

National Clean Diesel Campaign



Agriculture Program



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Agricultural Air Quality Task Force
Clean Diesel Initiative
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Presentation Overview

- Overview of NCDC
- Program Successes
- Technology Verification
- NCDC Funding
- Energy & Transportation Bills



Overview of National Clean Diesel Campaign

- Goal: *reduce emissions from the legacy fleet of over 11 million diesel engines by 2014*
- Focus on five sectors:
 - School Buses
 - Ports
 - Construction
 - Agriculture
 - Freight
- Program activities:
 - Technology verification
 - Providing technical and policy analysis
 - Coalition-building and outreach
 - Establishing projects through grant competitions

Sector-Based Programs

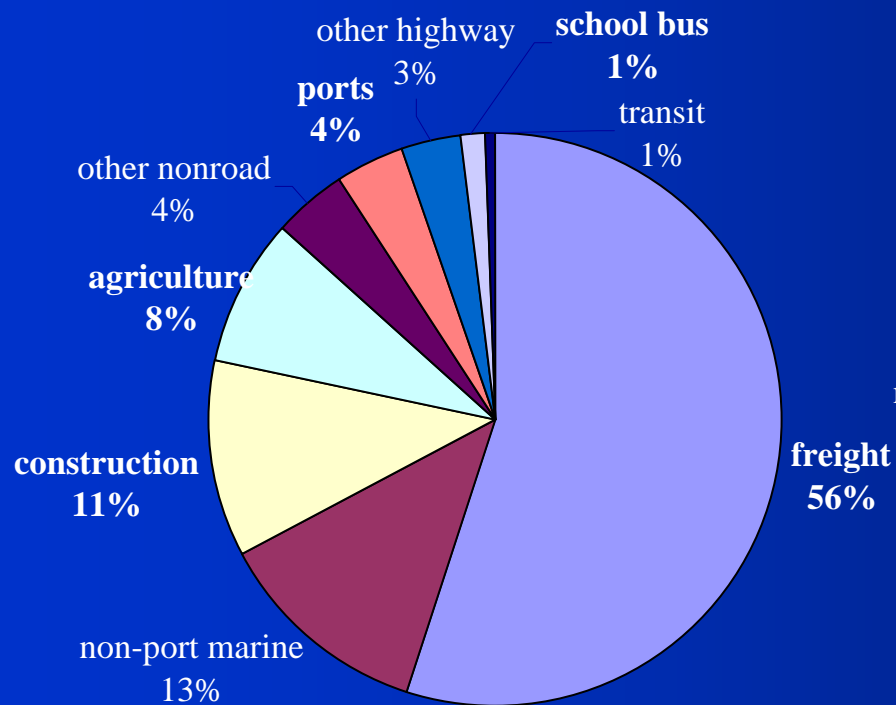
- **Clean Air Agriculture**
 - Promotes biofuels/renewables & retrofit in farming communities in non-attainment areas through collaborative partnership
- **Clean School Bus USA**
 - Aims to modernize 100% of the nation's school bus fleet by 2010
- **Clean Ports USA**
 - Encourages port authorities and terminal operators to reduce emissions and provide economic incentives to operate more efficiently
- **Clean Construction USA**
 - Encourages reducing emissions from major public and private construction projects in non-attainment areas
- **SmartWay Transport Partnership**
 - Challenges freight companies to improve the environmental performance of their fleets

Focus on Key Sectors

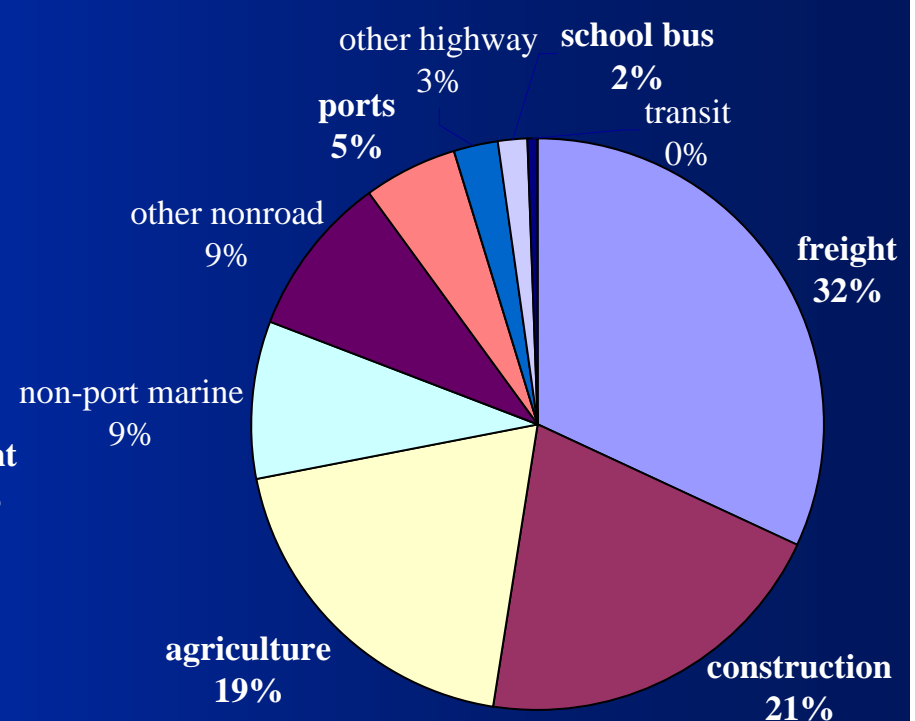
- We chose sectors based on:
 - Levels of emissions
 - Public health impacts
 - Non-attainment zones
 - Proximity to sensitive populations
 - Cost-effectiveness of reduction strategies
 - Timely opportunities
 - e.g. Expansion of ports and major road construction
 - Support from stakeholders and the public

