DEPARTMENT OF TRANSPORTATION

Principal Areas of Focus

DOT uses existing science to improve decisionmaking tools in four primary areas. First, DOT is examining the potential impacts of climate variability and change on transportation, which includes research to examine the effects that climate change and variability may have on transportation infrastructure and services. Second, DOT supports research to increase energy efficiency and reduce greenhouse gases. Third, DOT supports efforts to improve transportation greenhouse gas data and modeling. Finally, in a new area of emphasis, DOT may consider institutional capacity issues that support the implementation of multimodal and intersectoral greenhouse gas emission reduction strategies.

Program Highlights for FY 2006

DOT's virtual Center for Climate Change and Environmental Forecasting is undertaking several new research projects expected to be completed in FY 2006:

- *Workshop on Impacts of Global Climate Change on Hydraulics and Hydrology and Transportation*—A partnership with North Carolina State University to consider guidelines for adapting to the potential consequences of climate change.
- *Reducing the Greenhouse Gas and Air Quality Impacts of Freight Transportation*—Identify measures to lower greenhouse gas emissions from freight.
- *Assessing Greenhouse Gas Emissions Benefits of Heavy-Duty Natural Gas Vehicles in the United States*—Improve the understanding of the greenhouse gas emissions reduction potential of heavy-duty natural gas and diesel vehicles by evaluating emissions data from a previously untapped data source at West Virginia University.
- *Assessing State Long-Range Transportation Planning Initiatives in the Northeast for Climate Energy Efficiency Benefits*—Identify tools and methodologies to help northeastern States reduce greenhouse gas emissions through the long-range planning process.
- *Total Fuel Cycle Emissions for Marine Transportation: Development of a "Well-to-Hull" Modeling Tool*—Develop a "well-to-hull" fuel cycle emissions modeling tool for marine transportation.
- *Feasibility of Utilizing the National Energy Modeling System (NEMS) as a Broad Integrating Framework for Greenhouse Gas Emissions Modeling in the Transportation Sector*—Investigate the feasibility of integrating NEMS with other models to enhance the analytical capabilities beyond those of any individual model.

The DOT Center for Climate Change and Environmental Forecasting has initiated Phase I of CCSP Synthesis and Assessment Product 4.7, *Impacts of Climate Variability and Change on Transportation Systems and Infrastructure–Gulf Coast Study*. This project, initiated under the President's Climate Change Research Initiative, is a joint research effort with USGS. The first phase will provide an integrated overview of relative infrastructure sensitivities in the region.

The Federal Aviation Administration (FAA) has a number of ongoing efforts to improve the modeling of aviation emissions of all kinds, including greenhouse gases. The Office of the Secretary is funding several projects to improve the relationship between transportation and climate change, including a *Best*

Practices Guidebook for Greenhouse Gas Reductions in Freight Transportation. The Guidebook will be designed for use by companies and individual operators.

Related Research

Many of DOT's programs have ancillary climate benefits. The Road Weather Management Program—within the Federal Highway Administration's Office of Operations—seeks to better understand the impacts of weather on roadways. The Corporate Average Fuel Economy Program seeks to reduce energy consumption by increasing the fuel economy of cars and light trucks. FAA has a number of ongoing operational and research initiatives that will help reduce the amount of greenhouse gases produced by aviation in the United States and internationally. DOT's funding programs for congestion mitigation, hydrogen-powered transportation, air quality improvement, and transit developments all reduce emissions, including greenhouse gases.