



# Current Energy and Environmental Issues in the U.S.

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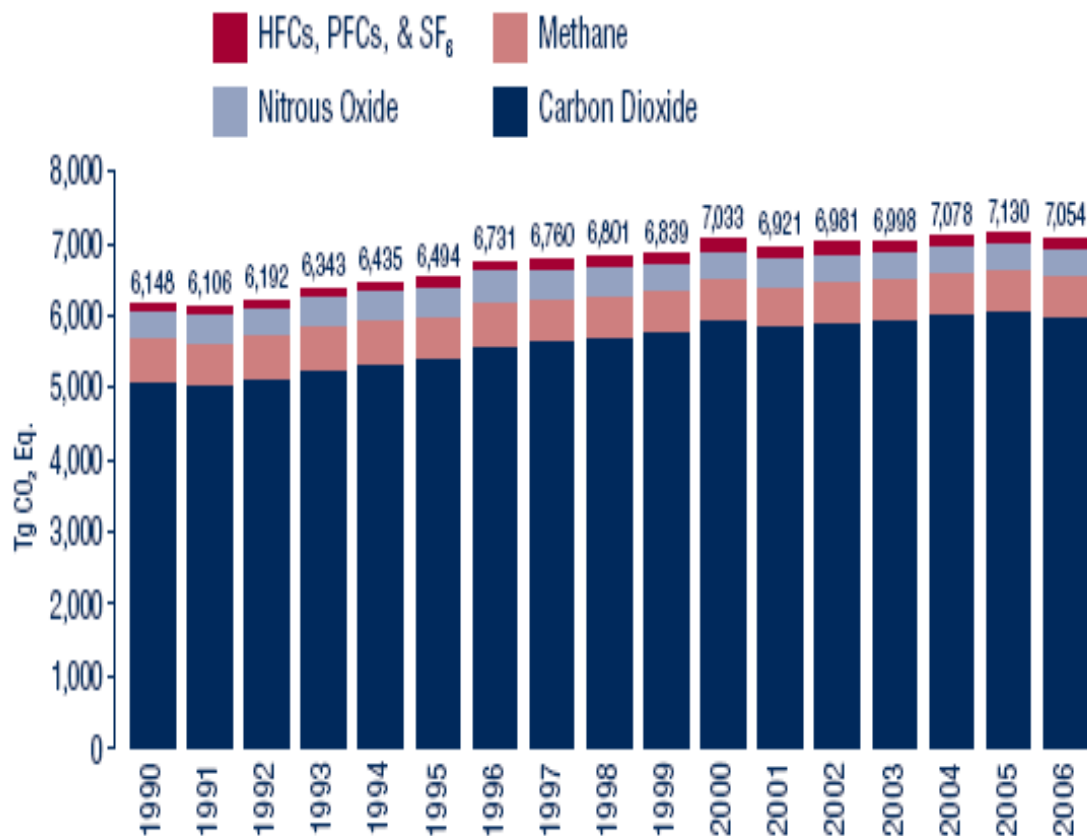
September 2009



# Overview

- Transportation Sector and emissions of greenhouse gases
- U.S. Domestic Actions
  - The U.S. Supreme Court Decision
  - Proposed Endangerment Finding under the CAA
  - GHG/Fuel Efficiency Standards
  - Mandatory GHG Reporting Rule
  - Renewable Fuel Standard
  - SmartWay Freight Transportation Program
- Legislative Activity
  - The American Clean Energy & Security Act