Mobile Source Diesel Emissions Inventory by Sector (2004)

NO_x
(6.3 million tons)



PM 2.5
(305,000 tons)



Agriculture Emissions

- Diesel fuel powers 2/3 of all agricultural equipment
- There are roughly 2 million engines in the ag fleet
- Agriculture accounts for 35% of land-based nonroad particulate matter emissions
- Agriculture comprises 23% of land-based nonroad NO_x emissions
- Nonroad retrofits can be some of the most cost effective
 - For example, a typical bulldozer emits as much particulate matter as 500 cars

Clean Air Agriculture

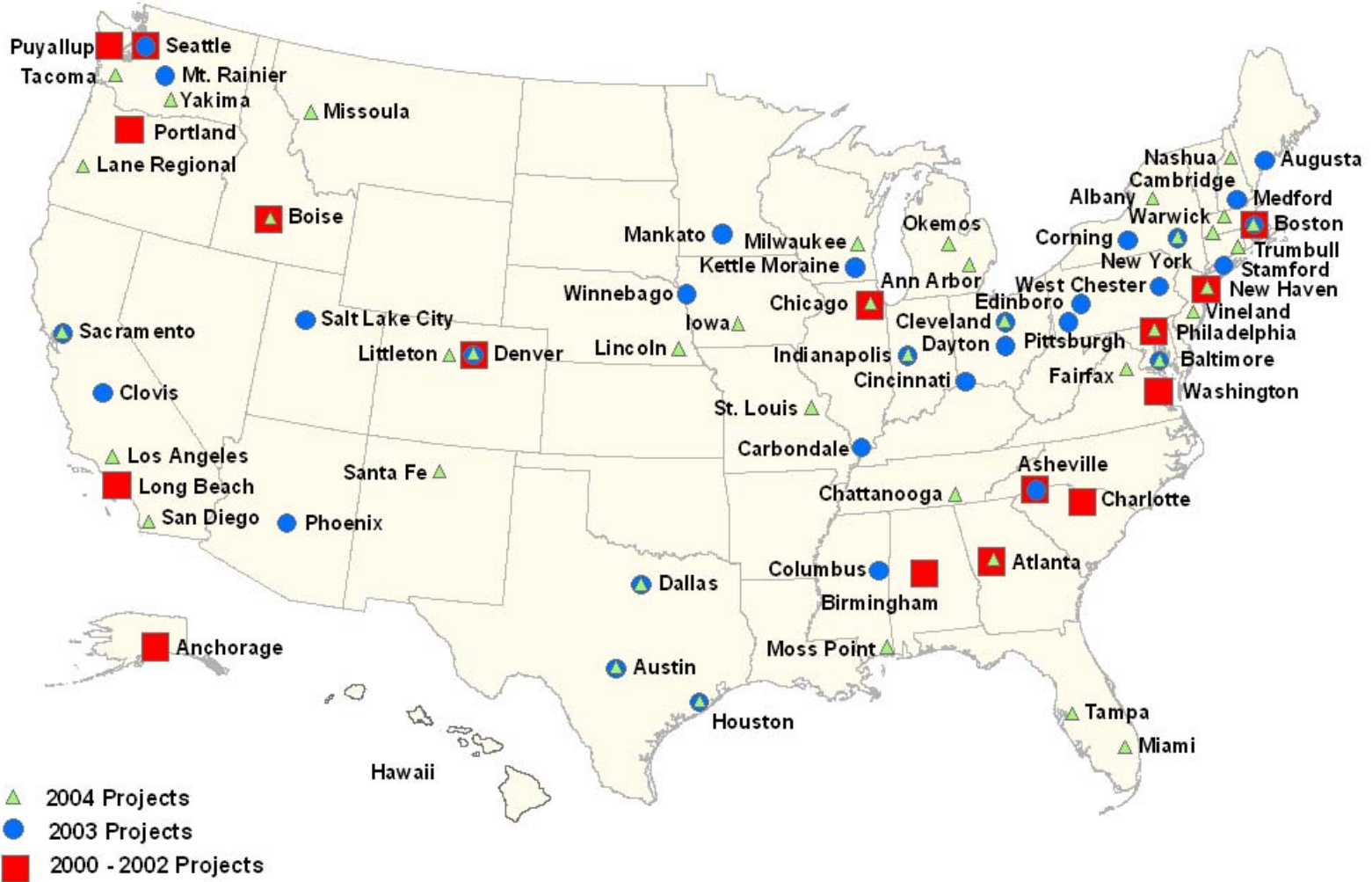
Objective: Achieve significant diesel emissions reductions in agricultural activity through voluntary, incentive-based approaches

