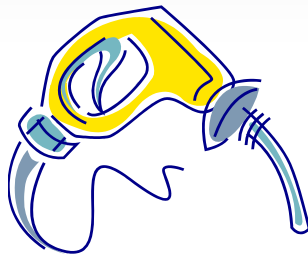


Alternative Fuels



August 23, 2007

EPA's Office of Transportation
and
Air Quality



Federal Roles

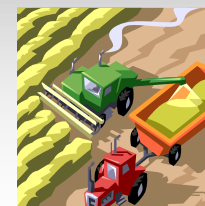
- Research and Development
- Regulatory
 - The Clean Air Act and EPA
 - The Energy Policy Act and EPA
- New Policies – Mandatory and Voluntary Approaches
 - Incentives, credits, flexibilities, grants, other
- International Activities and Coordination Efforts
- Communication



Overview: EPA's Fuels Responsibilities

■ Regulatory

- Clean Air Act gives EPA authority in a number of areas:
 - Fuel quality standards, fuel and additive registration
 - Vehicle certification – Conventional, FFVs and AFV's



- Energy Policy Act EPA has authority to:
 - Implement the Renewable Fuel Standard (RFS)
 - Perform studies on the emissions impact of renewable fuels

■ Voluntary Programs

- SmartWay Transportation Partnerships/Grow and Go, National Clean Diesel Campaign



■ Research, Development & Analysis

- Advanced Technology Development and Review (National Motor Vehicle and **Fuel** Lab in Ann Arbor Michigan)
- Analysis – Including life cycle assessment of renewable fuel and environmental and economic impacts of increased biofuel and alternative fuel production