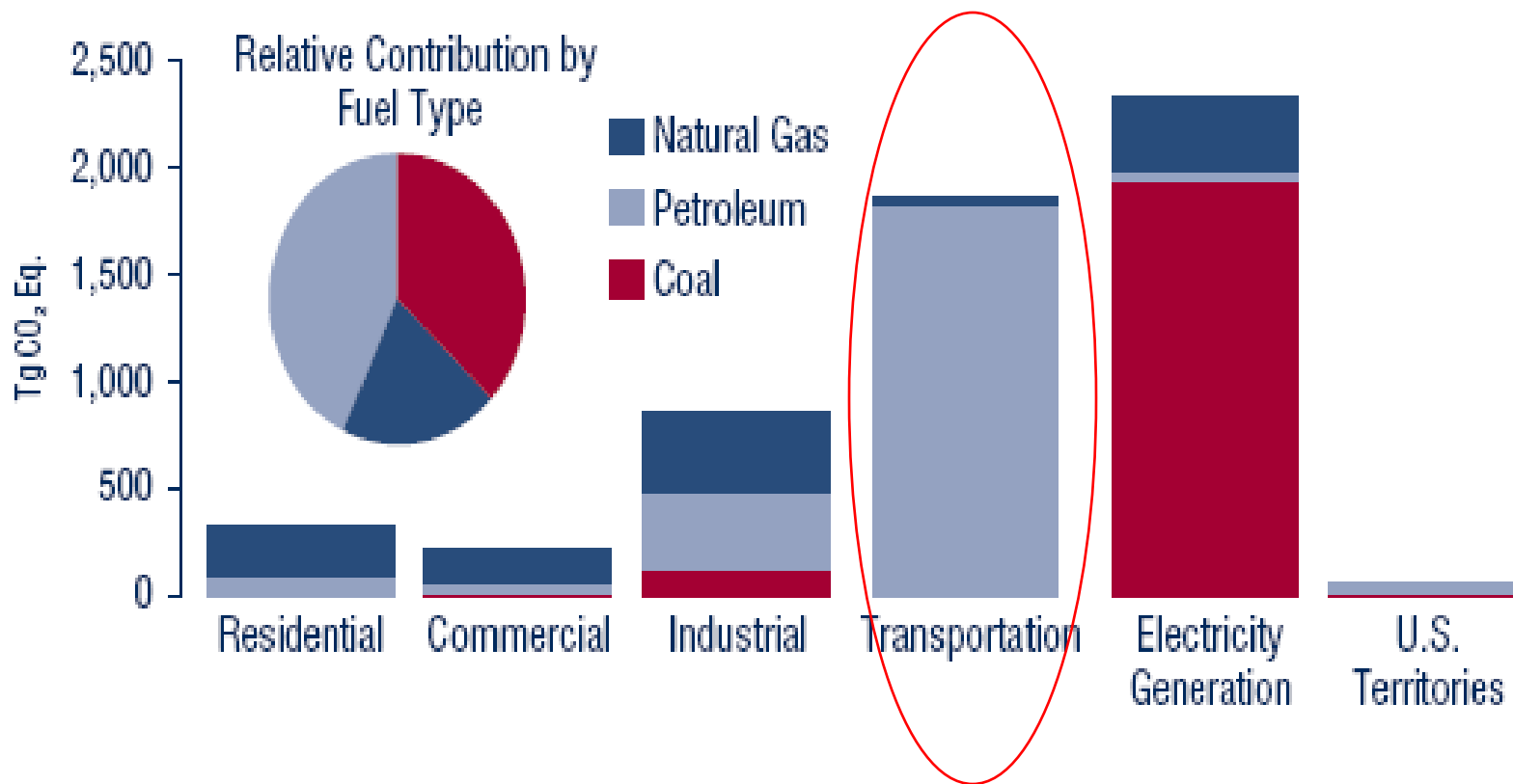
# U.S. Greenhouse Gas Emissions



## U.S. GHG Inventory

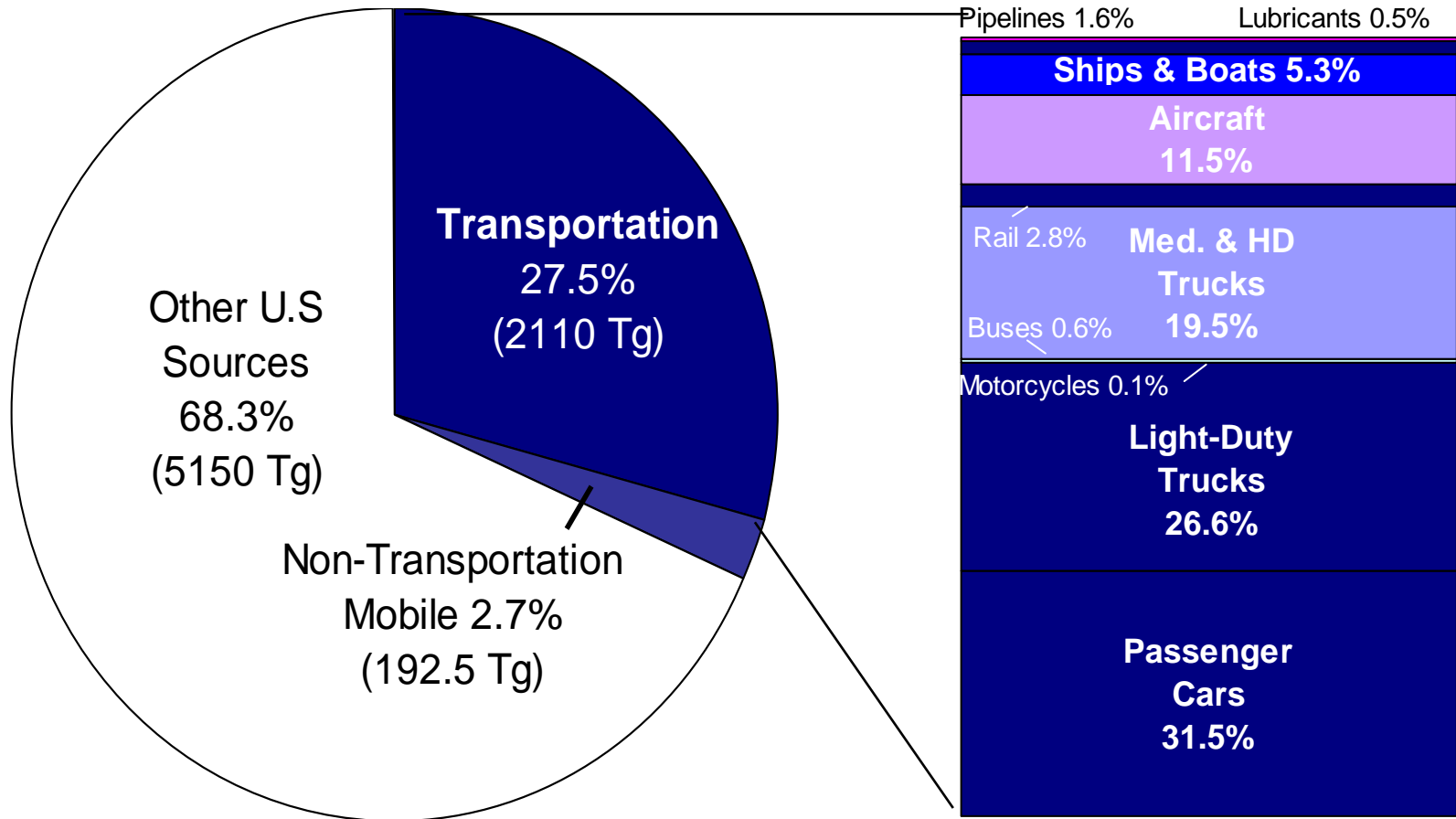
- Submitted annually to the UNFCCC
- Six GHGs: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>
- Weighted by global warming potential (GWP)
- 14.7% growth in emissions 1990-2006
- 84.8% CO<sub>2</sub>
- 7.9% methane
- 5.2% N<sub>2</sub>O

# CO<sub>2</sub> Emissions by Fuel/Sector



[http://www.epa.gov/climatechange/emissions/downloads/2008\\_GHG\\_Fast\\_Facts.pdf](http://www.epa.gov/climatechange/emissions/downloads/2008_GHG_Fast_Facts.pdf)

# U.S. Greenhouse Gas Emissions, 2007 (Including International Bunker Fuels)





# Some Key Domestic Actions

- The 2007 Supreme Court Decision
- EPA's Endangerment Proposal
- GHG Mandatory Reporting Rule Proposal
- Fuels: renewable fuel standard program under Energy Independence and Security Act
- GHG / Fuel Efficiency Standards
- Freight logistics—"SmartWay" Program

## The 2007 Supreme Court Decision

- On April 2, 2007, in Massachusetts v. EPA, the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act.
- The Court held that the Administrator of EPA must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.
- In making these decisions, the Administrator is required to follow the language of section 202(a) of the Clean Air Act [motor vehicles]
- The Supreme Court decision resulted from a petition for rulemaking under section 202(a) filed by more than a dozen environmental, renewable energy, and other organizations.

