

# Carl Moyer Program 2008 Revision to Guidelines

Public Workshop  
Sacramento, California and Webcast  
July 9, 2007



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## Today's Agenda

- Background
- Schedule
- Guideline changes under consideration
  - General changes
  - Program administration requirements
  - On-road categories
  - Off-road categories and agricultural sources
  - Marine and locomotive categories

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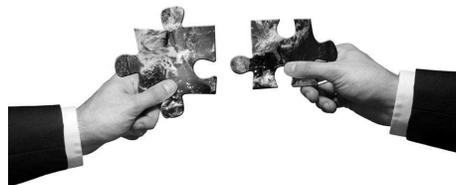
## Introduction to Carl Moyer Program

- Incentive grants for SIP-creditable reductions
- Incremental cost of cleaner technology
  - Real, surplus, quantifiable, enforceable
  - Cost-effectiveness limit
- Health and Safety Code establishes structure of program
  - Legislative changes have expanded program

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## Program Responsibilities

- State and local partnership
  - ARB develops and adopts guidelines
  - Districts receive applications, award grants, and monitor projects
- Districts retain flexibility in implementation



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## Carl Moyer Program Guidelines

- Statute requires ARB to adopt guidelines
- Guidelines set minimum requirements
  - Administrative procedures
  - Project criteria for source categories
  - Cost-effectiveness criteria
  - Reporting requirements



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## Schedule

- Work group meetings ongoing
  - Program Administration
  - Off-Road Equipment Replacement
- Third round of workshops – Fall 2007
  - Present draft project criteria
- Advisory group meeting – Fall 2007
- Proposed guidelines released – Jan 2008
- Board hearing – Feb 2008
- For more information, visit ARB's website:  
[www.arb.ca.gov/msprog/moyer/moyer.htm](http://www.arb.ca.gov/msprog/moyer/moyer.htm)



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## General Changes Under Consideration

- Streamlining/simplifying changes
- Project eligibility criteria changes
- Other potential changes

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## Streamlining/Simplifying Guidelines

- Update guidelines less frequently
  - More time to operate under fixed set of rules
  - Official program advisories to reflect changes
- Streamline guideline document
  - Consolidate chapters
  - Focus on most common projects
- Consider simplifying eligibility determinations for fleet rules
  - Would result in fewer funding opportunities

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## Project Eligibility Criteria

- **Modify baseline project cost approach**
  - Use a fixed % of project cost instead of estimated rebuild cost
- **Refine retrofit requirements**
  - Align for on-road, fleet mod, and off-road
  - Clarify “availability” of retrofit
- **Coordinate with goods movement incentive program**
- **Reevaluate minimum project life**

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## Project Life

- **Minimum project life**
  - 1 year for stationary ag pump projects
  - 3 years for all other sources
- **Some stakeholders request 1 year or shorter project life for all categories**
- **Issues with shorter project life**
  - Projects would have happened without incentives
  - Reduced Moyer Program emission benefits
  - Provides no benefit for SIP compliance

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## Emission Reductions & Project Life Example

- Repower uncontrolled 400 hp off-road engine used 1500 hours per year with Tier II engine: project cost \$57,000

Project Life (years)	Benefits over Project Life (tons)		Cost Effectiveness NOx + ROG + 20*PM (\$/ton)
	NOx	PM	
1	2.8	0.11	\$11,019
3	8.3	0.33	\$3,818
7	19.4	0.78	\$1,765

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## Other Potential Changes

- Update emission factors
  - Use latest on-road and off-road emission inventory
- Cost-effectiveness calculations
  - Update \$14,300 per ton cap to reflect change in consumer price index
  - Update discount rate used to calculate annualized cost
  - Evaluate population exposure
- Evaluate voucher programs

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## Discussion

- Webcast communication information
  - Please email questions and comments to:  
**[sierrarm@calepa.ca.gov](mailto:sierrarm@calepa.ca.gov)**



