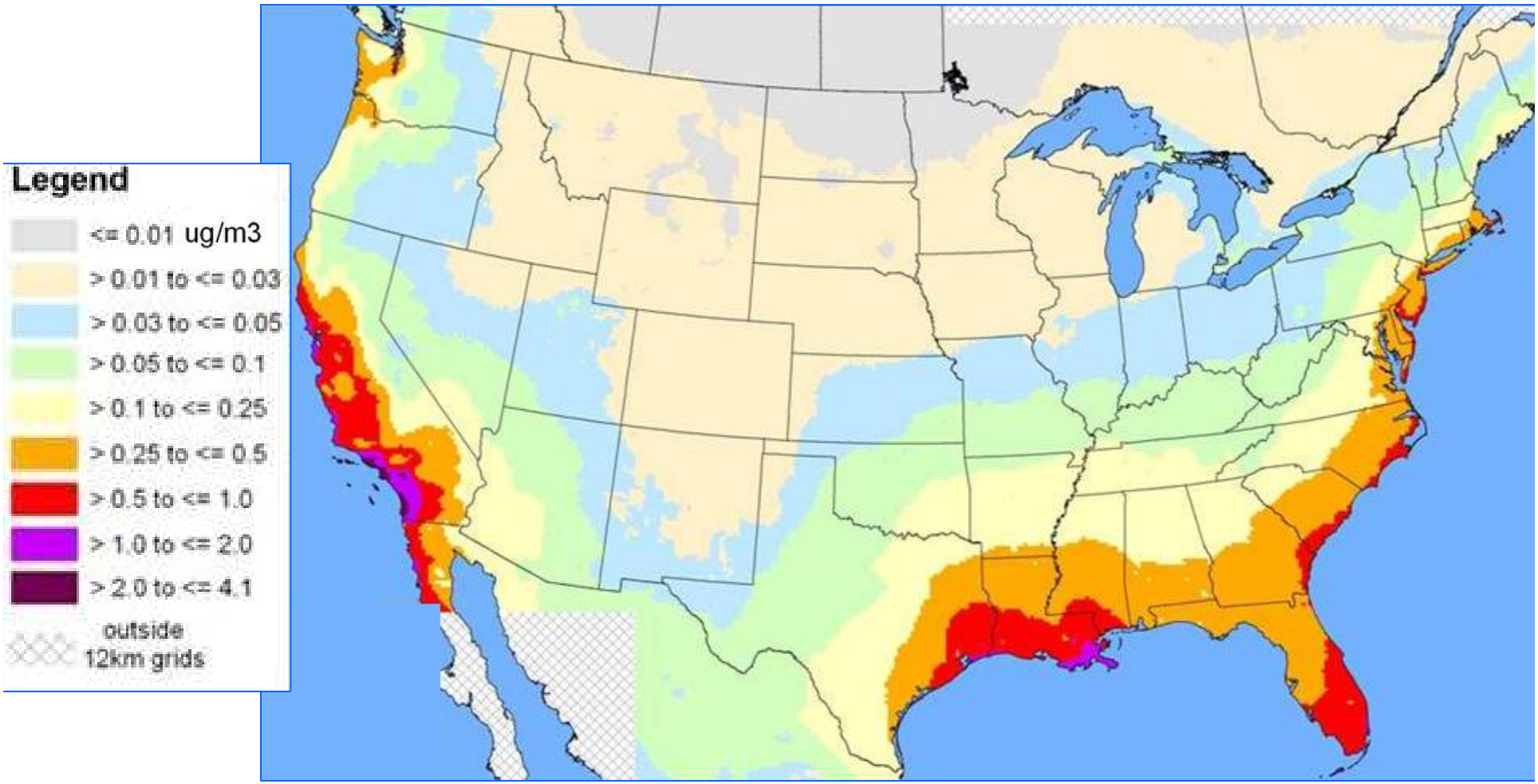
Transportation Program Regulatory Initiatives