# EPA's Endangerment Proposal and Next Steps

- **Endangerment Finding:** The Administrator is proposing to find current and projected concentrations of the mix of six key greenhouse gases—carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>)—in the atmosphere threaten public health and welfare
- **Cause or Contribute Finding:** Further proposing to find the combined GHG emissions from new motor vehicles and engines contribute to atmospheric concentrations of greenhouse gases and hence to the threat of climate change.
- **The public comment period closed on June 23, 2009**
  - Over 320,000 public comments received
- **Regulatory impact**
  - This action, if finalized, does not impose any requirements on industry or other entities.
  - Not accompanied by a proposed standard
  - Does not propose any timetable for issuing regulations
  - Does not indicate that EPA has made any final decisions about regulating GHGs under the CAA.
- **Notwithstanding this required regulatory process, both President Obama and Administrator Jackson have repeatedly indicated their preference for comprehensive legislation to address this issue and create the framework for a clean energy economy.**

# GHG Mandatory Reporting Rule Proposal

- 41 source categories proposed
  - Downstream direct emitters
    - large facilities in power and industrial sectors with combustion, process and fugitive emissions
  - Upstream fossil fuel and industrial gas suppliers
  - Vehicle and engine manufacturers
- Generally, threshold of 25,000 mTCO<sub>2</sub>e/year
- 85-90% of U.S. GHG emissions covered
- Direct measurement of stationary combustion source categories where data currently collected, Facility-specific calculation methods for other source categories at the facility
- Data collection starts Jan 1, 2010, first annual reports to EPA Mar 31, 2011
  - Facilities report direct to EPA, EPA verification of data

# EISA 2007 Renewable Fuel Standards

## Four Separate Standards – Total of 36 billion gallons in 2022

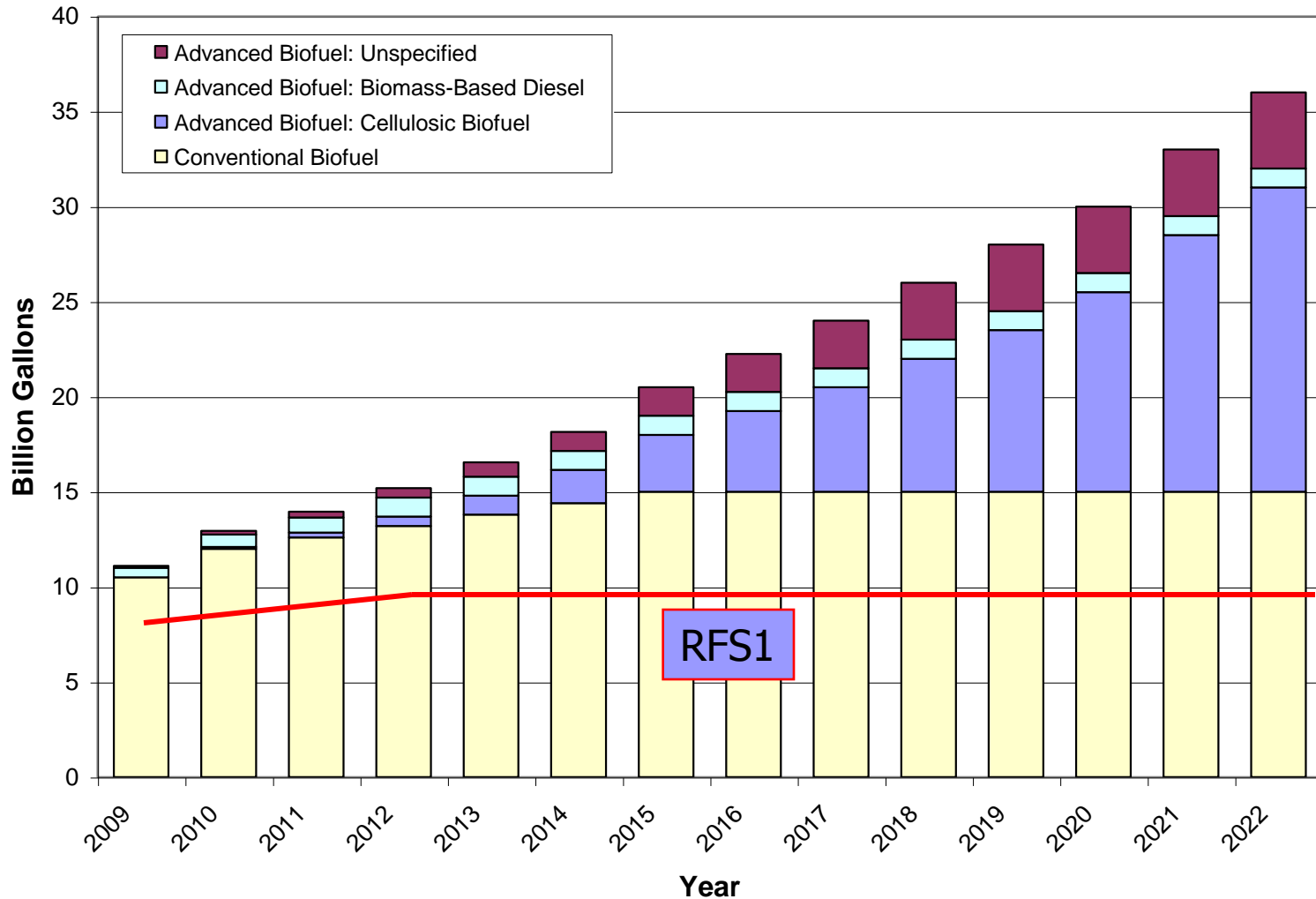
- **Cellulosic Biofuel: 16 billion gallons by 2022 – Minimum 60% GHG Reduction**
  - Renewable fuel produced from cellulose, hemicellulose, or lignin
  - E.g., cellulosic ethanol, BTL diesel, green gasoline, etc.
- **Biomass-Based Diesel: 1 billion gallons by 2012 and beyond – Minimum 50%**
  - Biodiesel, “renewable diesel” if fats and oils not co-processed with petroleum
- **Advanced Biofuel: Minimum of 4 billion additional gallons by 2022 – Minimum 50%**
  - Essentially anything but corn starch ethanol
  - Includes cellulosic biofuels and biomass-based diesel
- **Conventional Biofuel: Up to 15 billion gallons – Minimum 20%**
  - Ethanol derived from corn starch – or any other qualifying renewable fuel
  - Only applies to fuel produced in new facilities\*