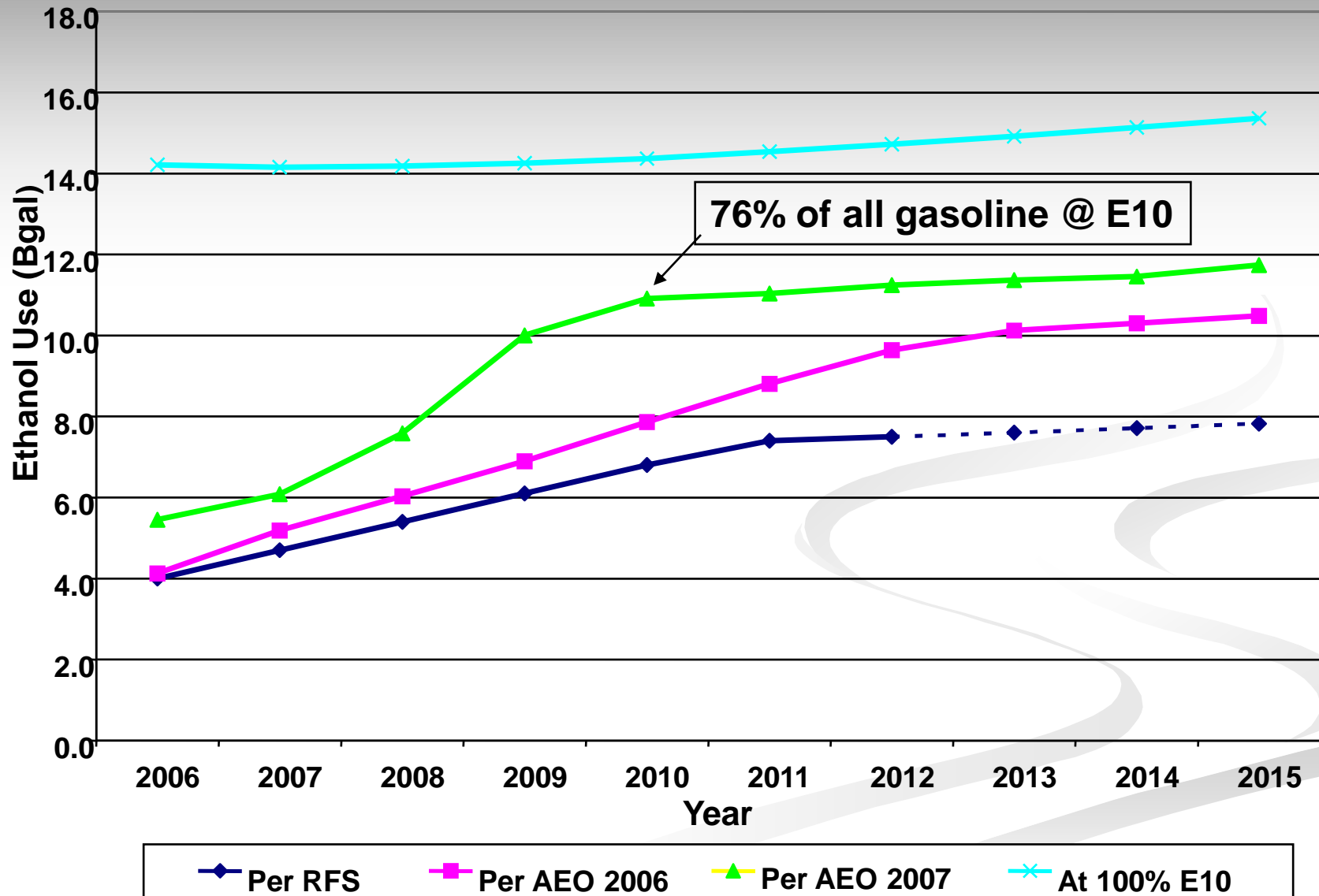
Recent Events

- January 2007 State of the Union Address—20-in-10 goal
- March 2007 Administration proposes Alternative Fuel Standard legislation
- April 2007 Supreme Court Decision
- May 2007 President's Announcement and Executive Order
- June 2007 Senate passes energy bill including a 36 billion gallon renewable fuel mandate
- Fall 2007
 - House and Senate try to reach agreement on energy bills
 - Congress takes up climate legislation
 - EPA issues proposed regulation

