

EPA Diesel Retrofit Working Group

Draft Report to the Mobile Sources
Technical Review Subcommittee

November, 2005

The Need: Address Diesel Emissions

- Regulatory Program
 - 2004 & 2007 On-Road and Non-Road diesel rules for new engines
 - Developing new regulations for locomotives and marine engines
 - Does NOT address 11 million engines in the existing legacy fleet
 - EPA has limited authority to regulate the in-use fleet
- Voluntary Program
 - Began with Clean School Bus USA in 2003
 - How to address diesel emissions in all sectors?
 - Wide variety of engines, vehicles, uses, and operators
 - Unique sector economic structures and business needs
- “Retrofit” broadly defined

FACA Structure

CAAAC

MSTRS

Clean Diesel and Retrofit WG

Tim Johnson and Gay MacGregor

Clean School
Bus USA

Charlie
Gauthier/Jen
Keller

Clean
Ports USA

Michael
Block/Trish
Koman

Clean
Construction

Leah Wood/Steve
Albrink

Smartway
Freight

Allen Schaeffer/
Mitch Greenberg

The Group Considered...

- **Incentives**
 - **Primarily Government Funded Incentives**
 - **Government & Private Sector Funded Incentives**
 - **Primarily Private Sector Funded Incentives**
- **Regulatory Requirements**
- **Other Strategies (e.g., local and State fees)**

Consensus on General Findings

- The potential benefits of cleaning up the legacy fleet are significant and worth national investment.
- There is a large gap in resources to fund AND run programs to retrofit the legacy fleet.
 - This gap should be closed
 - Federal government funding should leverage other funds, public and private, to maximize the emissions benefit.

Consensus on General Findings

- A combination of incentives is needed to address diesel emissions across sectors, but the best available technology should be advocated in each situation to achieve maximum reductions.
- The provisions of the Transportation and Energy Bills provide new funding opportunities, and the members encourage EPA to take full advantage of them. Members are willing to assist EPA in exploring these opportunities.

Consensus on Cross Sector Findings



- **Grants/Loans/Rebates - MORE MONEY is a big part of the answer across all sectors**
 - The group commits to advocating to establish and design effective programs at all levels of government including finding resources to implement the programs
 - Model guidance for low interest loan and rebate programs
 - Money should be available to private and public entities

Consensus on Cross Sector Findings

- **Tax incentives should be pursued at the federal level**
 - Tax incentives can bolster the business case for retrofit and reduce the risks of cleaning up equipment
 - The Work Group commits to working with EPA to take full advantage of credits now available through Energy and Transportation bills

