Scenario

	Small Fleet Option	NOx Exempt Option	Large Fleet Optional NOx	Ag Option	Low Mileage Work Truck	Transit Bus Optional NOx Repower	Refuse Optional NOx Repower
Baseline Engine	1999	2000	2008	1998	2004	2007	2007
2017 Replacement Engine Std. (g/bhp-hr NOx)	0.2	0.2	0.02	0.2	0.2	0.02	0.02
Funding	\$60,000	\$60,000	\$100,000	\$60,000	\$60,000	\$20,000	\$40,000
Cost-Effectiveness*	\$18,000	\$30,500	\$44,300	\$45,000	\$83,000	\$120,000	\$355,000

\* Includes 2014 EMFAC and deterioration

### Off-Road Cost-Effectiveness by Usage/Compliance Scenario

	Electric GSE Replacement	Excavator in Compliant Fleet	Low-Usage Ag Tractor	Seasonal Usage Ag Combine	Limited Surplus Excavator
Baseline Engine	Tier 0	Tier 2	Tier 0	Tier 0	Tier 0
Replacement Engine	Electric	Tier 4	Tier 4	Tier 4	Tier 4
Cost-Effectiveness*	\$35,000	\$42,000	\$54,000	\$62,000	\$72,000

\* Includes deterioration, funding amount equal to 80% of equipment cost

### Cost-Effectiveness Questions

- Are there other technologies to consider when establishing new limits?
- Should an additional cost-effectiveness limit be established for optional zero or near-zero emission standards?
- Is there a downside to including deterioration in emissions estimates?



Leveraging  
(Co-funding)

### Using Moyer Funds to Attract Other Investments

- Combined funding enables projects to achieve multiple program goals
- Safeguards are needed to ensure program accountability
  - No double counting, no overpayment
- Help equipment owners, air districts, other funding agencies identify project co-funding opportunities
- Recognize limitations due to variable funding and criteria by program

### Leveraging Proposals Under Consideration

- Classify by fund category instead of by eligible program
  - But provide flexibility to combine multiple programs
- Ensure SIP creditability of NO<sub>x</sub>, ROG and PM
- Confirm no project overpayment by tracking funds
- Allow project mitigation funds to be leveraged through case-by-case evaluation

### Limitations on Public Share: Should there be an applicant buy-in?

- Statute allows stacking of funds up to the total project cost
- Currently the Moyer program caps public funds at 85 percent with an applicant buy-in of 15%
- Should grantees have a financial stake? What is a reasonable ceiling on public funds contributed to privately owned equipment?
- Are there other sources of funds not yet considered?



### Criteria for Potential Project Options

#### 1. Charging Station:

- On-Road and off-road with possible solar/wind option
- Commercial and residential charging

#### 2. Alternative Refueling:

- Hydrogen, CNG, RNG, and LNG
- New/Expansion/Conversion Projects eligible

### Criteria for Potential Project Options

#### 3. Agricultural Pumps:

- Grid power, Solar, Wind, possibly Alt Fuel
- Infrastructure must be tied to an ag pump engine/motor project

#### 4. Shore Power:

- Eligibility must consider existing regulatory requirements
- Funding available for port authority, terminal operator, vessel owner
- 50% of vessel transformer cost eligible
- 50% of shore-side costs eligible

### Infrastructure Questions

- How can Moyer funding for electric infrastructure best complement other funding sources (e.g., CEC)?
- Project cap and/or percentage caps?
- Should residential chargers be eligible?
  - Disadvantaged communities, multi-family dwellings
- Is there a large market for alternative fuel ag pump projects?

### On-Road Heavy Duty Vehicles

### Potential Changes to On-Road Project Criteria

- Model years eligible for replacement: 2010 and older
- Replacements must be 2013 or newer engines meeting 0.2 g/bhp-hr NOx std.
- Expand eligibility to fleets over 10, but:
  - Require larger fleets to purchase zero and near-zero technologies
  - Reserve funds for smaller fleets
- Limit to no more than 10 vehicles funded per fleet per year
- Consolidate compliance checks for all on-road projects

### Potential Changes to Project Funding Caps (On-Road)

Diesel Replacements: \$60,000 (vouchers and contracts) *(current \$60,000)*

Near-Zero (Optional Low NOx) Emission Repowers:

- Transits - \$20,000 *(current \$30,000)*
- Refuse and others - \$30,000; may need co-funding *(current \$30,000)*
- School Buses - \$70,000\* *(current \$70,000)*

Near-Zero and Zero Emission Replacements:

- School Buses - \$400,000\* *(current \$400,000 – zero only)*
- Regional Trucks and Buses - \$100,000 *(current \$60,000)*
- Transits - \$80,000 *(current \$60,000)*