- Create partnerships
- Provide education and technical assistance to promote clean diesel
 - Repowers (equipment and ag pumps)
 - Replacements
 - Retrofits
 - Cleaner Fuels (biodiesel, ULSD, biomethane, etc.)
- Support demonstration projects

NCDC Program Successes

- Over 500 Partners
- 20 States (and DC) using ULSD early
- Tens of thousands of engines are being retrofitted
- 17 emissions control technologies verified
- Partners have contributed significant resources
 - Over 2 external dollars for every 1 federal dollar invested
 - States have established programs with funding >400k
- Specifically,
 - As a result of Clean School Bus USA:
 - Over 2 million children in 150 school districts are riding approx. 20,000 cleaner buses
 - As a result of SmartWay Transport:
 - 53 idle reduction projects are in place along major interstate corridors (I-95, I-40, I-5, I-35, I-10, I-85)
 - 217 shipping and trucking companies have committed to reducing emissions from roughly 300,000 trucks

NCDC Projects to Date



Agricultural Projects

- **Retrofitting Agricultural Equipment**
 - Idaho grant will place diesel oxidation catalysts on farm equipment
- **Cleaner Biodiesel for Farm Equipment**
 - Demonstration tests the effectiveness of a fuel additive placed in biodiesel
 - Fuel additive is anticipated to lower NO_x emissions (biodiesel use may result in a small increase in NO_x emissions)

Agricultural Projects

- **Agricultural Pump Efficiency Project**
 - Research, tests and provides rebates for retrofitting and repairing ag pumps
- **Farming Diesel Emissions Reduction Project**
 - Promotes no-till/direct seeding techniques to farmers by offering them cash incentives to offset the initial costs of necessary tractor modifications.

Technology Verification

- EPA has a rigorous testing program for evaluating technologies
- EPA works with technology vendors, engine manufacturers, MECA
- Memorandum of Agreement between EPA and CARB
 - Collaboration with Texas
- Retrofit technologies to reduce PM and NOx emissions currently verified by EPA & CARB:
 - DPFs, DOCs, Crankcase Filtration, Emulsified Fuel, Biodiesel, EGR and SCR systems.
- Information about EPA's Verification program:
<http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>

Cost Estimates for PM Reduction Measures

Measure	Cost per Measure	% Reduction in PM Emissions
Diesel Oxidation Catalyst	\$500 - \$2,000	20-40%
Particulate Matter Filter	\$5,000 - \$10,000	60-90%
Crankcase Filtration (school buses)	\$500 - \$1,000	5-10%
Idle Reduction (drayage trucks)	\$0	2%
Direct Fired Heater (freight trucks)	\$1,000	5%
Clean Fuels: ULSD, CNG, Biodiesel (B20/B100), Emulsified Diesel Fuel	varies	varies

Federal Funding

National Clean Diesel Campaign

- 2005 National Clean Diesel Campaign Grants
 - \$7.5 M for Clean School Bus. Anticipate 30-40 grants.
 - 172 applications (up from 103 in 2003) from 36 states
 - Requested \$50 million
 - \$1.1 for ports & construction. Anticipate 8-12 grants.
 - 25 applications from 16 states
 - Requested \$3.8 million
- 2005 SmartWay Transportation
 - \$5 M available to states, nonprofits, and academic institutions for idle reduction demonstration projects. 5 grants awarded.

FY 06 budget

- \$5 Million for National Clean Diesel Campaign
- \$7 Million for Clean School Bus grants



Future Federal Funding:

Energy and Transportation Bills Overview

- **Authorized Funding – Energy Bill**

- **Diesel Emission Reduction Act (DERA)**

- \$1Billion over 5 years
 - Expect to fund 150-200 projects
 - 70% of the funds to be distributed by EPA in National Grants and Loans
 - 20% of the funds to establish State grant/loan programs
 - An optional 10% of the funds can be used to increase state allocations for states that match federal funds

- **Fleet Modernization**

- \$100 M over 3 years (focus on ports)

- **Clean School Bus**

- \$110 M over 2 years with more funds thru FY2010
 - Expect to fund 40 - 75 projects

- **Idle Reduction**

- \$140M over 3 years for idle reduction



Future Federal Funding:

Energy and Transportation Bills Overview

- **Transportation Bill -**
 - Congestion Mitigation and Air Quality (CMAQ)
 - Priority for diesel retrofits in construction
 - In partnership with DOT, EPA must provide guidance to states on effectiveness of technologies and strategies
 - \$1.4 billion per year for 6 years



For More Information

Visit EPA's National Clean Diesel
Campaign Website

www.epa.gov/cleandiesel

