Proposition 1B: Goods Movement Emission Reduction Program

January 7, 2008 - Sacramento
January 8, 2008 - Oakland
January 9, 2008 - Fresno
January 10, 2008 - Long Beach
January 11, 2008 - San Diego

Air Resources Board
California Environmental Protection Agency
OVERVIEW

• What is the basis for the proposal?
• What are staff’s key recommendations?
• How would local agencies apply and compete for funding?
• What kinds of equipment projects would be eligible for FY2007-08 funding and how would they compete?
Goods Movement Pollution Contributed to ~ 2,400 Premature Deaths in CA in 2005

- Trucks + refrigeration units
- Locomotives
- Ships w/in 24 mi
- Harbor craft w/in 24 mi
- Cargo equipment
Program Objectives

• Reduce emissions & health risk as quickly as possible in heavily impacted communities
• Incorporate simplicity and efficiency
• Ensure cost-effectiveness, leverage funds
• Provide accountability and transparency
Program Authority

• Voter-approved Proposition 1B
  – $1 billion for emission reductions (not required by law or regulation) from activities related to the movement of freight along California’s four priority trade corridors

• Implementing legislation
  – SB 88 and AB 201 establish 15+ funding criteria
  – FY2007-08 budget provides first $250 million
<table>
<thead>
<tr>
<th>Program Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focused</strong></td>
</tr>
<tr>
<td>- Seek earliest risk reduction in communities with highest GM risk</td>
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<tr>
<td><strong>Simple</strong></td>
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<tr>
<td>- Target specific projects</td>
</tr>
<tr>
<td>- Set equipment funding cap</td>
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<tr>
<td><strong>Efficient</strong></td>
</tr>
<tr>
<td>- Target large-scale programs</td>
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<tr>
<td>- Minimize administrative overhead</td>
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<tr>
<td><strong>Cost-Effective</strong></td>
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<tr>
<td>- Maximize reductions/$ invested</td>
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<td><strong>Leverage</strong></td>
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<td>- Maximize non-state match</td>
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<tr>
<td><strong>Transparent</strong></td>
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<tr>
<td>- Propose funding targets</td>
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<tr>
<td><strong>Accountable</strong></td>
</tr>
<tr>
<td>- Keep equipment in California</td>
</tr>
<tr>
<td>- Monitor, report and audit</td>
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</tbody>
</table>
# Proposed Corridor Funding Targets*

<table>
<thead>
<tr>
<th>Factors</th>
<th>LA/Inland Empire</th>
<th>Central Valley</th>
<th>Bay Area</th>
<th>SD/Border</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>51%</td>
<td>17%</td>
<td>22%</td>
<td>10%</td>
</tr>
<tr>
<td>Freight emissions</td>
<td>45%</td>
<td>26%</td>
<td>20%</td>
<td>9%</td>
</tr>
<tr>
<td>SIP needs</td>
<td>70%</td>
<td>30%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Average</td>
<td>55%</td>
<td>25%</td>
<td>14%</td>
<td>6%</td>
</tr>
</tbody>
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| Proposal         | $550M        | $250M         | $140M    | $60M      |

* Includes ~8% in overall Program administrative funds
# Proposed Source Category Funding Targets*

<table>
<thead>
<tr>
<th>Amount</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$400M</td>
<td>Heavy duty diesel trucks serving seaports and intermodal rail yards</td>
</tr>
<tr>
<td>$360M</td>
<td>Other heavy duty diesel trucks, plus truck stop electrification</td>
</tr>
<tr>
<td>$100M</td>
<td>Diesel freight locomotives</td>
</tr>
<tr>
<td>$100M</td>
<td>Shore power for cargo ships at berth, plus cargo handling equipment</td>
</tr>
<tr>
<td>$  40M</td>
<td>Commercial harbor craft</td>
</tr>
</tbody>
</table>

* Includes ~8% in overall Program administrative funds
Funding Flow

Prop 1B

ARB

LA/Inland Empire Corridor
Central Valley Corridor
Bay Area Corridor
San Diego/Border Corridor

Locomotives

Agency A
Retrofit + Replace

Agency B
Replace

Switcher + Line-haul

Equipment Owners

Categories
Local agency
Local agency projects

Trucks
Program Benefits

• $1 billion Program with proposed source category funding targets would reduce:
  – About 7,400 tons of diesel PM emissions
  – And 185,000 tons of NOx emissions
  – SOx emissions through shore power
  – 1.3 million tons of carbon dioxide