June, 2010

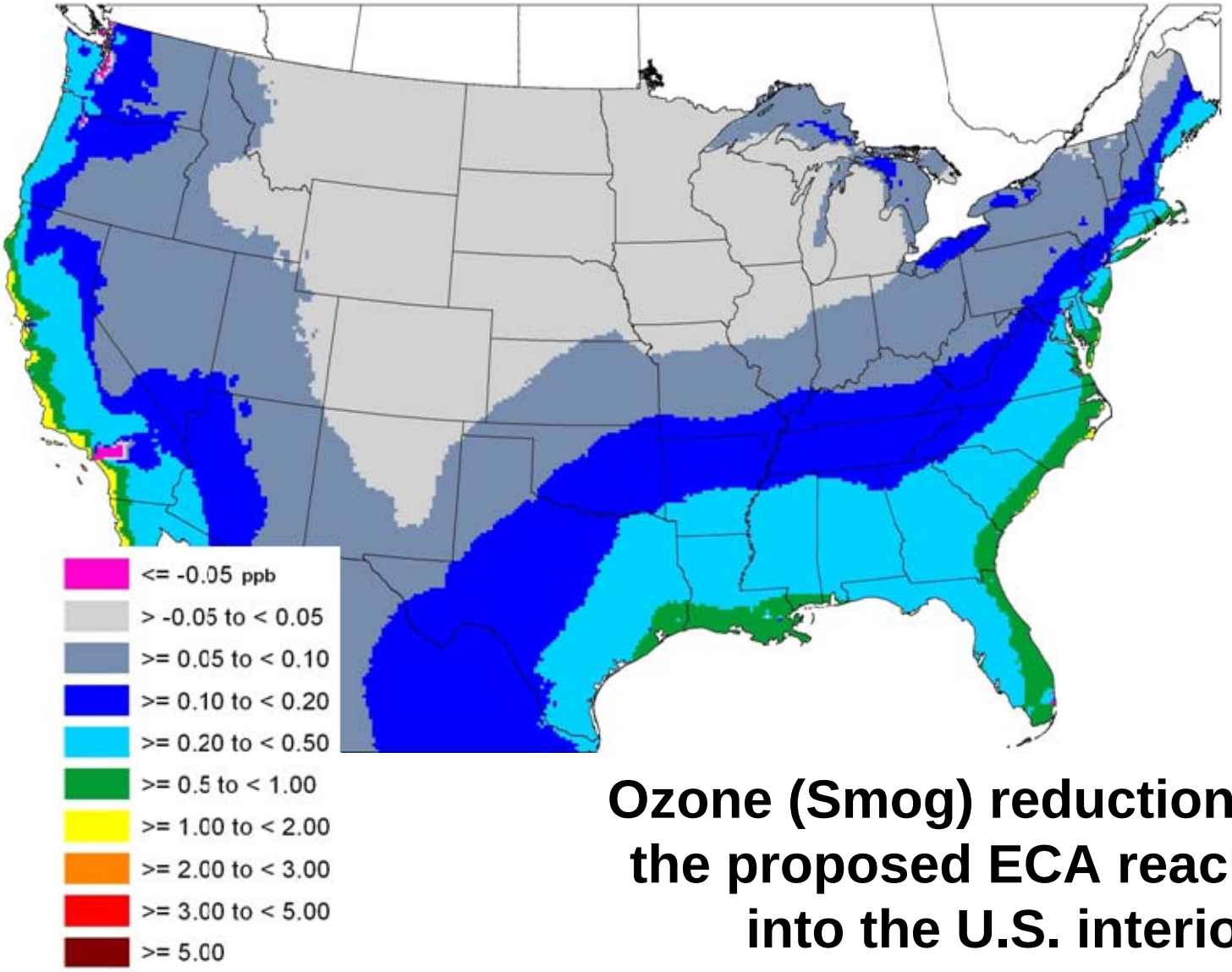
Ocean-Going Vessels

- By 2030 Ocean Going Vessels (OGVs), if uncontrolled, would contribute about 34% of NOx and 45% of PM emissions from mobile sources
  - Over 40 major ports are located in PM and NOx nonattainment areas.
- EPA drafted stringent new standards that were adopted by the International Maritime Organization (IMO) in October 2008, after several years of effort
  - New engines - 80% NO_x reduction by 2016
  - Existing engines – 15-20% NOx reductions starting in 2010
  - Fuel Quality Standards - 97% fuel sulfur reduction by 2015
- In March, 2009 EPA submitted a joint U.S./Canada proposal for an Emission Control Areas (ECA) designation.
  - Final Adoption on March 26, 2010
- Also finalized rule in December, 2009 under the CAA to implement new OGV standards.
- By 2030, the emission reductions will annually prevent:
  - Between 12,000 and 30,000 PM-related, and 210 to 920 ozone-related premature deaths

