

# **NESCCAF and ICCT Heavy-Duty Vehicle Fuel Economy and Emissions Improvement Project: Overview and Status Report**

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Improving the Fuel Economy  
of Heavy-Duty Fleets II  
February 20, 2008



# What is NESCAUM/NESCCAF?

- NESCAUM (Northeast States for Coordinated Air Use Management)
- A nonprofit organization founded in 1967 by the New England governors
- Provides technical assistance and policy guidance to member states on air pollution issues
- NESCCAF – Sister Organization (Northeast States Center for a Clean Air Future)
- NESCCAF's goal: create solutions to air pollution issues through scientific research, policy analysis, and outreach.

# What is NESCAUM/NESCCAF?

The NESCAUM states are:

Connecticut

Maine

Massachusetts

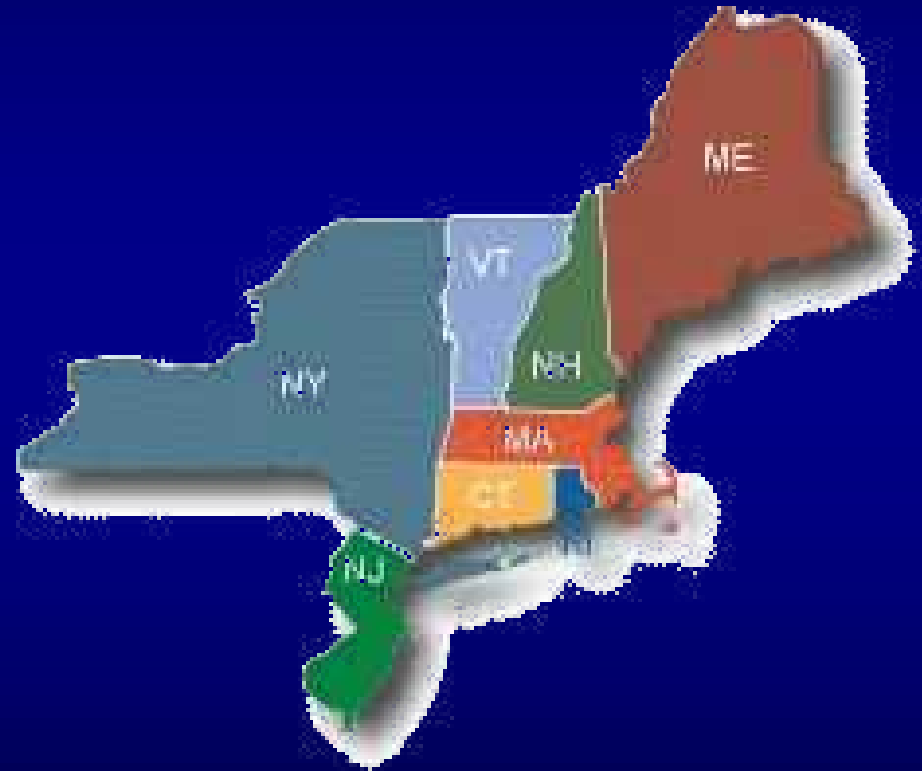
New Hampshire

New Jersey

New York

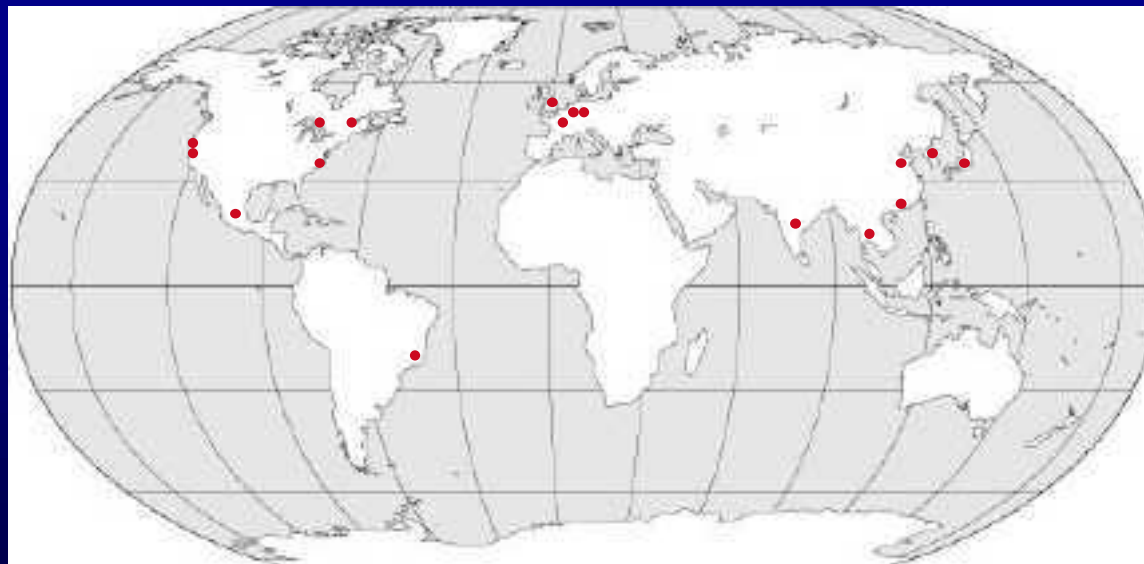
Rhode Island

Vermont



# ICCT Background

- The goal of the International Council on Clean Transportation (ICCT) is to dramatically reduce conventional pollutant and greenhouse gas emissions from personal, public and goods transportation in order to improve air quality and human health, and mitigate climate change.
- The Council is made up of leading regulators and experts from major motorized countries around the world that participate in ICCT activities since 2001