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## Program Administration

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# Program Administration

## Background

- Local air districts would like fewer reporting requirements and more flexibility
- California Department of Finance (DoF) recommends increased specificity and oversight
- Our goal:
  - Streamline program administrative requirements
  - Address DoF recommendations
  - Maintain program integrity and transparency

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# Program Administration

## ARB-District Work Group Concepts

- Allow cumulative progress tracking
  - Requires funds spent  $\geq$  overall funds received from two years prior
- Reduced admin and reporting for districts that need less oversight
  - Two-tiered approach
  - Based on historical performance



## Program Administration

### ARB-District Work Group Concepts (cont.)

- Simplify how districts receive annual funding allocation from ARB
- Additional time for Annual and Final Reports



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## Program Administration

### ARB-District Work Group Concepts (cont.)

- Define district general costs and principles for calculating earned interest, indirect costs, admin funds, travel/per diem (DoF)
- Describe “Best Practices”
  - Outreach
  - Contracts
  - Recordkeeping
  - Audits



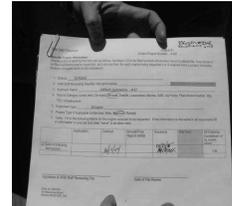
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# Program Administration

## Remaining Concepts to be Discussed

### ■ Procedures for ARB/district Interactions

- ARB audit of districts
- Recapture and reallocation of unexpended funds
- Protocol for “At-Risk” districts



### ■ District/engine owner interactions

- Minimum application and contract requirements
- Pre- and post-inspections
- Project annual reporting
- District audits of projects



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# Program Administration

## Guideline Update and Review Process

- April – Nov. 2007: Program Administration Work Group meetings
- Today: Draft concepts
- Fall 2007: Third workshop → Preliminary draft chapter language  
Moyer Advisory Group
- Dec. 2007: Updated draft chapter
- Feb. 2008: Board consideration

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## Program Administration Contacts

- **Joe Calavita (916) 445-4586, [jcalavit@arb.ca.gov](mailto:jcalavit@arb.ca.gov)**
- **Susan Levenson-Palmer (916) 322-8975, [slevenso@arb.ca.gov](mailto:slevenso@arb.ca.gov)**



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## Comments

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## On-Road Heavy-Duty Vehicles



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## On-Road Topics

- On-Road Repower Projects
- Reflashable Engines
- Remanufactured Engines
- Model Year 2010 Engines
- Emission Factor Update
- Idle Reduction
- Light-Duty Vehicles

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## Repower Projects

### ■ Replacement On-Road Engine

- Model Year 1999 or newer
- Engine must be retrofitted with Level 3 device
- Mechanical to electronic repowers will remain case-by-case approval by ARB



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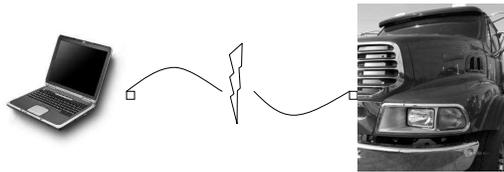
## Reflashable Engines in a Fleet

- All reflashable engines in a fleet will need to be reflashed before any specific fleets project is approved
  - As part of the application the fleet owner will certify that all reflashable engines in the fleet will be reflashed within 60 days
  - Engines subject to the applicants certification will be verified by ARB enforcement staff during routine shop inspections
  - ?Voluntary by district discretion, SIP creditable?

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## Which Engines are Reflashable

- Which engines are reflashable
  - Most MY 1993-1998 HHDDE's
  - Many MY 1997-1998 MHDDE's
  - Significant NOx emission reductions
  - List of Reflashable Engines
    - <http://www.arb.ca.gov/msprog/hdssoftware/hdssoftware.htm>



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## Use of Remanufactured Engines

- Included with the application
  - Engine serial number of remanufactured engine
  - An executive order for the remanufactured engine



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## Model Year 2010

- Next change in emission standard
  - 0.2 g NO<sub>x</sub> per bhp-hr 0.01 g PM per bhp-hr
- Provide clarification to stakeholders on what determines the MY used in a project
  - Signing of Contract?
  - Issuing of PO?
  - Obligating Funds?
  - Vehicle Delivery?



