PROPOSITION 1B:
GOODS MOVEMENT
EMISSION REDUCTION PROGRAM

DRAFT
EQUIPMENT PROJECT SPECIFICATIONS
(CORRECTED)

January 7, 2008
### Trucks Serving Ports and Intermodal Rail Yards

| Eligible Equipment | Class 8 (>33,000 lbs gross vehicle weight rating) heavy-duty diesel trucks used to move goods.  

Equipment owner must demonstrate:  
- Continuous registration (California base-plated or International Registration Plan) in California for the past 2 years  
- At least 50 percent operation within trade corridor(s) for the past 2 years |
|---|---|
| Ineligible Equipment | • Trucks subject to ARB’s public utility fleet rule, ARB’s solid waste collection vehicle rule, and ARB’s diesel cargo handling equipment rule  
• Trucks funded via contracts executed after adoption of the *Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants, and Greenhouse Gases from In-Use Heavy-Duty Diesel-Fueled Vehicles* may not be included in any fleet averaging |
| Option (1) Retrofit Requirements | Partial funding of up to $5,000/truck to retrofit an eligible MY2003 or older heavy duty diesel truck with an ARB verified Level 3 diesel particulate filter that reduces diesel PM by 85 percent or more.  

- Program-funded diesel particulate filter shall be installed and operational at least 6 months prior to a regulatory requirement for that technology or level of emissions control  

Equipment owner shall:  
- Commit to at least 4 years of 100% California-only operation and California base-plated registration. Dual plates, IRP, and any other out-of-state registrations are prohibited.  
- Commit to at least 4 years of frequent port or inter-modal rail yard service (150+ visits/year)  
- Agree to accept an on-board electronic monitoring unit at any time during the contract term  
- Agree to equipment inspections  
- Comply with record-keeping, reporting, and audit requirements  
- Sign a legally binding contract with the local agency including project milestone and completion deadlines  
- Properly maintain filter in good operating condition and according to manufacturer’s recommendations  
- Demonstrate proof of equipment warranty on filter |
### Option (2) Repower

The lower of 50% or $20,000 to repower an eligible MY2003 or older heavy duty diesel truck with a new engine that meets MY2007 emission levels\(^1\) or lower and ARB’s requirements for engine manufacturer diagnostics.

- Program-funded truck repower project shall be completed and operational at least 3 years prior to a regulatory requirement for that technology or level of emissions control. (2 years prior to a regulatory requirement for that technology or level of emissions control for Independent Owner Operators)

Equipment owner shall:
- Commit to at least 8 years or 350,000 miles of 100% California-only operation and California base-plated registration. Dual plates, IRP, and any other out-of-state registrations are prohibited.
- Commit to at least 4 years of frequent port or inter-modal rail yard service (150+ visits/year)
- Agree to accept an on-board electronic monitoring unit at any time during the contract term
- Agree to equipment inspections
- Scrap the old engine
- Comply with record-keeping, reporting, and audit requirements
- Sign a legally binding contract with the local agency including project milestone and completion deadlines
- Properly maintain new engine, emission controls, and diagnostics in good operating condition and according to manufacturer’s recommendations
- Demonstrate proof of equipment warranty and comprehensive insurance on upgraded equipment

### Pro-rated Alternative

Equipment owners may opt for a pro-rated alternative consisting of duplicate requirements, except that the Program will pay the lower of 25% or $10,000 for a 4 year commitment of 100% California-only operation and California base-plated registration.

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\(^1\) MY2007 emissions levels are defined as a NOx emissions standard of 1.2 g/bhp-hr or lower and a PM emissions standard of 0.01 g/bhp-hr or lower
### Trucks Serving Ports and Inter-modal Rail Yards (continued)