• Cost-effectiveness ranges from 0.3-2.6 lbs weighted emission reductions per State $

• Greatest benefits in communities near goods movement facilities
Staff Priorities for $250M in FY2007-08 Funds

• Eligible projects ready for quick implementation
• Truck retrofit projects to add diesel PM filters
• Truck replacement at the Ports of LA/Long Beach
## Early Grant Recommendations

<table>
<thead>
<tr>
<th>Funding</th>
<th>Air District</th>
<th>Project(s)</th>
</tr>
</thead>
</table>
| $13.8M  | South Coast        | • Replace 130 port trucks  
                           • Replace 130 other trucks |
| $5.7M   | SJ Valley          | • Retrofit 450 trucks  
                           • Replace 60 trucks         |
| $0.8M   | Sac Metro          | • Replace 15 trucks                                       |
| $3.4M   | Bay Area           | • Shore power @ 2 berths  
                           • Retrofit 75 port trucks |
| $1.3M   | San Diego          | • Replace/retrofit port trucks  
                           • Retrofit 115 Imperial trucks |
| $25M    |                    |                                                             |
Public Participation

• Development of program guidelines, funding criteria and targets
• Annual review of local agency applications and recommendations for ARB funding
• Ranked equipment project list on web
• Project status information on web
• Regular progress reports
• Annual community meetings
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 7-11</td>
<td>Public workshops</td>
</tr>
<tr>
<td>Jan 14</td>
<td>Full draft guidelines available</td>
</tr>
<tr>
<td>Jan 24-25</td>
<td>Board approves guidelines, targets, and $25M in early grants</td>
</tr>
<tr>
<td>Mar 1</td>
<td>Local agency applications due</td>
</tr>
<tr>
<td>Apr 1-30</td>
<td>Ranked local agency projects posted, Workshops and staff recommendations</td>
</tr>
<tr>
<td>May 22</td>
<td>Board approves $225M in projects</td>
</tr>
<tr>
<td>May 22-Jun</td>
<td>Grant agreements with local agencies</td>
</tr>
<tr>
<td>July+</td>
<td>Local agency implementation begins, Contracts with equipment owners, Equipment installed/operational</td>
</tr>
</tbody>
</table>
Local Agency Projects
Local Agency Responsibilities

- Complete application
- Legal grant agreement with ARB
- Adequate staffing
- Outreach and competitive process to fund equipment projects
- Contracts w/equipment owners
- Equipment inspections and monitoring
- Projects completed on time
- Data and reports to ARB
- Fiscal controls and audit participation
Local Agency Applications to Request Funding from ARB

By source category, describe/demonstrate:

- Detailed project proposal and schedule
- Capacity to administer project
- How project will be implemented to meet requirements of Guidelines
- Full funding and fiscal controls
- Emission reductions and cost-effectiveness
- Public participation
Selecting Local Agency Projects

**Step 1: Competitive Ranking (example)**

- Local agencies A, B, C in same corridor propose truck projects
- Agencies/projects are screened for eligibility
- Demonstrations of # trucks that can be upgraded within timeframe are evaluated
- Prioritization factors are determined:
  - *Emission reduction factor* = Reduction in NOx + (diesel PM x 20) in all corridors over project life
  - *Cost-effectiveness and match factor* = weighted emission reductions/total State $
Selecting Local Agency Projects

**Step 1: Competitive Ranking (example)**

<table>
<thead>
<tr>
<th>Emission Reduction Factor</th>
<th>Score: 1</th>
<th>Emission Reduction Factor</th>
<th>Score: 2</th>
<th>Emission Reduction Factor</th>
<th>Score: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-90 tons</td>
<td>Score: 3</td>
<td>A-1.5 lbs/$</td>
<td>Score: 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-80 tons</td>
<td>Score: 2</td>
<td>C-0.8 lbs/$</td>
<td>Score: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-65 tons</td>
<td>Score: 1</td>
<td>B-0.3 lbs/$</td>
<td>Score: 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Competitive Ranking (post on web)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project A: 2+3</td>
</tr>
<tr>
<td>Project B: 3+1</td>
</tr>
<tr>
<td>Project C: 1+2</td>
</tr>
</tbody>
</table>
Selecting Local Agency Projects

Step 2: Funding Level (example)