2020 Potential ECA $PM_{2.5}$ Reductions



2020 Potential ECA Ozone Reductions

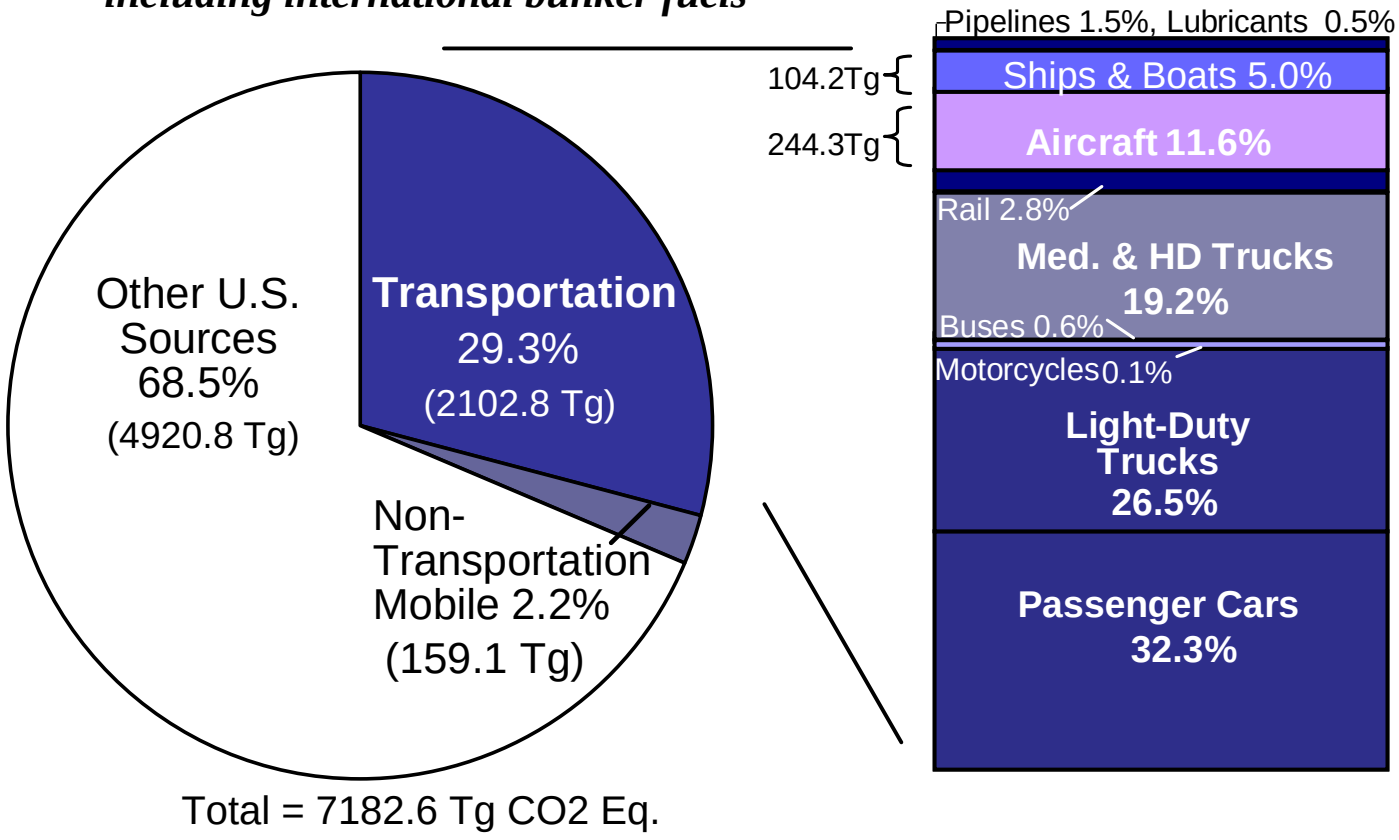


Ozone (Smog) reductions from the proposed ECA reach well into the U.S. interior

Mobile Sources Represent a Large and Growing Share of the Nation's GHGs

2006 U.S. GHG Emissions

including international bunker fuels



Total = 7182.6 Tg CO2 Eq.

Transportation is the fastest-growing source of GHGs in the U.S., accounting for 47 percent of the net increase in total U.S. emissions from 1990-2006.