<table>
<thead>
<tr>
<th>Option (3) Replacement</th>
<th>Partial funding of up to $50,000/truck to replace an eligible MY2003 or older heavy duty diesel truck with a diesel or alternative fuel truck meeting MY2007 emission levels(^2) or lower.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements</td>
<td>* Program-funded truck replacement project shall be completed and operational at least 3 years prior to a regulatory requirement for that technology or level of emissions control. (2 years prior to a regulatory requirement for that technology or level of emissions control for Independent Owner Operators)*</td>
</tr>
<tr>
<td></td>
<td>Equipment owner shall:</td>
</tr>
<tr>
<td></td>
<td>* Commit to at least 8 years or 350,000 miles of 100% California-only operation and California base-plated registration. Dual plates, IRP, and any other out-of-state registrations are prohibited*</td>
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<tr>
<td></td>
<td>* Commit to at least 4 years of frequent port or intermodal rail yard service (150+ visits/year)*</td>
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<td>* Agree to accept an on-board electronic monitoring unit at any time during the contract term*</td>
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<td>* Agree to equipment inspections*</td>
</tr>
<tr>
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<td>* Scrap the old truck*</td>
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<td></td>
<td>* Comply with record-keeping, reporting, and audit requirements*</td>
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<td></td>
<td>* Sign a legally binding contract with the local agency including project milestone and completion deadlines. Under a lease program, the owner and lessee must sign the contract.*</td>
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<td></td>
<td>* Properly maintain new truck in good operating condition and according to manufacturer’s recommendations*</td>
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<tr>
<td></td>
<td>* Demonstrate proof of equipment warranty and comprehensive insurance on new truck*</td>
</tr>
</tbody>
</table>

| Pro-rated Alternative   | Equipment owners may opt for a pro-rated alternative consisting of duplicate requirements, except that the Program will pay up to $25,000 for a 4 year commitment of 100% California-only operation and California base-plated registration. |

| Project Cost Assumptions | Option (1): Total cost of a diesel particulate filter is ~$10,000  |
|                         | Option (2): Total average cost of a repower is ~$40,000  |
|                         | Options (3) & (4): Total cost of a new MY2007 truck is ~$100,000 (diesel) to ~$180,000 (natural gas)  |

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\(^2\) MY2007 emissions levels are defined as a NOx emissions standard of 1.2 g/bhp-hr or lower and a PM emissions standard of 0.01 g/bhp-hr or lower
### Other Heavy Duty Diesel Trucks

| Eligible Equipment | Class 8 (>33,000 lbs gross vehicle weight rating) heavy-duty diesel trucks used to move goods.  
| Equipment owner must demonstrate:  
| Continuous registration (California base-plated or International Registration Plan) in California for the past 2 years  
| At least 50 percent operation within trade corridor(s) for the past 2 years |
| Ineligible Equipment |  
| Trucks subject to ARB’s public utility fleet rule  
| Trucks subject to ARB’s solid waste collection vehicle rule  
| Trucks subject to ARB’s diesel cargo handling equipment rule  
| Trucks funded via contracts executed after adoption of the *Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants, and Greenhouse Gases from In-Use Heavy-Duty Diesel-Fueled Vehicles* may not be included in any fleet averaging |
| Option (1) Retrofit Requirements | Partial funding of up to $5,000/truck to retrofit an eligible MY2003 or older heavy duty diesel truck with an ARB verified Level 3 diesel particulate filter that reduces diesel PM by 85 percent or more.  
| Program-funded diesel particulate filter shall be installed and operational at least 6 months prior to a regulatory requirement for that technology or level of emissions control  
| Equipment owner shall:  
| Commit to at least 4 years of 100% California-only operation and California base-plated registration. Dual plates, IRP, and any other out-of-state registrations are prohibited.  
| Agree to accept an on-board electronic monitoring unit at any time during the contract term  
| Agree to equipment inspections  
| Comply with record-keeping, reporting, and audit requirements  
| Sign a legally binding contract with the local agency including project milestone and completion deadlines  
| Properly maintain filter in good operating condition and according to manufacturer’s recommendations  
| Demonstrate proof of equipment warranty on filter |
### Other Heavy Duty Diesel Trucks (continued)