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## Emission Factor Update

- Update emission and conversion factors so they are consistent with EMFAC2007



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**Carl Moyer Program**  
**Fleet Modernization Program**  
**for**  
**On-Road Heavy-Duty Vehicles**  
**Proposed Updates**

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**Fleet Modernization**  
**Background**

- **New Project Category – 2005 Guidelines**
  - Replace old, high-emitting vehicle early with one certified to cleaner emission standards
  - Retire the oldest trucks (pre-1991 MY)
- **Districts' fleet mod programs**
  - SMAQMD and SCAQMD -- approved
  - SJVAPCD – pending
  - ARB Multidistrict projects

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## Fleet Modernization

### Issues for Consideration

- **Current program**
  - Only 3 large districts are participating
  - No participation from small/rural districts
- **Future program**
  - Streamline program requirements
  - Expand eligibility criteria

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## Fleet Modernization

### Streamlining Issues

- **Increase district participation**
  - Modify current program administration requirements for all districts
  - Reduced program administration requirements for small/rural districts
  - More direct role for ARB
- **Program safeguards**
  - Administrative
  - Enforcement

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## Fleet Modernization Expansion Issues

- Eligible vehicles
  - Allow newer vehicles to be scrapped?
  - Fixed model year or “adjustable” model year?
- Incentive amounts
  - Adjust current funding formulas?
  - Reduce, cap funding for new vehicle purchase?

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## Fleet Modernization Expansion Issues (continued)

- Tiered transactions
  - Modify existing criteria – optional emission stds?
  - How to address “anyways” vehicles?
  - More active roles for truck dealers?
- Other issues
  - Adjust project life based on age of vehicle or redesign program?
  - Retain different project life for targeted vs. non-targeted vocations?

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## Idle Reduction

- At present, cost caps of \$5,500 for Auxiliary Power Units (APU) and \$3,400 for installation.
- Propose to remove cost caps for APU, hour-meter, other related equipment, and device installation
- Caps could potentially exclude cost effective projects
- Should let projects be judged based on cost effectiveness alone

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## Idle Reduction

- Due to heavy-duty truck idling regulation, only zero emission technologies are eligible for funding
- The exemption for heavy-duty trucks with sleeper berths will be eliminated starting on January 1, 2008
- Zero emission auxiliary power units include battery powered and/or thermal energy storage systems.

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## Other On-Road Vehicles Light-Duty Vehicles

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## Light-Duty Vehicles

- Chapter revised in December 2006
- Minor changes to criteria proposed
  - Reorganized to consolidate responsibilities
  - Revised some text to improve clarity
- Proposed changes to current chapter
  - Update default emissions, emission rates, and vehicle miles traveled using EMFAC2007
  - New definition of fleet average emissions
  - Year 2/3 emission calculations for high emitters
- VAVR Task Force proposed

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## Source Category Contacts

### On-Road

- **On-Road Heavy-Duty Vehicles**

Earl Landberg (916) 323-1384, elandber@arb.ca.gov

- **Idling and Transportation Refrigeration Units**

Chuck Bennett (916) 322-2321, cbennett@arb.ca.gov

- **On-Road Fleet Modernization (Truck replacement)**

John Kato (916) 322-2891, jkato@arb.ca.gov

- **Light-Duty Vehicles**

Tom Roemer (916) 322-1520, troemer@arb.ca.gov

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## Comments

- **Webcast communication information**

– Please email questions and comments to:

**sierrarm@calepa.ca.gov**



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## Off-Road and Agricultural Projects