Consensus on Cross Sector Findings

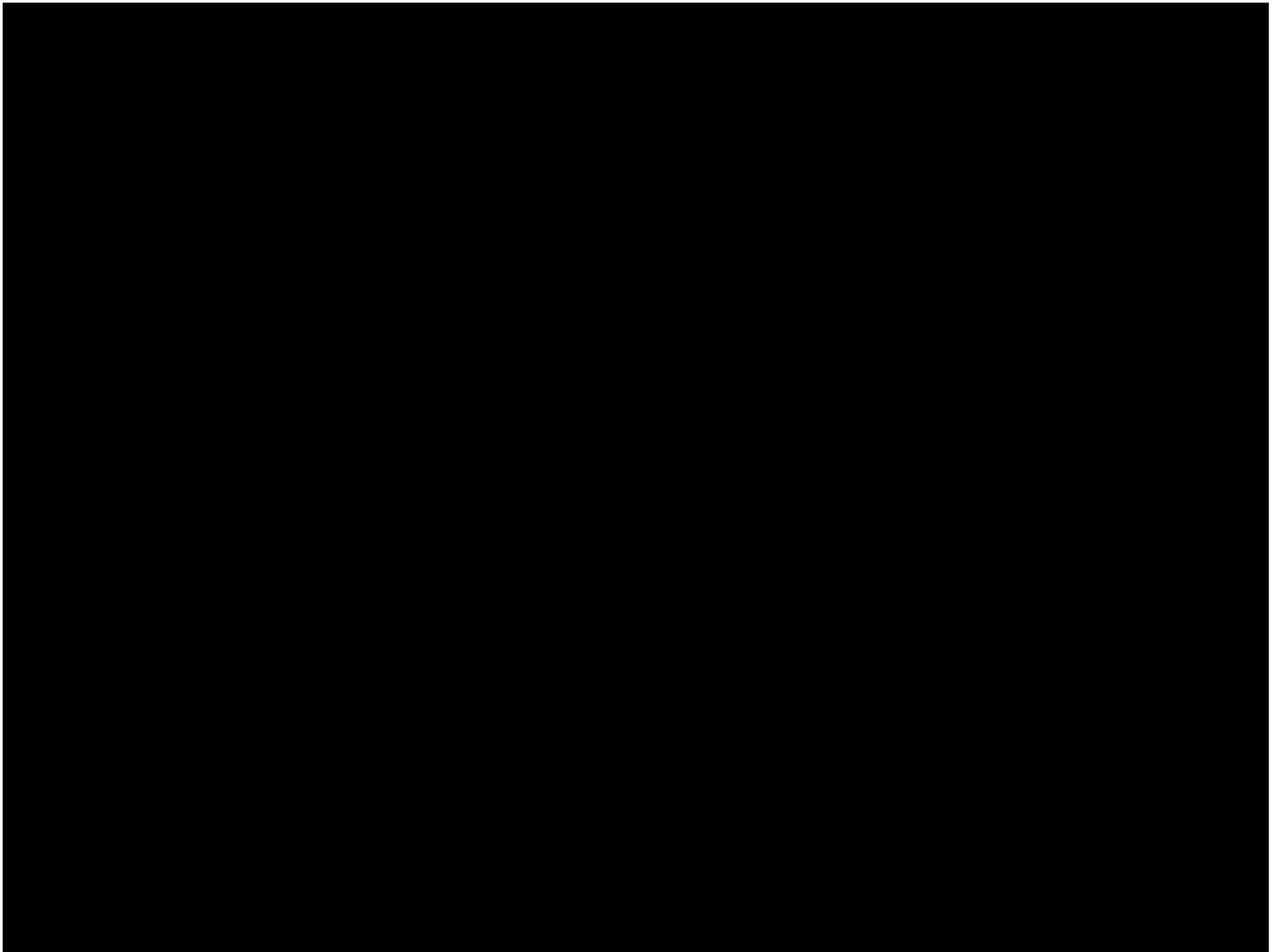
- **Establish an Outreach and Education Program**
 - Outreach and education is key to getting successful programs in place regardless of how they are funded.
 - Need to know how to access the money
 - Need to know how to clean up the fleet
- **Enhance the Technology Verification Process**
 - Streamline to get the best technologies out sooner

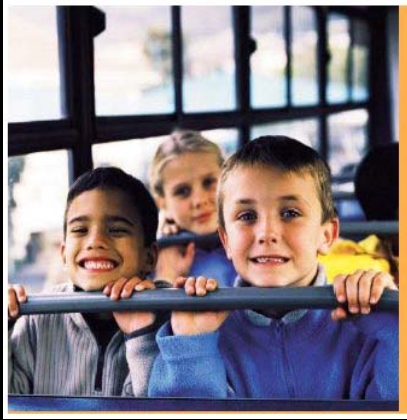
Consensus on Cross Sector Findings

- **Establish a national recognition program**
 - A well designed program that provides positive publicity and prestige will help get diesel reductions
- **Complete the cost effectiveness analysis of diesel emission reduction programs**
- **EPA should expedite guidance needed for calculating credits for use in SIPs/Conformity**

