



U.S. Efforts to Reduce Greenhouse Gas Emissions: The Transportation Sector

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“We have a choice to make. We can remain one of the world's leading importers of foreign oil, or we can make the investments that would allow us to become the world's leading exporter of renewable energy. We can let climate change continue to go unchecked, or we can help stop it. We can let the jobs of tomorrow be created abroad, or we can create those jobs right here in America and lay the foundation for lasting prosperity.”

-President Obama, March 19, 2009



Overview

1. Overall U.S. Climate Efforts
2. The Transportation Sector
3. High-Speed Rail



1. Overall U.S. Efforts

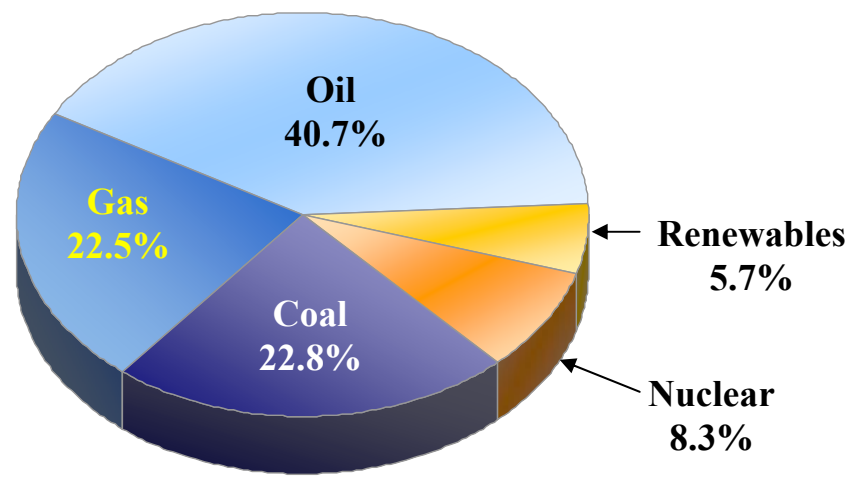
1. U.S. Situation
2. Waxman Markey Legislative Efforts
3. Green Stimulus

U.S. Energy Consumption and Electricity Generation Profile: 2006



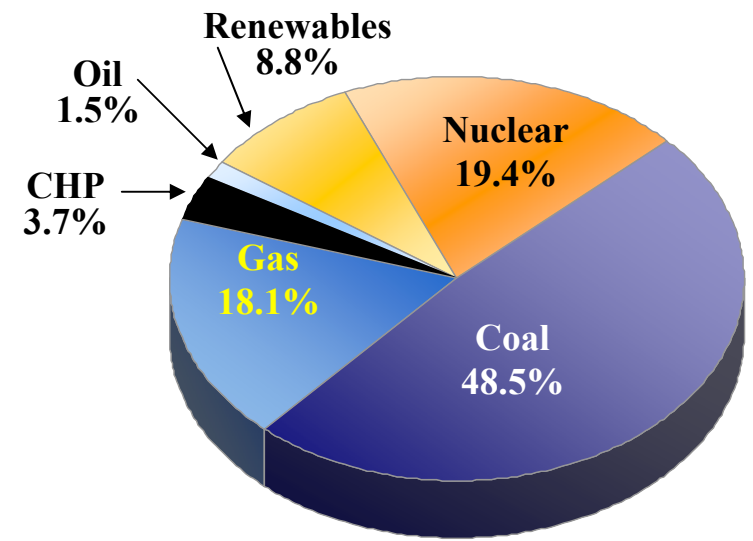
Total U.S. Energy Consumption

98.9 Quadrillion Btus (86.0% Fossil)



Total U.S. Electricity Generation

4,053 TWh (68.0% Fossil)



2006 US GHG Emissions: Electricity 33.7%, Transportation 27.9%, Industry 19.4%, Agriculture 7.5%, Commercial 5.6%, Residential 4.8%
About 60% of percent of transportation's emissions stem from passenger cars and light-duty trucks.

Source: Energy Information Administration (EIA), *Short-Term Energy Outlook*, May 8, 2007.
<http://www.eia.doe.gov/emeu/steo/pub/contents.html> and US GHG Emissions inventory
<http://www.epa.gov/climatechange/emissions/usinventoryreport.html>

Waxman-Markey Bill



- American Clean Energy and Security Act (Waxman-Markey) Cap and trade: covers 87 percent of total U.S. GHG emissions by 2016.
- Capped sources:
 - 17 % below 2005 levels by 2020
 - 83 % below 2005 levels by 2050
- Transportation capped through an “upstream” approach.
- Complementary measures allow for further reductions.