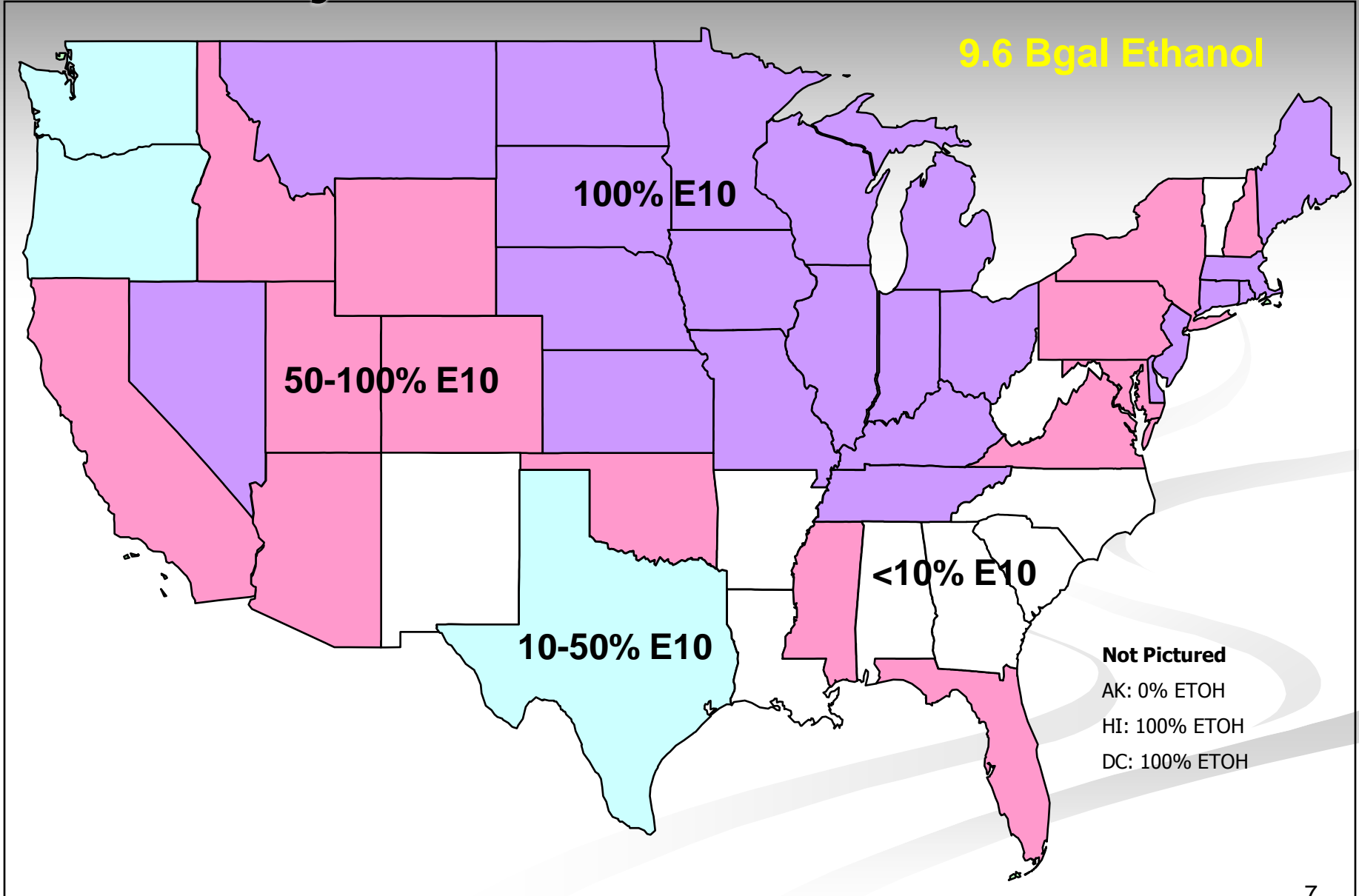
Renewable and Alternative Fuels Today

The background of the slide features a smooth grey gradient that transitions from a darker shade at the top to a lighter shade at the bottom. A prominent, thick, white wavy line curves across the lower right portion of the slide, adding a dynamic, organic feel to the design.

Ethanol is the most popular biofuel in the U.S.



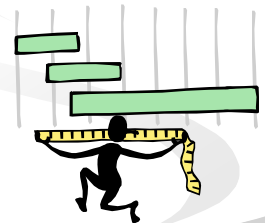
Projected ethanol use in 2009



Final Renewable Fuels Standard Program

- Signed on April 9th: Program Requires Growing Renewable Use from 4 BG / Year beginning in 2006 to 7.5 BG Year by 2012
- Major Compliance Element - Trading and Banking Provisions
 - Design supports maximum flexibility
 - Allows for compliance when, where and how it makes the most sense
 - Utilizes existing fuel program compliance mechanisms to greatest extent possible
- Renewable values based on volumetric energy content in comparison to corn ethanol

■ Corn-ethanol:	1.0
■ Cellulosic biomass ethanol:	2.5
■ As specified in EPAct	
■ Biodiesel (alkyl esters):	1.5
■ Renewable diesel:	1.7
■ Biobutanol:	1.3
- Sought comment on life cycle energy, petroleum, GHG emissions
- Values can be adjusted in the future if metrics change
 - Provisions already in the regulations for adding new fuels and modifying existing values
- Program Starts September 1, 2007



Impact of RFS program

- Petroleum consumption in the transportation sector will be reduced 0.08 - 1.6%
 - Equivalent to 2.0 - 3.9 billion gal petroleum in 2012
 - Reductions in imported petroleum are expected to contribute to ~95% of the reduction in consumption
- Transportation sector greenhouse gases (CO2 equivalent) will be reduced by 0.4 - 0.6%
 - Equivalent to 8.0 – 13.1 million metric tons in 2012

2004 Base Reference Year

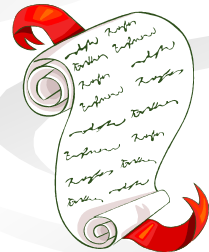
Incremental Impacts From Base Reference Year to 2012 Cases