- Off-Road Compression Ignition Equipment
- Off-Road Equipment Replacement
- Large Spark Ignition Equipment
- Agricultural Projects

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## Off-Road Compression Ignition Equipment



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## Proposed Off-Road Regulation

- Incorporate eligibility of off-road projects subject to the proposed regulation
  - All fleets eligible for finding of early or extra emission reductions
- Small fleets
  - Funding for NOx reductions
  - PM reductions up until February 28, 2012
- Fleets in captive NOx attainment areas
  - Funding for NOx reductions

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## Tier 1 Repowers

- Proposed off-road fleet rule
  - Engines must be Tier 2 or better for compliance
- Proposing that Tier 1 repowers be ineligible for funding
- Exemptions
  - Equipment exempt from proposed off-road rule
  - Fleets exempt from turnover requirements of proposed off-road rule
- Remove \$6,000/weighted ton cost effectiveness cap

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## Retrofit

- Align with requirements for on-road HD
- Highest level ARB verified retrofit available on all projects
- Eligible for funding up to the cost effectiveness limit
- Districts have raised concerns



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## Usage Activity

- Hours of operation
  - No change
- Fuel usage
  - Three years of historical fuel usage documentation
  - Documentation specific to the funded equipment
  - Fuel logs, purchase receipts, or ledger entries
  - Required for life of the project



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## Baseline Costs

- Based on percent of total costs
  
- Reimbursement of up to
  - Repower to Tier 1 – 75 percent
  - Repower to Tier 2 – 80 percent
  - Repower to Tier 3 – 85 percent

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## Additional Updates

- Incorporate project eligibility for equipment subject to the following regulations:
  - Cargo Handling Equipment Regulation at Ports and Intermodal Rail Yards
  - Portable Diesel Fueled Engines Air Toxics Control Measure
- Incorporate diesel ground support equipment

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## Off-Road Equipment Replacement (Fleet Modernization)

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## What is Off-Road Equipment Replacement?

- Replacement of dirty, old equipment with newer, cleaner equipment
- Limited to equipment replacements, not fleet expansion



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## Workgroup Meetings Discussions

- What types of off-road equipment?
  - Compression ignition (CI)
  - Large spark ignition equipment (LSI)
  - Recreational vehicles not eligible
- How to prioritize off-road categories?
- Existing pilot program
- Analysis of existing data



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## Development Challenges

- Verify old equipment are functional and being used in California
- Determine whether equipment replacement would have occurred if Moyer funding unavailable



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## Development Challenges (cont'd)



- How to calculate emission reductions?



- Ensure old equipment is not moved into another locale to continue emitting

- Determine remaining life of equipment

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## What is Needed?

- Off-road equipment data
  - Equipment turnover rate
  - Annual activity
  - Condition at end of useful life
- Additional criteria may be added

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## Future Workgroup Topics

- Replacement & new equipment eligibility
- Salvage value
- Project life
- Usage activity
- Cost-effectiveness
- Additional criteria?



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## Off-Road Large Spark Ignition Equipment



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## What are “Large Spark-Ignition Engines”?

- Gasoline and LPG
- Older automotive technology
- Greater than 25 hp
- LSI equipment
  - Forklifts, industrial tow tractors, sweeper/scrubbers, and airport ground support equipment (GSE), Aerial lifts, Lawn/turf care equipment, mining and construction equipment

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## Off Road Large Spark Ignition Rule

- In-use fleets of 4 or more are impacted
  - Forklifts
  - Industrial tow tractors
  - Sweeper/scrubbers
  - Airport ground support equipment (GSE)

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## Eligible Projects

- In-use fleets subject to the rule
  - If implemented 3 years before compliance dates
- In-use fleets/equipment not subject to the rule
  - Fleets of 3 or less
  - Equipment such as aerial lifts, lawn/turf care, mining and construction
  - Ag Crop Preparation Services
    - Pre-1990 forklift
    - Non-forklift equipment

