



# **Transportation, Energy, and Climate Change: New Policies to Address the Challenge**

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Endicott Symposium  
August 24, 2010



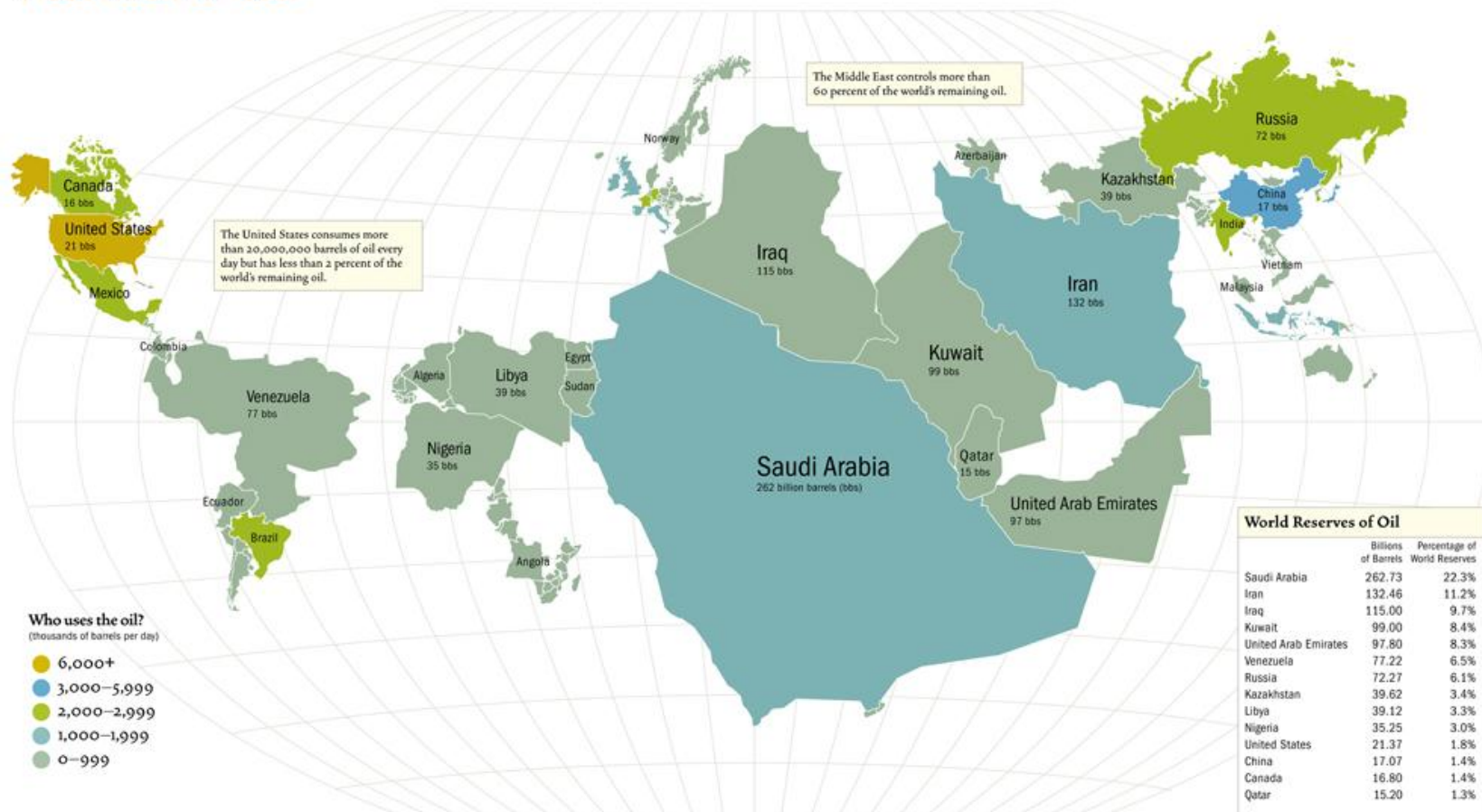
# Presentation Overview

- Transportation and the Environment
- Policy Approach
- Recent Results
- Future Actions