<table>
<thead>
<tr>
<th>Option (2) Repower</th>
<th>The lower of 50% or $20,000 to repower an eligible MY2003 or older heavy duty diesel truck with a new engine that meets MY2007 emission levels(^3) or lower and ARB’s requirements for engine manufacturer diagnostics.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements</td>
<td>• Program-funded truck repower projects shall be completed and operational at least 3 years prior to a regulatory requirement for that technology or level of emissions control. (2 years prior to a regulatory requirement for that technology or level of emissions control for Independent Owner Operators).</td>
</tr>
</tbody>
</table>
| Equipment owner shall: | • Commit to at least 8 years or 500,000 miles of 100% California-only operation and California base-plated registration. Dual plates, IRP, and any other out-of-state registrations are prohibited.  
• Agree to accept an on-board electronic monitoring unit at any time during the contract term  
• Agree to equipment inspections  
• Scrap the old engine  
• Comply with record-keeping, reporting, and audit requirements  
• Sign a legally binding contract with the local agency including project milestone and completion deadlines  
• Properly maintain new engine, emission controls, and diagnostics in good operating condition and according to manufacturer’s recommendations  
• Demonstrate proof of equipment warranty and comprehensive insurance on upgraded equipment |
| Pro-rated Alternative | Equipment owners may opt for a pro-rated alternative consisting of duplicate requirements, except that the Program will pay the lower of 25% or $10,000 for a 4 year commitment of 100% California-only operation and California base-plated registration. |

\(^3\) MY2007 emissions levels are defined as a NOx emissions standard of 1.2 g/bhp-hr or lower and a PM emissions standard of 0.01 g/bhp-hr or lower
### Other Heavy Duty Diesel Trucks (continued)

<table>
<thead>
<tr>
<th>Option (3) Replacement</th>
<th>Partial funding of up to $50,000/truck to replace an eligible MY2003 or older heavy duty diesel truck with a diesel or alternative fuel truck meeting MY2007 emission levels(^4) or lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements</td>
<td>• Program-funded truck replacement project shall be completed and operational at least 3 years prior to a regulatory requirement for that technology or level of emissions control. (2 years prior to a regulatory requirement for that technology or level of emissions control for Independent Owner Operators).</td>
</tr>
</tbody>
</table>

Equipment owner shall:

• Commit to at least 8 years or 500,000 miles of 100% California-only operation and California base-plated registration. Dual plates, IRP, and any other out-of-state registrations are prohibited.
• Agree to accept an on-board electronic monitoring unit at any time during the contract term
• Agree to equipment inspections
• Scrap the old truck
• Comply with record-keeping, reporting, and audit requirements
• Sign a legally binding contract with the local agency including project milestone and completion deadlines. Under a lease program, the owner and lessee must sign the contract.
• Properly maintain new truck in good operating condition and according to manufacturer’s recommendations
• Demonstrate proof of equipment warranty and comprehensive insurance on new truck

| Pro-rated Alternative   | Equipment owners may opt for a pro-rated alternative consisting of duplicate requirements, except that the Program will pay up to $25,000 for a 4 year commitment of 100% California-only operation and California base-plated registration. |

\(^4\) MY2007 emissions levels are defined as a NOx emissions standard of 1.2 g/bhp-hr or lower and a PM emissions standard of 0.01 g/bhp-hr or lower

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8 January 2008
### Option (4)
**Three-Way Truck Transactions**

| Additional Requirements for Eligible Equipment | Truck A: MY2003-2006 heavy duty diesel truck  
Truck B: MY1990 or older heavy duty diesel truck |
| --- | --- |
| **Option (4) Three-Way Truck Transactions** | Partial funding of up to $50,000/truck to:  
1. Replace an eligible MY2003-06 truck (Truck A) with a diesel or alternative fuel truck (Truck C) meeting MY2007 emissions levels\(^5\) or lower; and  
2. Equip Truck A with an ARB-verified Level 3 diesel particulate filter that reduces diesel PM by 85 percent or more; and  
3. Scrap a MY1990 or older diesel truck (Truck B) and replace with Truck A. |
| Requirements | - Program-funded three-way truck transaction shall be completed and equipment operational at least 3 years prior to a regulatory requirement for a truck meeting MY2007 emission standards. (2 years prior to a regulatory requirement for that technology or level of emissions control for Independent Owner Operators).  
Original owner of Truck A and new owner of new Truck C shall:  
- Equip Truck A with a Level 3 diesel particulate filter and transfer ownership (if applicable) to the owner of old Truck B  
- On Truck C, commit to at least 8 years or 500,000 miles of 100% California-only operation and California base-plated registration. Dual plates, IRP, and any other out-of-state registrations are prohibited.  
- Agree to accept an on-board electronic monitoring unit at any time during the contract term  
- Agree to equipment inspections  
- Comply with record-keeping, reporting, and audit requirements  
- Sign a legally binding contract with the local agency including project milestone and completion deadlines. Under a lease program, the owner and lessee must sign the contract.  
- Properly maintain new truck in good operating condition and according to manufacturer’s recommendations  
- Demonstrate proof of equipment warranty and comprehensive insurance on new truck |