Workgroup Report Schedule

- Interim report
 - Multiple calls to review comments on preliminary draft
 - Sept 12th Workgroup meeting to finalize preliminary draft
 - Sept 13th present interim findings to MSTRS
 - Will take comments from MSTRS members on preliminary report through Oct. 20th
- Nov 15th 2005 CAAAC – review work to date and prepare CAAAC for concurring on recommendations at next meeting
- Dec. 7-8th 2005 - National Policy Leaders Summit (highlight recommendations)
- All comments, including expanded regulatory discussion, incorporated in a redraft for distribution to MSTRS and CAAAC by Jan. 31st 2006
- Present from CAAAC to agency in March 2006
- Workgroup sunsets Spring 2006 – still work to do





Clean School Bus USA

Sector Characteristics Affecting Incentive Design

- 400,000 large, diesel-powered school buses
 - 1/3 manufactured before 1991; 2000 manufactured before 1977
 - Estimated 30,000 to date involved in a clean school bus project (retrofitted, replaced or switched to cleaner fuels); Approximately 7500 to date from EPA grants



Sector Characteristics Affecting Incentive Design

- About 1/3 of the school bus fleet is privately owned
- Technology exists to retrofit the fleet
- Knowledge exists to assist school districts



Key School Bus Sector Recommendations

- More funding needed from all sources
 - Grants are attractive incentives for public and private operators
 - Grants assistance is important for success
- Develop CSB education & outreach program to educate about program/funding
- Give priority to replace pre-1977 buses

Key School Bus Sector Recommendations

- Focus on clean-up effectiveness & cost-effectiveness, including childrens' exposure
- Strive for geographic diversity
- Ensure that privately owned fleets/small economically disadvantaged districts have equal access to program



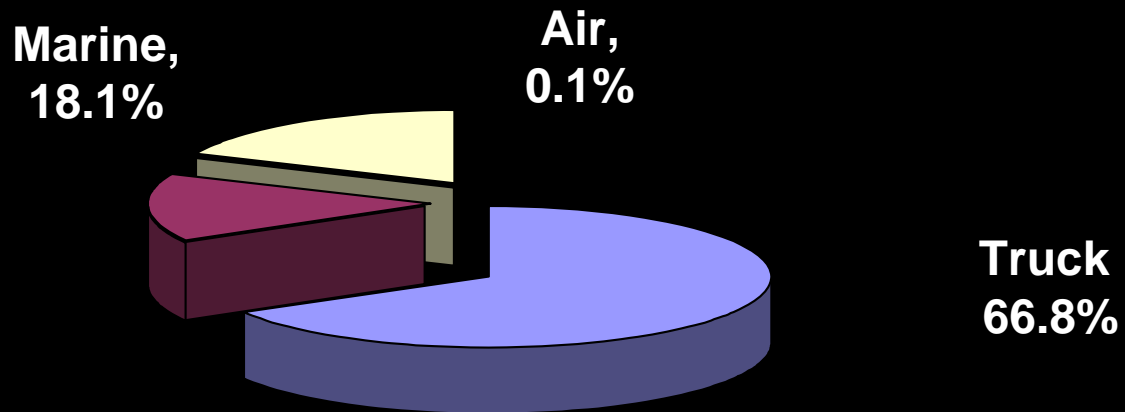
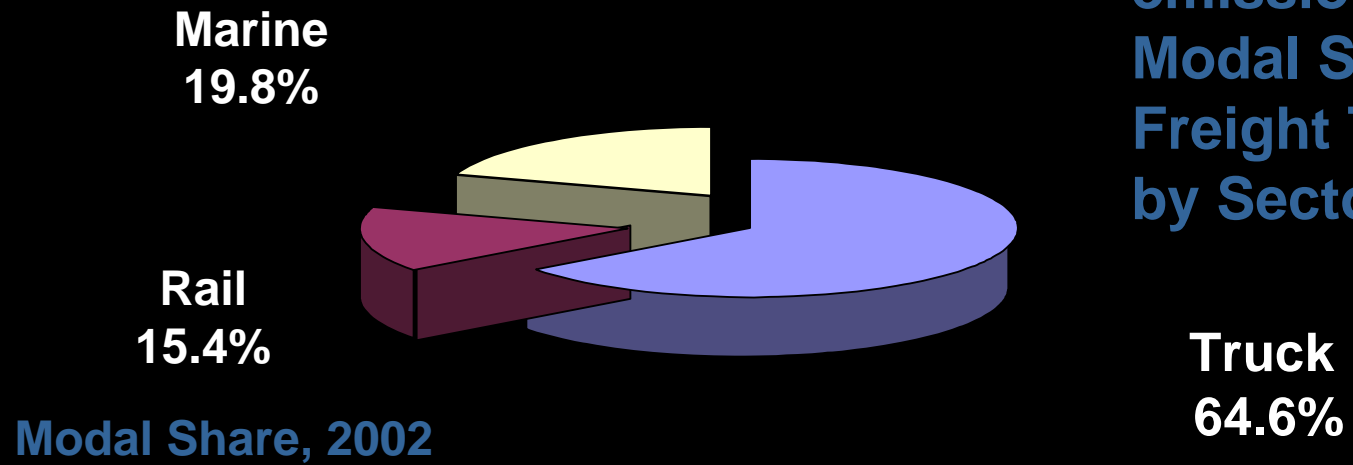