### NOTES:

**\*ALL Existing biofuel facilities not required to meet conventional biofuel GHG threshold**

**EISA language permits EPA to adjust the lifecycle GHG thresholds by as much as 10% (60% to 50%; 50% to 40%; 20% to 10%)**

# Increase Mainly From Cellulosic/ Advanced Biofuel



# GHG / Fuel Efficiency Standards

- May 19, President Obama announced EPA will coordinate with the Department of Transportation (DOT) to propose standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2012-2016
  - Notice of Intent (NOI) to conduct joint rulemaking published on May 22
- On September 15, EPA and DOT Issued Proposal
  - EPA: first-ever federal emissions standards for GHGs using authority under the Clean Air Act - would require model year 2016 vehicles to meet an estimated combined average emission level of 250 grams of carbon dioxide per mile.
  - DOT: related fuel economy standards equivalent to about 35.5 miles per gallon in model year 2016, if all reductions were made through fuel economy improvements.
  - The combined EPA and NHTSA standards would reduce LD Fleet CO2 emissions by about 21 percent (in 2030) over the level that would occur in the absence of any new greenhouse gas or fuel economy standards.
- Coordinated program intends to allow auto manufacturers to build a single light-duty national fleet that provides significant reductions in both GHGs and oil consumption
- Represents an unprecedented collaboration between EPA, DOT, the world's largest auto manufacturers, the United Auto Workers, leaders in the environmental community, the State of California, others

# Summary Benefits: National Clean-Car Program

- Conserve 1.8 billion barrels of oil
- Save the average consumer more than \$3000 in fuel costs
- Increase fuel economy by approximately five percent every year
- Reduce greenhouse gas emissions by nearly 950 million metric tons