\(^5\) MY2007 emissions levels are defined as a NOx emissions standard of 1.2 g/bhp-hr or lower and a PM emissions standard of 0.01 g/bhp-hr or lower
| **Option (4) Three-Way Truck Transactions Requirements (continued)** | Original owner of old Truck B and new owner of retrofit Truck A shall:  
• Scrap Truck B  
• On Truck A, commit to at least 4 years of 100% California-only operation and California base-plated registration. Dual plates, IRP, and any other out-of-state registrations are prohibited.  
• Agree to equipment inspections  
• Comply with record-keeping, reporting, and audit requirements  
• Sign a legally binding contract with the local agency including project milestone and completion deadlines.  
• Properly maintain filter in good operating condition and according to manufacturer’s recommendations  
• Demonstrate proof of equipment warranty on filter |
| **Project Cost Assumptions** | Option (1): Total cost of a diesel particulate filter is ~$10,000  
Option (2): Total average cost of a repower project is ~$40,000  
Option (3) & (4): Total cost of a new MY2007 truck is ~$100,000 (diesel) to ~$180,000 (natural gas) |
## Truck Stop/Distribution Center Electrification

<table>
<thead>
<tr>
<th><strong>Eligible Equipment</strong></th>
<th>Existing truck stop, distribution center, or other facility where diesel trucks congregate.</th>
</tr>
</thead>
</table>
| **Option (1) Electric Infrastructure** | Up to 50 percent of the cost to install landside electric infrastructure to replace diesel engine operation during truck idling, operation of auxiliary power units on the trucks, and/or operation of transport refrigeration units. To compete for Program funding, the weighted emission reductions over the project life per State dollar must exceed the average for truck replacement projects. The equipment owner shall:  
  • Work with the local air district to estimate the baseline emissions from existing operations, after accounting for the benefits of all adopted regulations. Estimate baseline emissions for current year and for a 10-year period following project completion.  
  • Provide the proposed operating statistics for the project and calculate the resulting change in emissions over the 10-year period with the proposed project operating. Based on the Program funding requested, if the weighted reductions over the project life per State dollar invested is better than the average for truck replacement projects, the electrification project could compete against other truck proposals for funding.  
  • Agree to demonstrate use over the first year of operation prior to receiving reimbursement for the costs to install the landside electric infrastructure and pedestals  
  • Agree to equipment inspections  
  • Comply with record-keeping, reporting, and audit requirements  
  • Sign a legally binding contract with the local agency including project milestone and completion deadlines  
  • Properly maintain new equipment in good operating condition and according to manufacturer’s recommendations |
| **Excluded Funding Components** | • Truck or transport refrigeration unit modifications  
• Electricity costs |
## Locomotives

| Eligible Equipment | Diesel-powered freight locomotives with no or minimal emissions control technology (i.e., uncontrolled, or meeting Tier 0 or Tier 1 standards).  
| Equipment owner must demonstrate: |  
| - Continuous operation in California for the past 2 years  
| - At least 50 percent operation within trade corridor(s) for the past 2 years  
| - Estimated diesel fuel usage greater than 20,000 gallons per year |