SmartWay Freight

Sector Characteristics Affecting Incentive Design

- Trucks exclusively carry 66% of the goods; rail 16%
- Combined truck and rail consume 35 billion gallons of diesel annually (20% of all energy in transport sector)
- The trucking industry transports the largest volume share of any mode of freight transportation.
- **Future:** Demand for transport by truck and rail has dramatically increased over the past two decades, to the extent that travel currently exceeds infrastructure capacity

**NO_x & PM
emissions mirror
Modal Share of
Freight Tonnage
by Sector**



Considerations In Designing Incentives

- Marginal economic nature of Freight Industry
 - Significant focus on maintaining lowest cost of operations,
 - Importance of fuel consumption



Considerations In Designing Incentives

- Desire to bundle incentives together that reduce emissions and conserve fuel – having a meaningful and positive impact on operations, more appealing to target audience. *SmartWay Transport Partnership*
- Unique aspects of freight sector (mobility across state lines) pose challenges to conventional thinking on SIP credits

Diesel Reduction Incentives Program



- Programs Applicable to Trucking Companies, individual owner operators, fleets:
SmartWay Transport Partnership
 - **Fleets:** commit to adopting technologies and strategies to improve fuel efficiency, saving money, reduce emissions.
 - **SmartWay Recognition:** Identifies leadership and pro-activeness on environmental issues
- **Programs for State and Local Governments**
 - Fuel efficiency /Emissions Reductions/health benefits
 - SIP and Conformity Credits

Key Freight Sector Recommendations



- 1. Importance of public funding**
- 2. Promotion of Favorable Financial and Tax Terms**
- 3. Resolution of Technical issues unique to Freight Sector**
- 4. Communications Outreach, promotion and marketing**
- 5. Other (research, collaboration, leadership)**

Key Freight Sector Recommendations



1. Need for significant public funding for the purchase and installation of emissions reduction technologies

- Energy Bill -- Diesel Emissions Reduction Act
- \$1 Billion possible -- *authorizes up to \$200 Million/5 years 70/30 Fed/State split*
- CMAQ Funding— via TEA-LU 21: \$8.4 Billion/6 years
 - Enhanced Diesel retrofit eligibility language included
- Grants and innovative capitalization programs, such as loans, are important incentives for emissions reductions

Freight Sector Recommendations



2. Promotion of Favorable Financial and Tax Terms

- Clarity on taxable nature of grant funds for retrofits
- incentives structured both for non-profit organizations and for-profit companies.
- Consider a special national capitalization program designed to provide capital at attractive market rates and terms for trucking companies and fleets of all sizes.
- Work with private lending institutions to create innovative capitalization programs that include technology bundling.
- Explore the use of income tax waivers for such qualifying capital purchases.