# SmartWay Transport Partnership

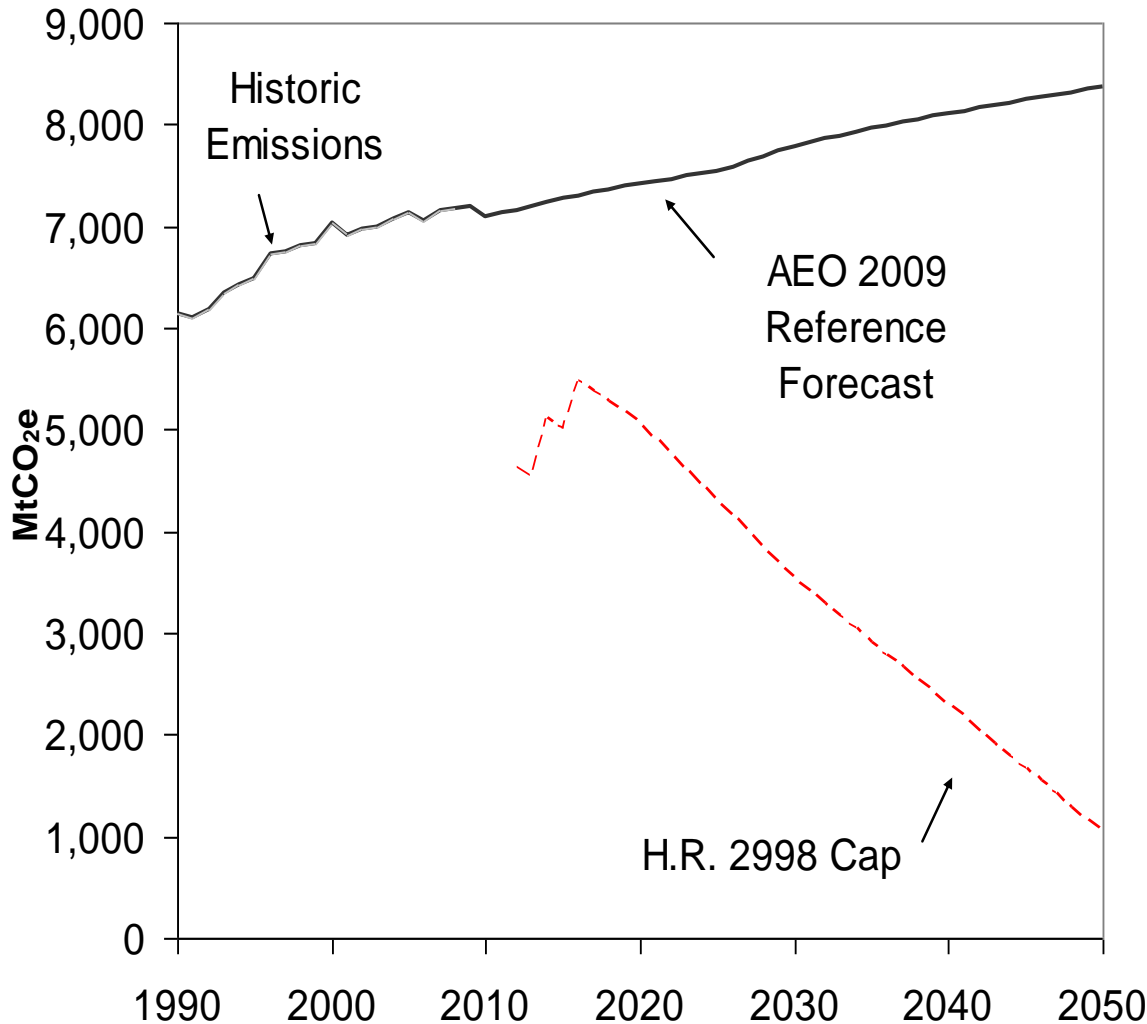


- Innovative collaboration with the freight industry to increase energy efficiency while significantly reducing GHGs and air pollution
  - Launched in 2004 – currently over 2,000 partners
- By 2012, SmartWay partner commitments on track to achieve annual reductions of:
  - 568 M gallons diesel fuel (\$1.5 billion saved), ~6.3 M tons of CO<sub>2</sub>, 37,000 tons of NO<sub>x</sub>, and 2,000+ tons PM
- SmartWay established an international benchmark for cleaner, efficient freight transportation
  - First international workshop held December, 2008 – twelve nations participated
- Information, tools, and models that quantify and track freight transport environmental performance, fuel use, and costs
  - Plans underway to expand/improve tracking capability across the supply chain
- Identification of clean and efficient SmartWay-certified vehicles including heavy duty trucks, upgrade kits, and components
  - SmartWay tractor-trailers 10-20% more efficient than typical long-haul truck
- Development of test methods to quantify benefits of emerging technologies across a broader range of truck types and applications
- Recognition for partners and special annual recognition for top performers
  - 2009 SmartWay Excellence Awards will be announced in October at the American Trucking Associations (ATA) Management Conference & Exhibit in Las Vegas, Nevada