# The World According to Oil Reserves

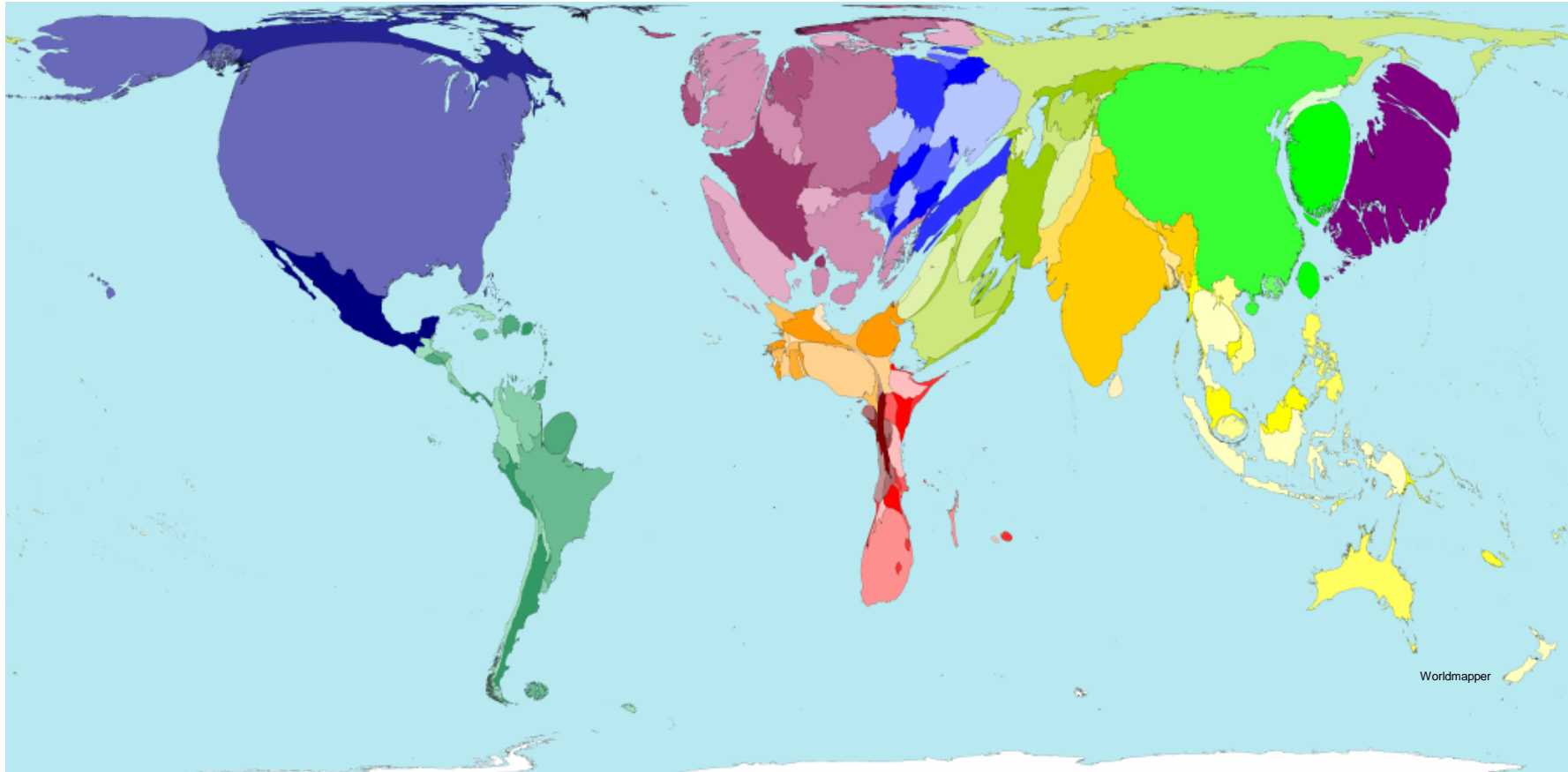
## Who has the oil?