Transportation Climate Priorities

- Vehicle GHG Rule – Joint rule with DOT
- Heavy Duty GHG Standards
- Renewable Fuel Standard
- SmartWay Transport Partnership Program

Vehicle GHG Rule

- Final rule in April, 2010 established coordinated federal GHG and CAFE standards
  - Consistent with President Obama's May 19, 2009 Announcement and the EPA-NHTSA Joint Notice of Intent
  - Coordinated national standards which provide regulatory certainty and consistency for the auto industry
  - Avoids separate NHTSA, EPA, and state regulations
  - Automakers can meet NHTSA, EPA, and California requirements with a single national fleet

- Each manufacturer's standard based on the footprint of vehicles produced - actual standards are curves which equate a vehicle size to its specific CO_2 or MPG target

Vehicle GHG Rule

- EPA's proposed standards estimated to achieve a fleet-wide level of 250 grams/mile of CO_2 in model year 2016
  - Standards would phase in beginning in model year 2012
- Fleetwide CO_2 standard could be met partially through credits from improved air conditioner (A/C) operation
  - A/C credits include CO_2 & hydrofluorocarbon (HFC) refrigerant reductions
  - HFC refrigerant is a powerful GHG
- The 250 gram/mile CO_2 standard corresponds to 35.5 mpg "equivalent" if all reductions resulted from fuel economy improvements
- NHTSA's final CAFE standards require vehicles to meet an estimated combined average fuel economy level of 34.1 in 2016
- Benefits
  - 1.8 billion barrels of oil reduced
  - 960 million metric tons of CO2 eq. Reduced
  - Total benefits of $240 billion & net benefits of $190 billion

Heavy-Duty Truck GHG Emissions also Need to be Addressed

- The Endangerment Finding included heavy-duty truck emissions as well as light-duty vehicle GHGs.
- Heavy-duty trucks are the largest mobile source of GHG emissions after light-duty vehicles and represent approximately 20% of all mobile source GHG emissions and fuel consumption
- Heavy-duty trucks are a fast growing source of GHG emissions (GHG emissions increased 79% from 1990-2007 while passenger cars over the same period grew 21%)
- Technologies developed through EPA's SmartWay program and through DOE's 21st Century Truck program are available to achieve reductions from the majority of heavy-duty vehicles.

Presidential Announcement, May, 2010

- On May 21, 2010 President Obama announced a Presidential Memorandum, "Improving Energy Security, American Competitiveness and Job Creation, and Environmental Protection through a Transformation of our Nation's Fleet of Cars and Trucks"
  - The Memorandum included several directives for EPA, DOT and DOE

<u>Medium and Heavy-Duty Trucks</u>

- EPA and NHTSA work on joint rulemaking under the CAA and EISA to establish fuel efficiency and GHG emissions standards for commercial MD and HD vehicles, beginning in model year 2014.

- The Administrators of EPA and NHTSA are requested to:
  - Include fuel efficiency and GHG standards that take into account the market structure of the trucking industry and unique demands of HD vehicle applications
  - Seek harmonization with applicable State standards
  - Consider the findings and recommendations of the NAS report on MD and HD truck regulation
  - Strengthen the industry and enhance job creation in the US

- Final rule to be issued by July 30, 2011

Presidential Announcement, May, 2010 (continued)

Passenger Cars and Light-Duty Trucks

- EPA and the NHTSA requested to develop, through a joint rulemaking, a coordinated national program under the CAA and EISA to improve fuel efficiency and reduce GHG emissions for model years 2017-2025.

- Administrators of EPA and NHTSA to work with the State of California to develop, by September 1, 2010 a technical assessment to inform the rulemaking process.

- Issue by September 30, 2010 a joint Notice of Intent to Issue a Proposed Rule that includes key elements of the program, potential standards for 2017-2025, and a schedule for setting those standards.

Cleaner Vehicles and Fuels and Necessary Infrastructure

- EPA to review current non-greenhouse gas emissions regulations for new vehicles/engines and fuels, and promulgate regulations if the Administrator finds new regulations are required.

- DOE to promote deployment of advanced technology vehicles by providing technical assistance to cities, and to develop voluntary standards to facilitate deployment of advanced vehicle technologies in coordination with NHTSA and EPA.

Renewable Fuel Standards – Energy Independence and Security Act

- **Established Four Separate Standards for 2022**
  - **Renewable Biofuel**: **Total of 36 billion gallons by 2022**
    - Ethanol derived from corn starch – or any other qualifying renewable fuel
    - Must meet 20% lifecycle GHG threshold - Only applies to fuel produced in new facilities
  - **Advanced Biofuel: Total of 21 billion gallons by 2022**
    - Essentially anything but corn starch ethanol
    - Includes biomass-based diesel and cellulosic biofuel
    - Must meet a 50% lifecycle GHG threshold
  - **Biomass-Based Diesel: 1 billion gallons by 2012 and beyond (subset of Advanced)**
    - E.g., Biodiesel, "renewable diesel" if fats and oils not co-processed with petroleum
    - Must meet a 50% lifecycle GHG threshold
  - **Cellulosic Biofuel: 16 billion gallons by 2022 (subset of Advanced)**
    - Renewable fuel produced from cellulose, hemicellulose, or lignin
    - E.g., cellulosic ethanol, BTL diesel, green gasoline, etc.
    - Must meet a 60% lifecycle GHG threshold

NOTE: Existing biofuel facilities (domestic and foreign) are not required to meet GHG threshold for conventional biofuel category – facilities are "Grandfathered."