Key Freight Sector Recommendations



3. Resolution of Technical issues unique to Freight Sector

- Evaluate the feasibility of mobile-to-stationary source trading credits for shippers.
- Apportionment of air quality benefits across multiple jurisdictions based on fuel consumption and fuel tax reporting requirements and other measures (e.g., satellite tracking).
- Feasibility of apportionment programs that would potentially facilitate the involvement of national fleets while allowing for the calculation of local air quality benefits.
- Explore Federal/state Waivers for weight limits (> 80,000 lbs gvw) for innovative technology (*i.e. idle reduction technology– auxiliary engines*)

Key Freight Sector Recommendations



4. Outreach, promotion and marketing

- Recognize relationship between emissions reductions and energy savings
- Develop programs, outreach and incentive to encourage private sector trucking companies to purchase new 2007 engines and vehicles.
- Use EPA's **SmartWay Transport** Partnership to continue to increase the demand for cleaner, more efficient freight delivery services.
- EPA and DOT should work to educate localities on how to access CMAQ monies to clean up the legacy trucking fleet.

Key Freight Sector Recommendations



5. Other

- Work with states and local agencies to expand the number of innovative loan programs that provide capital to trucking fleets for “SmartWay Upgrade Kits”. *Currently only Arkansas and Minnesota have such programs.*
- Work with states and local authorities, as well as private companies to explore the development of extended privilege packages for trucking companies. (preferential parking, toll relief, lane access)
- Expand considerations of loans and grants to hybrid delivery vehicles and locomotives
- Work with DOE on research for joint technologies that reduce fuel consumption and reduce emissions.



Clean Ports USA



Ports Sector Breakdown

- Diesel engines operating in ports
 - Ocean going vessels
 - Harborcraft (ferries, tugs)
 - Drayage trucks
 - Rail
 - Dredging equipment
 - Roll on/roll off operations
- Non-port maritime entities
 - Military
 - Ferries
 - Fishing vessels
 - Private ports/docks
- Port authorities are public entities
- Encompasses all other sectors
- Port authorities have varying degrees of influence
- Located in non-attainment, maintenance, and attainment areas all with different air quality needs

Ports Sector Breakdown

- Operating
 - Operates terminals directly
 - Own & operate cargo-handling equipment
 - Example: Port of Boston
- Landlord
 - Lease terminals to private operators
 - Most prevalent – New York, LA, and Long Beach
- Hybrid
 - Amalgam of operating & landlord ports
 - Ports of Baltimore, Houston and Tacoma

Seaports nationwide have implemented many diesel air pollution prevention projects and are developing more

Sector Characteristics Affecting Incentive Design

- Ports growth
 - Cruise industry growing
 - Cargo expected to double in next ten years
 - More and expanded terminals
 - Harbor deepening
- Distinctive operational requirements & business models
- Community impacts
- Homeland security



Considerations In Designing Incentives



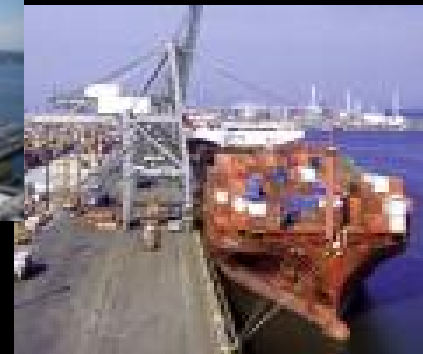
- Economic
 - *Cost of programs*
 - Ports competition
 - Homeland security
 - Grant process burdensome for small businesses & ports
- Technological
 - *Few verified or proven technologies* – effectiveness for air and operations
- Educational
 - Different knowledge levels – need to inform, keep updated
 - Complex jurisdictional issues – local, state, federal & international