| Option (1): Switcher Locomotive | Partial funding for the lower of 50% or $750,000 per locomotive to replace or rebuild an uncontrolled, Tier 0 or Tier 1 switcher locomotive with a new generator-set that achieves at least 85 percent PM control and 80 percent NOx control or alternative technology with equivalent emission levels. Eligible locomotive costs include a new chassis, a new or rebuilt engine, and mechanical/electrical systems components necessary for safe operation.  
| Requirements | Equipment owner shall:  
| - Commit to 15 years of 100% California-only operation; periodic out-of-state maintenance may be permitted if outlined in the contract between the local agency and equipment owner  
| - Install an active GPS unit, fund data collection, and report location data  
| - Agree to equipment inspections  
| - Comply with record-keeping, reporting, and audit requirements  
| - Sign a legally binding contract with the local agency including project milestone and completion deadlines  
| - Properly maintain upgraded equipment in good operating condition and according to manufacturer’s recommendations  
| - Demonstrate proof of equipment warranty and comprehensive insurance on upgraded equipment  
| - (For UP and BNSF) Demonstrate compliance with 1998 agreement for the South Coast Air Basin by submitting a compliance plan to ARB prior to application for bond funding in the Los Angeles/Inland Empire corridor |
### Locomotives (continued)

<table>
<thead>
<tr>
<th><strong>Option (2): Helper Locomotive</strong></th>
<th><strong>Requirements</strong></th>
</tr>
</thead>
</table>
| Partial funding for the lower of 50% or $875,000 per locomotive to replace or rebuild an uncontrolled, Tier 0 or Tier 1 helper locomotive with a new generator-set that achieves at least 85 percent PM control and 80 percent NOx control or alternative technology with equivalent emission levels. Eligible locomotive costs include a new chassis, a new or rebuilt engine, and mechanical/electrical systems components necessary for safe operation. | Equipment owner shall:  
- Commit to 15 years of 100% California-only operation; periodic out-of-state maintenance may be permitted if outlined in the contract between the local agency and equipment owner  
- Install an active GPS unit, fund data collection, and report location data  
- Agree to equipment inspections  
- Comply with record-keeping, reporting, and audit requirements  
- Sign a legally binding contract with the local agency including project milestone and completion deadlines  
- Properly maintain upgraded equipment in good operating condition and according to manufacturer’s recommendations  
- Demonstrate proof of equipment warranty and comprehensive insurance on upgraded equipment  
- (For UP and BNSF) Demonstrate compliance with 1998 agreement for the South Coast Air Basin by submitting a compliance plan to ARB prior to application for bond funding in the Los Angeles/Inland Empire corridor |
Option (3): Line-Haul Locomotive

Partial funding for the lower of 50% or $1 million per locomotive to replace or rebuild an uncontrolled, Tier 0 or Tier 1 line haul locomotive with a new Tier 2 or better engine. Eligible locomotive costs include a new chassis, a new or rebuilt engine, and mechanical/electrical systems components necessary for safe operation.

Requirements

- Equipment owner shall:
  - Commit to 15 years of 100% California-only operation; periodic out-of-state maintenance may be permitted if outlined in the contract between the local agency and equipment owner
  - Install an active GPS unit, fund data collection, and report location data
  - Agree to equipment inspections
  - Comply with record-keeping, reporting, and audit requirements
  - Sign a legally binding contract with the local agency including project milestone and completion deadlines
  - Properly maintain upgraded equipment in good operating condition and according to manufacturer’s recommendations
  - Demonstrate proof of equipment warranty and comprehensive insurance on upgraded equipment
  - (For UP and BNSF) Demonstrate compliance with 1998 agreement for the South Coast Air Basin by submitting a compliance plan to ARB prior to application for bond funding in the Los Angeles/Inland Empire corridor

Project Cost Assumptions

- Estimated total cost of new switcher generator-set is ~$1.5 million
- Estimated total cost of a new generator-set helper locomotive is ~$1.5-2.0 million
- Estimated total cost of an eligible Tier 2 locomotive is ~$2.0-2.5 million

Excluded Funding Components

- Auto start/stop devices required by regulation or agreements
- GPS units and monitoring and reporting costs
- Remote Control Locomotive (RCL) units
## Shore Power