Highlights of the Final RFS2 Rule

- **The RFS2 Regulations will go into effect July 1, 2010.**
- **The rule establishes 2010 volume standards for specific categories of renewable fuels.**
  - **Total Renewable Standard:** 12.95 billion gallons
  - **Biomass-Based Diesel Standard:** 1.15 billion gallons, - combines 2009 and 2010 standards, including special provisions to account for the 2009 biomass-based diesel volume requirements in EISA.
  - **Cellulosic Standard:** 6.5 million gallons.
- **Significant updates were made to the lifecycle assessment since the proposal. Based on this updated analysis, EPA has determined that:**
  - **Ethanol produced from corn starch at a new natural gas, biomass, or biogas fired facility (or expanded capacity from such a facility) using advanced efficient technologies will meet the 20% GHG emission reduction threshold.**
  - **Biodiesel and renewable diesel from soy or waste oils, fats, and greases will meet the 50% GHG threshold for biomass-based diesel.**
  - **Biodiesel and renewable diesel produced from algal oils will comply with the 50% threshold.**
  - **Ethanol from sugarcane complies with the applicable 50% reduction threshold for advanced biofuels.**
  - **Cellulosic ethanol and cellulosic diesel (based on currently modeled pathways) comply with the 60% reduction**

Overview of Impacts of the RFS2

- **Petroleum Consumption, Energy Security and Fuel Costs:**
  - We estimate this program will replace about 7 percent of expected annual gasoline and diesel consumption in 2022
  - Decrease oil imports by $41.5 billion
  - Result in additional energy security benefits of $2.6 billion.
- **Greenhouse Gas Emissions:**
  - When fully implemented in 2022, renewable fuels are expected to reduce greenhouse gas emissions by 138 million metric tons -- equivalent to the annual emissions of 27 million passenger vehicles.
- **Agriculture Sector and Related Impacts:**
  - In 2022, the increased use of renewable fuels is expected to expand the market for agricultural products such as corn and soybeans and open new markets for advanced biofuels – increasing net farm income by an estimated $13 billion dollars.
- **Emissions and Air Quality:**
  - Increased use of renewable fuels will also impact emissions.
  - Some emissions such as NOx, acetaldehyde, and ethanol are expected to increase and others such as benzene and carbon monoxide are expected to decrease.
  - The impacts of these emissions on criteria air pollutants will vary from area to area.
  - EISA directs the agency to further evaluate these potential impacts and to mitigate, to the extent possible, any adverse impacts.

APPENDIX

SmartWay Program

SmartWay℠ Transport Partnership
U.S. Environmental Protection Agency

- A voluntary program to improve the efficiency of freight transportation while reducing fuel consumption and emissions
- Launched in 2004 with full support of trucking industry and their freight shipping customers
  - 50 initial partners including 15 Charter Partners
- Number of Partners has grown to nearly 2,600 members
  - 650,000 trucks (10% of trucks)
  - Reduced CO_2 by nearly 15 million metric tons, NOx by 215,000 tons, and PM by 8,000 tons
  - Saved 1.5 billion gallons of diesel fuel
  - Saved the freight industry $3.6 billion in fuel costs
- SmartWay programs promote the benefits of key truck technologies including idle reduction, aerodynamics, efficient tires
- Every major truck maker now offers at least one EPA SmartWay Certified Tractor

Update on NCDC

- FY 09/10 DERA national program funds in process of award now
  - Expect total of 84 DERA grants for national programs plus 51 State grants
  - Thank you for excellent partnership between Regions and HQ
  - Planning for national announcement in May with Administrator or AA
- State Program grants renewal process kicked off April 1st
  - Awarding FY10 funding early summer
- Recovery Act
  - Reporting third cycle April 1-30
  - Expenditure rate ~ 18%
  - Be aware that grant funds must be obligated by Oct. 1, 2010 or they revert back to the Treasury
- Upcoming Events
  - Regional Leadership Forum planned for July 2010 at Port of Baltimore
    - Opportunity to review Ports Air Quality Plan in light of NCDC EJ and climate change priorities
      - Additional background briefing materials will be developed by staff
  - National Clean Diesel Conference October 19-20, 2010 in D.C.
    - Stakeholders, Congressional presence, grant winners