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## New Purchase

- Electric purchases
- More stringent cost effectiveness caps for electric forklifts will be removed
- Maximum project life would be 10 years
- Non-electric purchases would be on a case-by-case basis (limited projects)
- Under consideration: reimbursement of up to 30% for a new electric purchase

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## Retrofit Projects

- Retrofit emission control systems
- Maximum project life would be 5 years
- Equipment must be 1990 or newer
- Entire cost may be paid

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## Agricultural Sources



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## Diesel Engine Repower Projects

- May use one year project life for engines subject to Stationary Diesel In-Use Ag. Engine ATCM
- Implementation for uncontrolled engines 100-750 hp (<100 hp, >750hp)
  - Three year project life through 12/31/07 (12/31/08)
  - Two year project life through 12/31/08 (12/31/09)
  - One year project life through 12/31/09 (12/31/10)
- Retain three year project life for engines not subject to the ATCM

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## Spark-Ignited Engine Projects

- Continue funding non-certified spark-ignited engine repower projects on a case-by-case basis, with no sunset date



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## Electric Motor Projects

- Include eligibility criteria already in use for engine to electric motor repower projects
  - Reduced voltage starting technology is eligible for Moyer funding if required by service provider
  - Variable frequency drives are eligible for Moyer funding if justification provided by applicant



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## Baseline Costs

- Based on percentage of total costs
- Reimbursement of up to
  - 80 percent for Tier 2 repowers ( $\geq 750$  hp)
  - 85 percent for Tier 3 repowers
  - 20 percent for new electric motor purchases



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## Non-Engine Projects

- Funding allowed for non-engine agricultural source projects on a case-by-case basis
- Considerations:
  - Types of eligible projects (livestock operations, dust suppression)
  - Quantifiable emission reductions
  - Data requirements for project evaluation
  - Existing requirements

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## Additional Update

- Update emission factors to be consistent with OFF-ROAD model



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## Source Category Contacts

### ■ Compression Ignition Off-Road Equipment

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### ■ Off-Road Equipment Replacement

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### ■ Large Spark Ignition Off-Road Equipment

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### ■ Agricultural Sources

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### ■ Off-Road and Agricultural Projects

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## Comments

### ■ Webcast communication information

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# Locomotives



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## Potential Locomotive Updates

- Add criteria for funding of ARB- or U.S. EPA-verified retrofit devices
- Maximum allowable funding
  - Tier 0 repower or rebuild kit – 75 percent
  - Tier 1 repower or rebuild kit – 80 percent
  - Tier 2 repower or rebuild kit – 85 percent
- Update emission factors
  - Moyer funding availability and project criteria could be impacted by \$1B bond



## Marine Vessels



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## Potential Harbor Craft Updates

- Address ARB Draft Harbor Craft Rule
  - Targets tug boats, tow boats, ferries, and excursion vessels
  - Hour meter requirement for all harbor craft
  - Implementation timeline based on hours of operation and engine model year
  - Board consideration in September 2007
- Require Hours-Based Activity for Projects
  - Needed to determine if project is surplus to rule
  - Easier tracking and verification

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## Potential Harbor Craft Updates (cont.)

- Require cleanest available engine for repowers
- Evaluate potential for funding hybrid vessels
  - Need vessel certification to quantify benefits
- Consider feasibility of EMU requirement



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## Potential Harbor Craft Updates (cont.)

- Maximum allowable funding
  - Tier 2 repower – 80 percent
  - Tier 3 repower – 85 percent
- Update emission factors and load factors
- Moyer funding availability and project criteria could be impacted by \$1B bond

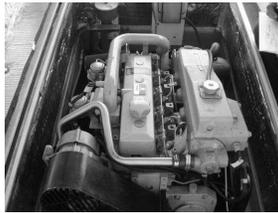


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# Source Category Contact

## Marine Engines and Locomotives

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