<table>
<thead>
<tr>
<th>Eligible Equipment</th>
<th>Existing cargo ship berth or existing cargo ship terminal at a seaport located in a trade corridor.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option (1) Grid-Based Power Requirements</strong></td>
<td>The lower of $2.5 million/berth or 50% of the covered shore-side costs of installing permanent, grid-based electrical power at a cargo ship berth.</td>
</tr>
<tr>
<td></td>
<td>- Program-funded grid-based shore power shall be installed and in operation at least 2 years prior to a regulatory requirement for that technology or level of emissions control.</td>
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<tr>
<td></td>
<td>Equipment owner shall:</td>
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<tr>
<td></td>
<td>- Commit to at least 20 years of the use of grid-based shore power at the berth at the following levels or greater:</td>
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<td>- 25 percent of ship visits in 2011-2013</td>
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<td>- 60 percent of the ship visits in 2014-2016</td>
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<td>- 70 percent of the ship visits in 2017-2019</td>
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<td>- 90 percent of the ship visits in 2020 and beyond</td>
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<td>- Agree to equipment inspections that include demonstrated operability with a cargo ship fully powered by shore-based electrical power</td>
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<td></td>
<td>- Comply with record-keeping, reporting, and audit requirements</td>
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<tr>
<td></td>
<td>- Sign a legally binding contract with the local agency including project milestone and completion deadlines</td>
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<td>- Comply with all local permitting requirements</td>
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</table>
### Shore Power (continued)

<table>
<thead>
<tr>
<th><strong>Option (2)</strong></th>
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<tbody>
<tr>
<td><strong>Non-grid based power</strong></td>
<td>Partial funding of up to $210,000 per megawatt of the covered costs of an electricity generating unit that provides power at a cargo ship berth or multiple berths. This unit can be portable or fixed on the terminal. Only zero emission units or natural gas engines equipped with selective catalytic reduction to control NOx emissions are eligible.</td>
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<tr>
<td><strong>Requirements</strong></td>
<td>• Program-funded non grid-based shore power shall be installed and in operation at least 2 years prior to a regulatory requirement for that technology or level of emissions control.</td>
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<td></td>
<td>Equipment owner shall:</td>
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<td></td>
<td>• Commit to 7 years of 100% California operation at the following levels or greater:</td>
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<td>o 1,000 hours per year in 2011-2013</td>
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<td></td>
<td>o 3,000 hours per year in 2014 and beyond</td>
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<tr>
<td></td>
<td>• Agree to equipment inspections that include demonstrated operability with a cargo ship fully powered by shore-based electrical power supplied by the electricity generating unit</td>
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<td></td>
<td>• Comply with record-keeping, reporting, and audit requirements</td>
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<td></td>
<td>• Sign a legally binding contract with the local agency including project milestone and completion deadlines</td>
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<td></td>
<td>• Properly maintain equipment in good operating condition and according to manufacturer’s recommendations</td>
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<td></td>
<td>• Demonstrate proof of equipment warranty</td>
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<td></td>
<td>• Comply with all local permitting requirements</td>
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<td></td>
<td>• Perform source testing to measure emissions from the unit every 1,000 hours of operation, according to the source test requirements contained in ARB’s shore power regulation</td>
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<tr>
<td><strong>Pro-rated Alternative</strong></td>
<td>Equipment owners may opt for a pro-rated alternative consisting of duplicate requirements, except that the Program will pay up to $150,000 for a 5 year commitment to use non-grid based shore power in 100% California operation.</td>
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</tr>
<tr>
<td><strong>Project Cost Assumptions</strong></td>
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<tr>
<td></td>
<td>• Total shoreside cost of equipping a berth with permanent grid-based electrical power is ~$5.0 million/berth; some ports may incur additional costs to bring new/additional power capacity to the port</td>
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<td>• Total cost of distributed generation power is anticipated to be $4.0 million/2 MW unit</td>
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<td>• Shipside modifications will cost ~$1 million/ship</td>
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<tr>
<td><strong>Excluded Funding Components</strong></td>
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<td></td>
<td>• Providing additional electrical power to the port</td>
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<td>• Construction and protection of infrastructure (e.g., natural gas lines) used to supply fuel for non-grid based electrical generation</td>
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<tr>
<td></td>
<td>• Shipside modifications to accept shore-based electrical power</td>
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</tr>
</tbody>
</table>
## Cargo Handling Equipment