Considerations In Designing Incentives

- “3 F’s” – Feasible, Functional & Flexible
- Incentive Types
 - Grants – scale of ports v. amt of funding
 - Tax incentives – attractive for tenants at landlord ports (operating ports are tax-exempt)
 - Loans & rebates – appealing, especially for small businesses, but need incentive to retrofit in the first place
 - Recognition – beneficial
 - Credits for conformity and SIPs with issues to resolve

Considerations In Designing Incentives

- Contract/lease agreements are tools ports could use with tenants
 - Landlord, not operating
 - Long leases
 - Small business equity



Key Ports Sector Recommendations

- Assemble suite of solutions to accommodate the diversity in the industry.
- Grants are preferred by public port authorities to:
 - Pilot new technologies
 - Deploy proven technologies
 - Funnel through states – private entities
 - Help establish model state programs like Carl Moyer or TERP



Key Ports Sector Recommendations

- Tax incentives and loans/rebates preferred by private entities such as terminal operators
 - Develop model federal tax credit for private entities
 - Favorable depreciation, advance fleet modernization
- Loans/Rebates
 - ID financial institutions; most applicable to term operators & truckers
- Emissions inventories
 - EPA develop guidance
 - Ports compile emissions inventories



Key Ports Sector Recommendations



- Freight Infrastructure
 - EPA work with MARAD & FHWA to address major infrastructure and technology needs (port growth)
- Regulatory credits
 - Extremely attractive to ports to allow banking for future projects (MUST be quantifiable, enforceable, surplus, and verifiable)

Key Ports Sector Recommendations

- Recognition – national program for ports
- Share best practices – EPA facilitate
- Verification – enhance program; encourage nonroad (emissions reduction quantification, reliability/durability)
- Evaluation – formal follow-up in late summer '06





Clean Construction USA



Sector Characteristics Affecting Incentive Design

- Roughly 93% of new diesel equipment is privately owned
- 92% of construction firms have less than 20 employees
- In 2001, only 60% of construction companies reported net profits.
 - Efficacy/appeal of tax incentives depend on having a profit
 - No data on correlation between company size and profits
- 20-25% of construction funding is public
- Rapid growth potential



Construction Sector Consensus

- More verified technologies for construction sector
- Significant Resource Gaps
 - Funding
 - Resources to establish and administer programs



Construction Sector Consensus

- Outreach and education on retrofits is important and needed
 - Technical
 - Process
- Business and economic concerns are important
- Grants well understood & accepted by all



Construction Sector Differences

- Group members hold different views of regulations and mandatory requirements
 - Regulations: No consensus that regulatory options are needed
 - Contracting requirements
 - Agree that contracting provisions including retrofit bonuses is acceptable
 - Disagree on bid preferences for clean equipment or requiring bidders to retrofit their equipment

Key Construction Sector Recommendations



- Look for synergies:
 - Combine incentives such as public funding with contracting provisions
 - Develop innovative ways to leverage the combination of private financing with available govt. funds
 - Develop national program of low interest loans to support retrofits (Private Sector)
 - Encourage program of bridge financing to facilitate accelerated replacement of public sector equipment

Key Construction Sector Recommendations



- Develop model programs, assistance and model language for incentives including SIP credit and rebates
- Provide useful tools, education, information and outreach
 - Funding: How to get it
 - Technologies: What to use
- Enhance the verification process to get emerging technology into the market sooner
- Investigate operational modifications that have emissions benefits like idling guidelines

Potential Future Work



- Expedite use of new legislative authorities & programs (Transportation & Energy Bills)
 - Establish authorized grant and loan programs
 - Engage MPO's in process (CMAQ & SIP submissions)
 - Expand stakeholder network (APWA, subcontractors, rental associations)

Potential Future Work

- Participate in development of model guidance on idle reduction strategies, contracting incentives
- Assist in education and outreach on technology as well as funding sources
- Address resource gaps





Wrap-Up