Green Stimulus



The **American Recovery and Reinvestment Act** included more than \$60 billion in clean energy investments that will jump-start our economy and build the clean energy jobs of tomorrow:

- \$11 billion for a smarter grid that will move renewable energy from the rural places it is produced to the cities where it is used.
- \$5 billion for low-income home weatherization projects.
- \$4.5 billion to green federal buildings and cut our energy bill.
- \$6.3 billion for state and local renewable energy and energy efficiency efforts.
- \$2 billion in competitive grants to develop the next generation of batteries to store energy.

2. U.S. Climate Efforts in the Transportation Sector



- 1. Mandatory GHG Reporting Proposal**
- 2. Endangerment Finding Proposal under the CAA**
- 3. National Passenger Vehicle Program**
- 4. Renewable Fuel Standard Proposal**
- 5. Transportation Adaptation**

Mandatory GHG Reporting



- Facility-level reporting 85-90 % U.S. GHG emissions
- Data collected beginning January 2010

After applying the screening criteria, EPA developed reporting methodologies for emissions source categories found at the following facilities:

Sector	Reporters
Electricity Generation	Power plants
Transportation	Vehicle and Engine Manufacturers
Industrial	All large industrial emitters, including those in the following industries:
<i>Metals</i>	Iron and Steel, Aluminum, Magnesium, Ferroalloy, Zinc, and Lead
<i>Minerals</i>	Cement, Lime, Glass, Silicon Carbide, Pulp and Paper
<i>Chemicals</i>	HCFC-22, Ammonia, Nitric Acid, Adipic Acid, SF6 from Electrical Equipment, Hydrogen, Petrochemicals, Titanium Dioxide, Soda Ash, Phosphoric Acid, Electronics, Titanium Dioxide
<i>Oil and Gas</i>	Components of oil and gas systems, Underground coal mining
Other	Landfills, Wastewater Treatment, Ethanol, Food Processing
Agriculture	Manure Management
Upstream Suppliers*	Petroleum Refineries, Gas Processors, Natural Gas Distribution Companies, Coal Mines, Importers, Industrial Gases (e.g., HFCs, N₂O, PFCs, CO₂)

*Some upstream suppliers will also be reporting their direct emissions (e.g., refineries)

Endangerment Proposal Under the Clean Air Act



- On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act. The Administrator 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.
- **Endangerment Finding:** The Administrator is proposing to find that the current and projected concentrations of the mix of six key greenhouse gases—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator is further proposing to find that the combined emissions of CO₂, CH₄, N₂O, and HFCs from new motor vehicles and motor vehicle engines contribute to the atmospheric concentrations of these key greenhouse gases and hence to the threat of climate change.

National Passenger Vehicle Program



On May 19, President Obama announced the Administration's intent to propose standards for control of GHGs and fuel economy for passenger vehicles. If proposed and finalized:

- GHG Standard for automobile and light trucks.
- GHG emissions of 250 grams per mile per vehicle by 2016.
- For MY 2012 – 2016, 5% annual increase in fuel economy (35.5 miles per gallon which was goal for 2020).
- Roughly 800 million-ton GHG reduction

Renewable Fuels Proposal



- Proposed standard mandates 36 billion gallons of renewable fuel use in 2022.
- Most of the growth in volume will be “advanced” or “second generation.”
- New fuels must meet GHG reduction performance standards, based on lifecycle analysis.
- EPA has used latest scientific information and most advanced modeling tools to estimate direct and indirect impacts.

Transportation Adaptation



- We have recently completed studies of how climate change will affect transportation, indicating that projected climate change is likely to have negative affects on **all** modes of transportation, for example:
 - In the Gulf Coast, more than 2,400 miles of major roads are at risk of permanent flooding over the next 50 to 100 years.
- Options to minimize the impact include:
 - Strengthen structures/protect facilities
 - Enhance redundancy
 - Relocate infrastructure to less vulnerable locations
- These reports have shown the need to begin planning now to prepare for potential impacts on transportation infrastructure. The U.S. is planning further studies that address the potential impacts of climate change on infrastructure in greater detail.

3. High Speed Rail