<table>
<thead>
<tr>
<th>Eligible Equipment</th>
<th>Existing diesel-powered rubber-tired gantry crane with a Tier 4 engine or Level 3 verified diesel emission control device operating at a seaport or intermodal rail yard in a trade corridor.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option (1) Energy Storage System Requirements</strong></td>
<td>The lower of 50% of the total project cost or $160,000 per crane for purchase and retrofit of an energy storage system that ARB has verified to Level 1 (25 percent PM control) or better.</td>
</tr>
</tbody>
</table>
| Equipment owner shall: | • Commit to 20 years of 100% California operation in port or intermodal rail yard service  
• Agree to accept an on-board electronic monitoring unit at any time during the contract term  
• Agree to equipment inspections  
• Comply with record-keeping, reporting, and audit requirements  
• Sign a legally binding contract with the local agency including project milestone and completion deadlines  
• Properly maintain upgraded equipment in good operating condition and according to manufacturer’s recommendations  
• Demonstrate proof of equipment warranty and comprehensive insurance on upgraded equipment  
• Comply with all local permitting requirements  
• Not use the energy storage system to comply with ARB’s rule for diesel cargo handling equipment |
| **Project Cost Assumptions** | • Total cost of energy storage unit is ~$160,000-$320,000 per crane |
## Harbor Craft

| Eligible Equipment | Existing commercial harbor craft vessel with: a home port located in a trade corridor, 2 years of operation in California waters, and uncontrolled (Tier 0) diesel propulsion engine(s). Eligible vessel types include:  
• Tugboats and towboats  
• Work, pilot, crew and supply boats  
• Commercial fishing boats with at least 700 operational hours per year |

| Option (1) Repower tugs/tows Requirements | The lower of 50% of total cost or $135/horsepower for regulated vessels (tugs and tows) to replace a Tier 0 propulsion engine with a new model engine meeting latest emission standards (Tier 2 or better) and make necessary vessel modifications to accommodate the new engine.  
• Program-funded engine repowers for tugboats and towboats shall be in operation at least 2 years prior to a regulatory requirement for that technology or level of emissions control.  
Equipment owner shall:  
• Commit to 15 years of California-only operation  
• Scrap old engine  
• Agree to accept an electronic monitoring unit at any time during the contract term  
• Agree to equipment inspections  
• Comply with record-keeping, reporting, and audit requirements  
• Sign a legally binding contract with the local agency including project milestone and completion deadlines  
• Demonstrate proof of comprehensive insurance on upgraded equipment  
• Properly maintain upgraded equipment in good operating condition and according to manufacturer’s recommendations |
Harbor Craft (continued)

<table>
<thead>
<tr>
<th>Option (2)</th>
<th>Repower work, pilot, crew or supply boats; or high use commercial fishing vessels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements</td>
<td>The lower of 80% or $215/horsepower for unregulated vessels (work, pilot, crew, or supply boats; and high use commercial fishing vessels) to replace a Tier 0 propulsion engine with a new model meeting latest emission standards (Tier 2 or better) and make necessary vessel modifications to accommodate the new engine.</td>
</tr>
</tbody>
</table>
| Equipment owner shall: | Commit to 10 years of 100% California home port operation  
Scrap old engine  
Agree to accept an electronic monitoring unit at any time during the contract term  
Agree to equipment inspections  
Comply with record-keeping, reporting, and audit requirements  
Sign a legally binding contract with the local agency including project milestone and completion deadlines.  
Demonstrate proof of comprehensive insurance on upgraded equipment  
Properly maintain upgraded equipment in good operating condition and according to manufacturer’s recommendations |

| Project Cost Assumptions | Total cost of a Tier 2 engine is estimated at $270/horsepower |
| Excluded Funding Components | Out of service time (dry dock) costs |