New Policy Direction

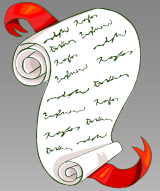


2007 State of the Union

- The President called for a commitment to reduce petroleum-based gasoline consumption by 15% by 2017 through renewable plus alternative fuels
- 15% reduction in 2017 translates into a target of ~35B gallons of renewable plus alternative fuel use in transportation system
- To reach goal, must consider several issues:
 - Available and sustainable fuel feedstock sources
 - Adequate production and fueling infrastructure
 - Appropriate fuels and fuel blends
 - Environmental and economic Impacts
- Draft legislation provided to Congress on March 19, 2007



Presidential Executive Order



- **April 2, 2007 - The Supreme Court Ruled That The EPA Must Take Action Under The Clean Air Act Regarding Greenhouse Gas Emissions From Motor Vehicles.**
- **In Response - on May 14, The President Signed An Executive Order Requiring Coordination Among Federal Agencies Tasked With The Development Of Any Regulations Affecting Greenhouse Gas Emissions From Motor Vehicles.**
- **President directed agencies take first steps toward regulations that would cut gasoline consumption and greenhouse gas emissions from motor vehicles, using his "Twenty in Ten" plan as a starting point.**
 - **Goal: reduce U.S. gasoline consumption by 20 percent over the next 10 years**
 - **Reduce petroleum based consumption by 15% through use of renewable and alternative fuels**
 - **Reform and modernize CAFÉ Standards for Cars and Trucks to further reduce consumption by 5 percent**

Presidential Executive Order

- Plan provides a framework to address energy security and reduce greenhouse gas emissions from motor vehicles and off-road engines and equipment.
- The President Has Directed Members Of His Administration To Complete This Process By The End Of 2008.
- EPA and other federal agencies are engaged in discussion to address executive order.
- EPA is moving forward with developing regulations to address 35bgy requirement and to address GHG emissions – approach is still being discussed
- Timing – NPRM by November 2007 and FRM by end of October 2008

Rulemaking Issues for Fuels

- 35B feasibility
 - Can it be produced?
 - Distributed? (infrastructure; E10 not enough)
 - What form will it be used? (enough E85 stations and FFVs)
- Addressing issues identified in RFS, e.g.
 - Lifecycle GHG model and assumptions
 - Impacts in other countries
 - Energy security assessment
- Maintain commitment to engage stakeholders early and often