School Bus Electric Conversions: \$400,000\* *(current \$400,000)*

\* School bus funding caps included in current Guidelines

### Project Types to Possibly Discontinue (On-Road)

#### Retrofits

- Current participation very low
- Could consider NOx retrofits when certified standards are cleaner than baseline standards

#### New Purchases

- Current participation very low
- SIP creditability under review (will retain if SIP creditable)

### School Bus Clean-up: Moyer's Role

Board recognizes continuing need to fund cleaner school buses

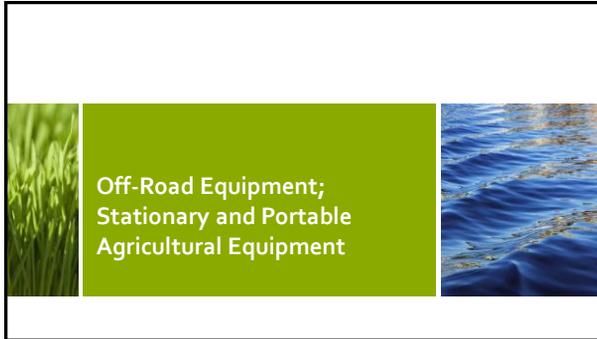
- Moyer Program to play key role

Moyer Program's January 1, 2016 guideline changes

- Align Moyer requirements with LESBP where feasible
- Provide meaningful funding amounts to eligible school bus projects

Moyer and LESBP

- Fundamental differences allow each program to maximize their respective eligible project pools
- Examples: Moyer must be surplus, LESBP targets pre-1993 buses
- How best to use program differences to fund as many school buses as possible?



### Off-Road Equipment



- Limit eligibility for non-Tier 4 engines/equipment
- Simplify repower requirements
  - No required retrofit
- Consider extending eligibility for large fleets
  - Encourage zero emission equipment
- Consider trade-up replacement projects

### Portable Engines Subject to ATCM

- Eligibility for repowers to be based on Portable Engine ATCM
- Criteria could include
  - Uncontrolled engines – No surplus emissions reductions
  - Tier 1 and Tier 2 – Potential for additional surplus emissions reductions
- Consider allowing equipment replacement

### Changes Being Considered for Portable and Stationary Agricultural Sources



- Diesel to diesel eligible for engines exempt from stationary ATCM
- Diesel to electric eligible
- Diesel to certified spark-ignited eligible
- Discontinue Retrofit and New Purchase projects



**Other Source Categories:**

- Locomotives
- Marine Vessels
- Light-duty Vehicles

**Locomotives: Potential New Criteria**

- Require all equipment to be Tier 4 or cleaner
- Allow grantees to retain the Locomotive chassis
- Allow project to be contracted prior to locomotive US EPA/ARB certification/verification
- Increase maximum funding percentages for Class 1 Railroads
- Include the option of Megawatt Hours for usage
- Discontinue Idle Limiting Devices and Retrofits



**Marine Vessel Projects**

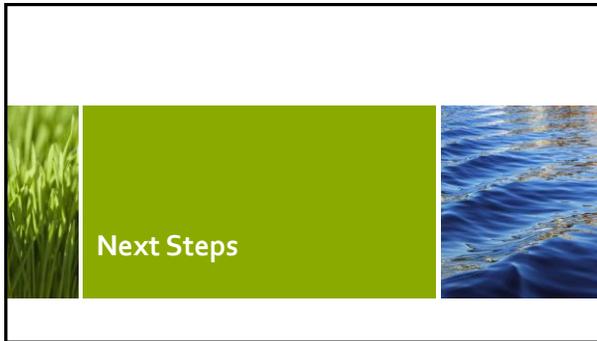
- Allow large spark ignited engines
- Allow zero and near-zero emission technologies
- Increase funding for vessels subject to Harbor Craft Rule to encourage Tier 4 or better



**Light Duty Vehicles**

- Continue voluntary accelerated vehicle retirement
  - No changes to current eligibility criteria
  - Minor clarifications to guideline language
- Consider a vehicle retire and replace component
  - Funding source to support EFMP Plus-Up expansion
  - Support statewide goals for ZEV deployment





### Ongoing and Next Steps

- Comments welcome
- Meetings with stakeholder groups welcome
- Continue coordination with other incentive programs, AQ planning team, and air district partners
- Fall/Winter – Publish proposed 2017 Guidelines
  - 45 day public comment period
- March 2017 - Present Guidelines to the Board for consideration



### Contacts

Email questions and comments to: [carlhelp@arb.ca.gov](mailto:carlhelp@arb.ca.gov)

Workshop materials are posted at:  
<http://www.arb.ca.gov/msprog/moyer/2017guideline.htm>

Additional information on the Carl Moyer Program is available at:  
<http://www.arb.ca.gov/msprog/moyer/moyer.htm>

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