- Consider overall Program funding targets by corridor and source category
- Consider available funds and priorities identified by the Board for that fiscal year
- Establish funding level for top project (local agency proposal may be pro-rated)
- Assess next project(s) if additional funds available for that corridor/source category
Selecting Local Agency Projects

**ARB Process**

- Staff posts preliminary list of projects being considered for funding on public website
- Public provides comments at workshops
- Staff publishes list of recommended projects and funding levels
- Board holds hearing, considers testimony, and adopts final list of projects for funding
- Staff executes grant agreements with local agencies
Project Completion Deadlines

For FY 2007-08 staff recommends:

• From grant agreement with ARB, 18 months to sign contracts with equipment owners obligating full grant $ (minus any admin)

• Then project completion/final payment within:
  – 1 yr: cargo equipment
  – 18 mos: trucks
  – 2 yrs: locomotive, non-grid shore power
  – 3 yrs: truck stop electrification
  – 4 yrs: harbor craft, grid-based shore power
Program Funds for Administration

• State administration: 2% for bond issuance (non-ARB) and ~3% for Program (ARB)

• % of grant available for local administration:
  – 2% for grid-based shore power
  – 3% for locomotives, non-grid shore power, cargo cranes, truck stop electrification
  – 4% for harbor craft
  – 5% for truck retrofit/replacement
  – 0% for ports/agencies able to impose fees

• Overall ~8% of bond funds for administration
Equipment Projects
Summary of Eligible Projects for FY2007-08* Funding

• Replace, repower, retrofit heavy-duty truck
• Replace or repower freight locomotive
• Repower commercial harbor craft
• Install shore-side electrical infrastructure for cargo ship
• Retrofit crane with energy storage system
• Install electrical infrastructure at truck stop or distribution center

* To be updated with each appropriation to ARB
Selecting Equipment Projects

**Step 1: Competitive Ranking (example)**

- Owners of trucks A, B, C apply for funding
- Owners/projects are screened for eligibility
  - CA registration, 50% operation in corridors
- Each truck is evaluated as a separate project
- Prioritization factors are determined:
  - *Emission reduction factor* = Reduction in NOx + (diesel PM x 20) in all corridors over project life
  - *Cost-effectiveness and match factor* = weighted emission reductions/total State $
Selecting Equipment Projects

Step 1: Competitive Ranking (example)

<table>
<thead>
<tr>
<th>Emission Reduction Factor</th>
<th>Cost-Effectiveness and Match Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>B- 10 tons</td>
<td>A- 0.8 lbs/$</td>
</tr>
<tr>
<td>A-  8 tons</td>
<td>C- 0.6 lbs/$</td>
</tr>
<tr>
<td>C-  5 tons</td>
<td>B- 0.3 lbs/$</td>
</tr>
<tr>
<td>Score: 3</td>
<td>Score: 3</td>
</tr>
<tr>
<td>Score: 2</td>
<td>Score: 2</td>
</tr>
<tr>
<td>Score: 1</td>
<td>Score: 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Competitive Ranking</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project A: 2+3</td>
<td>5 points</td>
</tr>
<tr>
<td>Project B: 3+1</td>
<td>4 points</td>
</tr>
<tr>
<td>Project C: 1+2</td>
<td>3 points</td>
</tr>
</tbody>
</table>
Selecting Equipment Projects

Local Agency Process

- Agency posts list of competitively ranked projects on public website
- Agency requests/receives project funds from ARB (as defined in the Guidelines)
- Agency applies funds to top project and continues down the competitively ranked list until funds are exhausted
- Agency conducts pre-inspections and signs contracts with equipment owners
Example

**ARB**

**Prop 1B**

**Port Trucks**

- **LA/Inland Empire Empire Corridor**
- **Central Valley Corridor**
- **Bay Area Corridor**
- **San Diego/Border Corridor**

- **POLA + POLB**
  - Replace

- **Port Trucks**
  - Containers to intermodal rail yard in LA
  - Containers to distribution center in Mira Loma
  - Containers to warehouse in Bakersfield
  - Forest products from the Sierras
  - Hay from Imperial Valley
Contact Information

- http://www.arb.ca.gov/gmbond
  - Sign up for listserve notices
  - Access to documents
- (916) 44-GOODS (444-6637)
- gmbond@arb.ca.gov
- Douglas Ito, Manager
  Goods Movement Strategies Section
SUPPLEMENTAL SLIDES