Participant Locations

# Presentation Overview

- NESCCAF and ICCT Heavy-Duty Fuel Economy and Emissions Improvement Project
  - Project Background
  - Goals
  - Study Elements
  - Update and Timeline for Completion

# Heavy-Duty Project Background

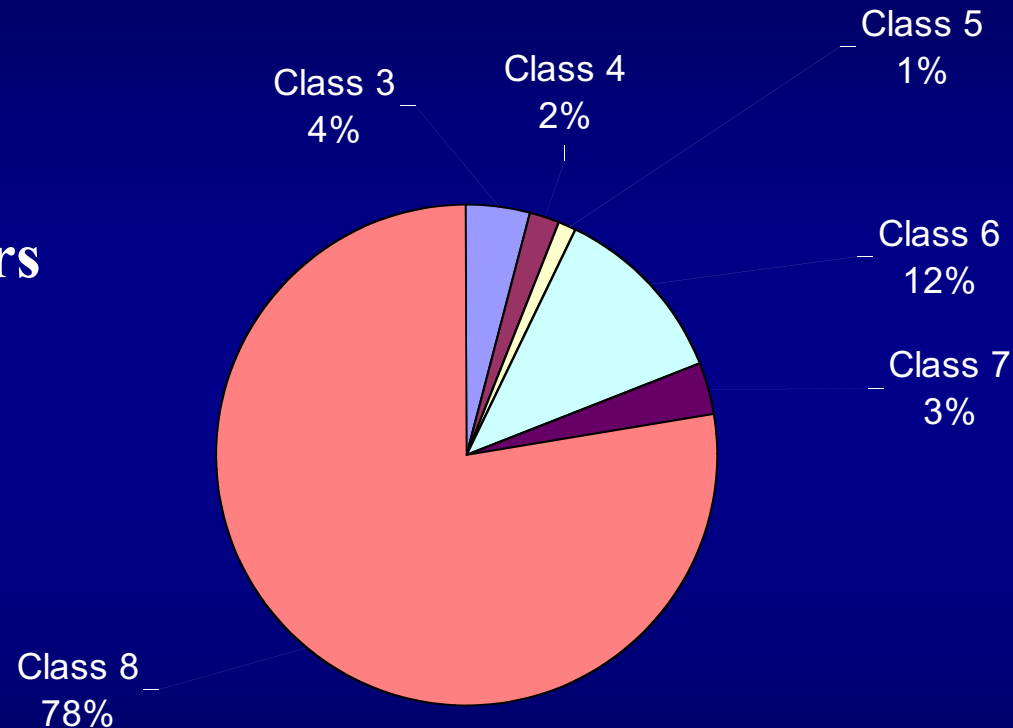
- NESCCAF and ICCT partnering on the project
- Funding provided by the William & Flora Hewlett Foundation and the Energy Foundation
- Contractors include Southwest Research Institute (SwRI) and TIAX LLC

## Background (Continued)

- Diesel fuel accounts for approximately 8% of worldwide energy consumption
- Heavy-duty vehicles emit approximately 20% of transportation-related GHGs in the U.S.
- In the U.S., diesel trucks emit approximately 7% of total GHG emissions, 20% of ozone forming pollutants and approximately 40% of mobile source particulate matter
- Long haul trucks consume the majority of diesel fuel used in heavy-duty trucks

# Heavy Truck Fuel Use (U.S. 2002)

**Tractor-trailers  
consume two-  
thirds of total  
HD fuel**



Source: ORNL Transportation Energy Data Book 2006



# Heavy-Duty Project Goals

- Build on substantial work being done by the U.S. government, fleets, and national labs
- Evaluate the technical feasibility of and costs associated with reducing HD fuel consumption
- Simulate improvements in fuel economy and emissions from combined engine, transmission, and vehicle technologies
- Estimate the environmental impact of fleet-wide adoption of new technologies

# NESCCAF/ICCT Study Elements

- Establish a Research Steering Committee to garner input and advice from industry and other experts
- Based on existing literature, develop of a list of fuel economy improving technologies
- Create 8 engine, vehicle, and transmission technology combinations and simulate the emissions and fuel economy of each
- Estimate the costs of each of the technology combinations

# NESCCAF/ICCT Study Elements

- Estimate the cost effectiveness to owners of vehicles with the combined technologies
- Estimate the fuel savings and environmental benefit of widespread introduction of the technology combinations

# Research Steering Committee

- Provide input and guidance
- Engine manufacturers
- Vehicle manufacturers
- Fleets
- Regulators
- Technology providers
- Environmental organizations

# Project Update

- Duty cycle for long haul trucks developed
- List of fuel economy improving technologies to be considered for modeling complete
- Baseline vehicle, engine, and transmission determined: Kenworth T600, Volvo 2007 D13, and 10-speed transmission
- Technology combinations proposed
- Coordination with industry, fleets, and other experts ongoing

# Project Update (continued)

- Detailed descriptions of different technologies being developed for cost estimation work (TIAX and SwRI)
- Modeling inputs for advanced technologies being developed (SwRI)
- Cost estimates begun (TIAX)
- Evaluation of fleet characteristics underway for the fleet-wide fuel economy and emissions benefit estimation (TIAX)

# Timeline for Completion

- Complete baseline simulations in March
- Simulate technology combinations in April and May
- Complete cost benefit analysis and fleet-wide estimate of fuel saved and emissions reduced in May
- Final report in July

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