# Climate Legislation

- HR 2454 - comprehensive climate bill (Waxman and Markey) passed U.S. House of Representatives June 26 by a vote of 219-212. Senate is next step in process on this legislation.
  - Sets standards and other measures for increased energy efficiency and renewable energy
  - Financial and other support for technology RDD&D
  - Cap-and-trade programs for major sources of GHGs
  - Performance standards for significant uncapped stationary sources
  - Additional measures for coal-fired power plants, transportation, some other sources
  - Financial support for transition by impacted businesses (autos, power plants, trade-vulnerable industry, others), workers and consumers, States
  - Changes to existing CAA authorities
  - Incentives and support for international action
  - Adaptation planning and support
- Impact of the cap and trade, energy efficiency and competitiveness provisions of the bill reported by the House Energy and Commerce Committee estimated at \$80-\$111 per year

# Cap & Trade - Targets and Timetables



- Cap for GHG emissions from covered sectors is set at
  - 97 % of 2005 level in 2012
  - 83 % of 2005 level in 2020
  - 58 % of 2005 level in 2030
  - 17 % of 2005 level in 2050
- 85% of US economy's GHG emissions are covered. Coverage is phased in between 2012 and 2016 by sector
- There is a separate cap for HFCs
- Uncapped sectors also contribute reductions
  - Regulations required for certain sectors to achieve GHG reductions in addition to reductions achieved by cap, extend bill coverage to 95% of US industrial sector emissions
  - Other sectors can provide offsets that would reduce costs of compliance with cap

# Cap & Trade – Coverage, Point of Regulation & Reporting

## Covered under the Cap:

### Upstream:

- Petroleum (Refineries and Importers)
- Natural Gas (LDC over 25,000 mtco2e) for deliveries for residential and commercial use
- Industrial Gas Producers and Importers

### Downstream:

- Industrial facilities with large combustion and process emissions (25,000 mtCO2e threshold for some)
- Electricity sector
- Geologic Sequestration Sites

## Additional facilities covered under the W-M reporting provision

- Facilities > 10,000 mtCO2e/year
- Other sectors at the discretion of EPA

|  | Emissions Coverage   | Est. # of Affected Facilities |
|--|--|-------------------------------|
| <b>Waxman-Markey</b>                         | <ul style="list-style-type: none"> <li>■ 66% of U.S. Emissions (2012)</li> <li>■ 85% of U.S. Emissions (2016)</li> </ul> | 7,405                         |
| <b>Proposed GHG Mandatory Reporting Rule</b> | 85-90% U.S. Emissions  | 13,205                        |

### EPA Mandatory Reporting Rule Proposal

- Threshold: 25,000 mtCO2e
- Additional source categories
  - \*Coal suppliers (mines and importers)
  - \*Additional methane sources
    - Coal mines
    - Natural gas transmission and distribution
    - Manure management
    - Landfills
  - \*Vehicle and Engine Manufacturers

# Cap & Trade – Allowance Distribution

## ■ Allocations and Auctions

- Initially, 85% of allowances allocated and 15% of allowances auctioned
- The percentage auctioned increases sharply as allocations to electricity, natural gas, and home heating oil are phased out by 2030
- Approximately 60% of allowances auctioned by 2030, 70% by 2050
- Auctions held quarterly, entity bid limited to 5% of total quantity

## ■ Approximate Initial Allowance Value Disbursement\*

- Consumer Protection
  - Electricity consumers (35%, allocation)\*\*
  - Natural gas consumers (9%, allocation)\*\*
  - Home heating oil consumers (1.5%, allocation)\*\*
  - Low income consumers (15%, auction)
- Trade-Vulnerable Industries (13%, allocation)
- Energy Efficiency and Renewable Energy (7%, allocation)
- Clean Energy Innovation Centers (1.5%, allocation)
- Domestic Fuel Production (2.25%, allocation)
- Domestic Adaptation (1%, allocation)
- Wildlife and Natural Resource Adaptation (1%, allocation/auction)
- CCS Deployment (set-aside formed by ~5% of each vintage year's allowances)

\* Percentages reflect allocation in 2016, the first year when all covered sectors have been phased into the program. This summary is not exhaustive.

\*\* These allocations transition to auctioned allowances by 2030.

# Climate Legislation: Next Steps

- Senate began consideration in July
- Committees
  - Multiple committees working on legislation simultaneously (Environment, Energy, Finance, possibly Agriculture and others)
  - If through Committees
    - Vote would take place in October at the earliest
- If passed by the Senate
  - Need to go to “conference” with House to agree on one version
- If through conference and agreed by House and Senate
  - Signature by the President

# Thank You!

- *Contact Information:*

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