Rulemaking Issues for Fuels

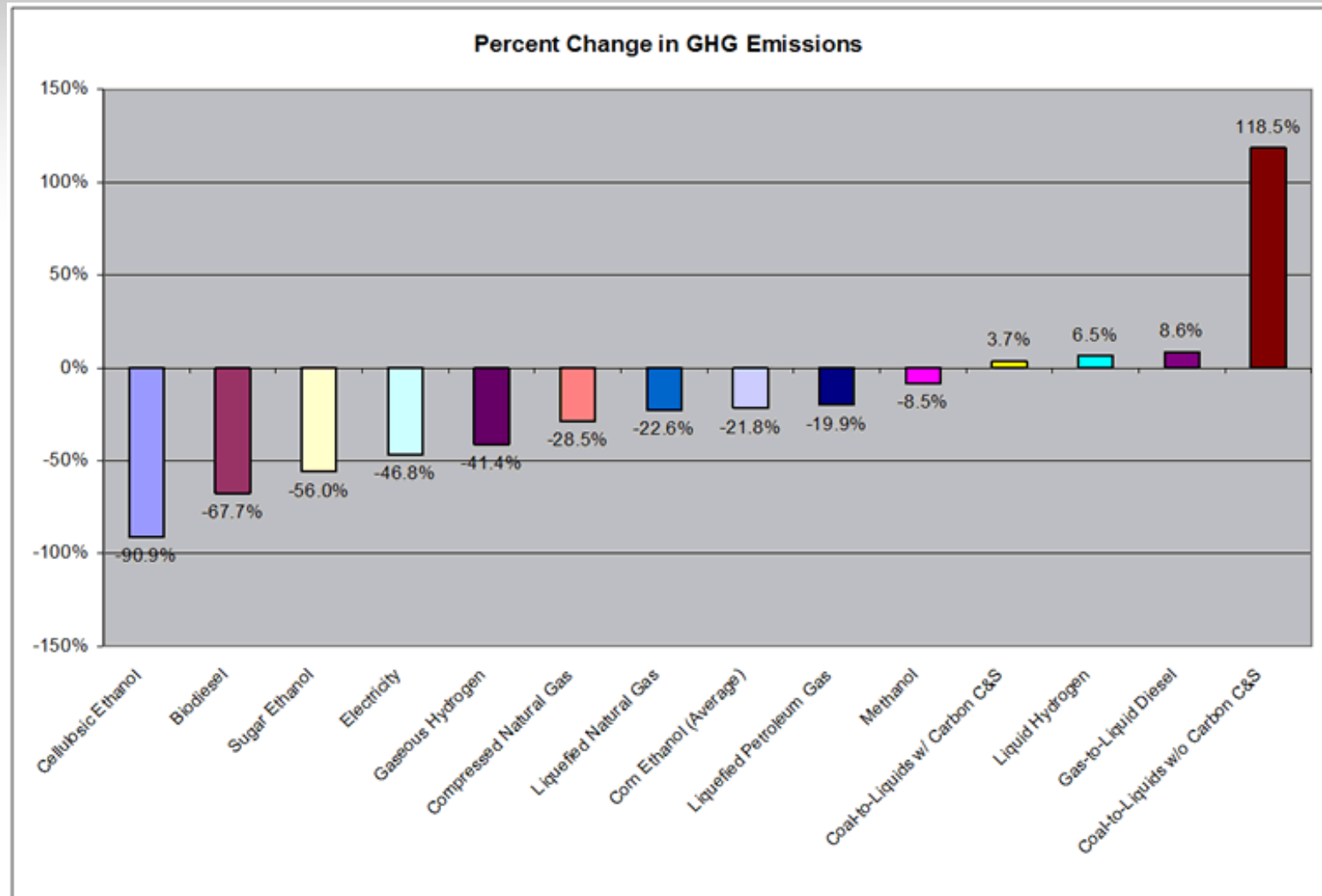
- Existing CAA authority
 - RFS under 211(o) only applies to renewable fuels, not other alternative fuels
 - RFS legislation and regulatory requirements do not go away
 - Requires volumes
 - General CAA fuels authority under 211(c)
 - Emissions contribute to an emission problem
 - Potential to regulate GHG
- Short time schedule
 - Minimal opportunity for new work
- Unlike RFS, volumes exceed BAU
 - More rigorous analyses warranted

Key Analyses

■ Fuels

- Basis/form of standard
- Trading & implementation mechanisms
- Lifecycle GHG and energy analysis
- Emissions inventories for criteria pollutants & GHGs
- Air quality analysis
- Benefits analysis
- Economic impacts
- Feasibility & costs
 - Renewable and alternative fuel supply; imports
 - Leadtime
 - Costs (capital, fuel costs, corn ethanol, cellulosic, etc.)
 - Refining modeling
 - Distribution system impacts (incl. E85 infrastructure)
- Energy impacts, energy security
- Agricultural impacts
- Impacts on water quality, soil, pesticides, etc

Renewable and Alternative Fuels Analysis



Next Steps for Rule Development

- **EPA - New Regulations**
 - **Greenhouse Gases – Fuels and Transport Sector**
 - Bio and Alternative Fuels (lifecycle)
 - Vehicle GHG reductions through design improvements
 - Intent is to evolve new program from foundation set by current RFS
 - EPA to continue technical and regulatory expertise to assist policy makers to implement goals while protecting the environment
- **Continue Interagency Coordination and Stakeholder Outreach**



Web page and Links: <http://www.epa.gov/otaq/>