Detailed Project Specifications for FY 2007-08 Funds
Bottom Line on Adopted and Proposed ARB Truck Rules

- Drayage Trucks: If your truck is MY2003 or older, you’ll need to (at least) install a PM filter by Dec 2009
- Drayage and Other On-Road Trucks: If your truck is MY2006 or older, you’ll (also) need to replace it with a MY2007 truck by Dec 2013
Heavy-Duty Diesel Trucks
(over 33,000 lbs GVWR)

Option 1: Truck retrofit

- $5,000/truck for a Level 3 PM filter to retrofit MY2003 and older trucks
- Install filter at least 6 mos before required
- Commit to CA only registration/operation for 4 yrs or until upgrade is required
- Port/rail yard drayage trucks commit to stay in that service for 4 yrs (150+ visits/yr)
- Accept on-board monitoring device if requested
Heavy-Duty Diesel Trucks
(over 33,000 lbs GVWR)

Option 3: Truck replacement

– $50k/truck to replace MY2003 or older truck with
diesel or alternative fuel truck meeting MY2007
emission levels

– CA only registration/operation for 8 yrs -- or
350,000 mi for port trucks, 500,000 mi for other
  • Alternative: $25k/truck with CA reg/operation for 4 yrs

– Scrap old truck and operate new truck at least
three yrs before required

– Port/rail yard drayage trucks commit to stay in
  that service for 4 yrs (150+ visits/yr)

– Accept on-board monitoring device *if requested*
Equipment Project Options

Heavy-Duty Diesel Trucks
(over 33,000 lbs GVWR)

Option 4: Three Way Truck Transaction

- Truck A: MY2003-2006 diesel truck
- Truck B: MY1990 or older diesel truck
- Truck C: MY2007 diesel or alternative fuel truck

- $50k/truck to replace Truck A with Truck C
- Truck A: Retrofit with a Level 3 PM filter
- Truck B: Scrap and replace with retrofit Truck A
- Truck C: Operate at least 3 yrs before required, CA only registration & operation for 8 yrs/500,000 mi, accept monitoring device
- Truck A: CA only registration/operation for 4 yrs
Option 1: Electric infrastructure at existing truck stop or distribution center

- Up to 50% of covered costs to install electric infrastructure and pedestals for trucks
- Quantify remaining emissions after compliance with ARB rules for trucks, idling, transport refrigeration units, and auxiliary power units
- Calculate extra emission reductions achievable with electrification infrastructure over 10 yrs
- Demonstrate that reductions per State dollar invested are better than truck replacement
Equipment Project Options

Freight Locomotives

• Diesel locomotive with 2 yrs CA operation, 50% in corridor(s), >20,000 gal/yr fuel use

Option 1: Switcher
– Lower of 50% or $750k/unit to replace or rebuild old switcher with new generator set (or equiv.)

Option 2: Helper
– Lower of 50% or $875/unit to replace or rebuild old helper with new generator set (or equiv.)

Option 3: Line-haul
– Lower of 50% or $1M/unit to replace old in-state line haul with new model meeting Tier 2+

All -- CA only operation for 15 yrs
Shore Power for Cargo Ships

• Install shore-side electrical infrastructure at least 2 yrs before required

**Option 1: Grid-based power**

– Lower of $2.5M/berth or 50% for covered shore-side capital cost to bring power to berth, 20 yr life with specified % ship visits

**Option 2: Distributed generation power**

– Lower of $210k/MW for covered capital costs of power systems with NOx controls, 7 yr life with annual operating hours, source testing

– Alt. $150k/MW for 5 yr life
Diesel Cargo Handling Equipment at Ports and Intermodal Rail Yards

Option 1: Energy storage systems

- Existing rubber tired gantry crane with Tier 4 engine or Level 3 PM control
- Lower of 50% or $160k/crane to fund purchase and installation of energy storage system, with 20-yr contract
- Reductions cannot be applied toward rule compliance
Commercial Harbor Craft

Option 1: Engine repower

- Reconfigure vessel and replace old diesel propulsion engine with new model meeting latest emission standards
- For tugs and tows, lower of 50% or $135/hp with 15-year contract for CA operation; complete repower at least 2 yrs before required
- For pilot/work/crew/supply boats and high use commercial fishing vessels, lower of 80% or $215/hp with 10-year contract