Each country's size is proportional to the amount of oil it contains (oil reserves). Source: BP Statistical Review Year-End 2004 & Energy Information Administration

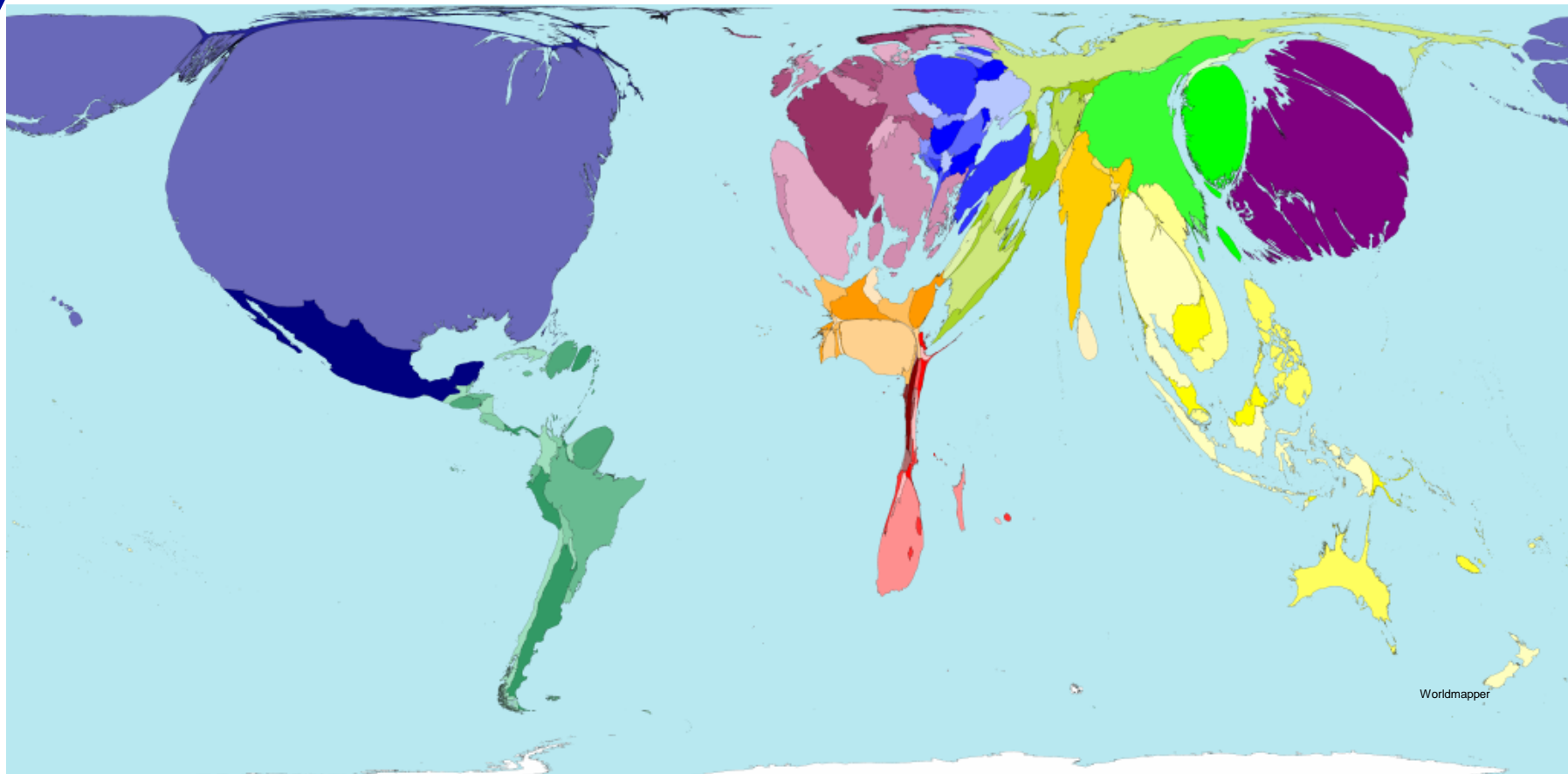


# The World According to Fuel Consumption





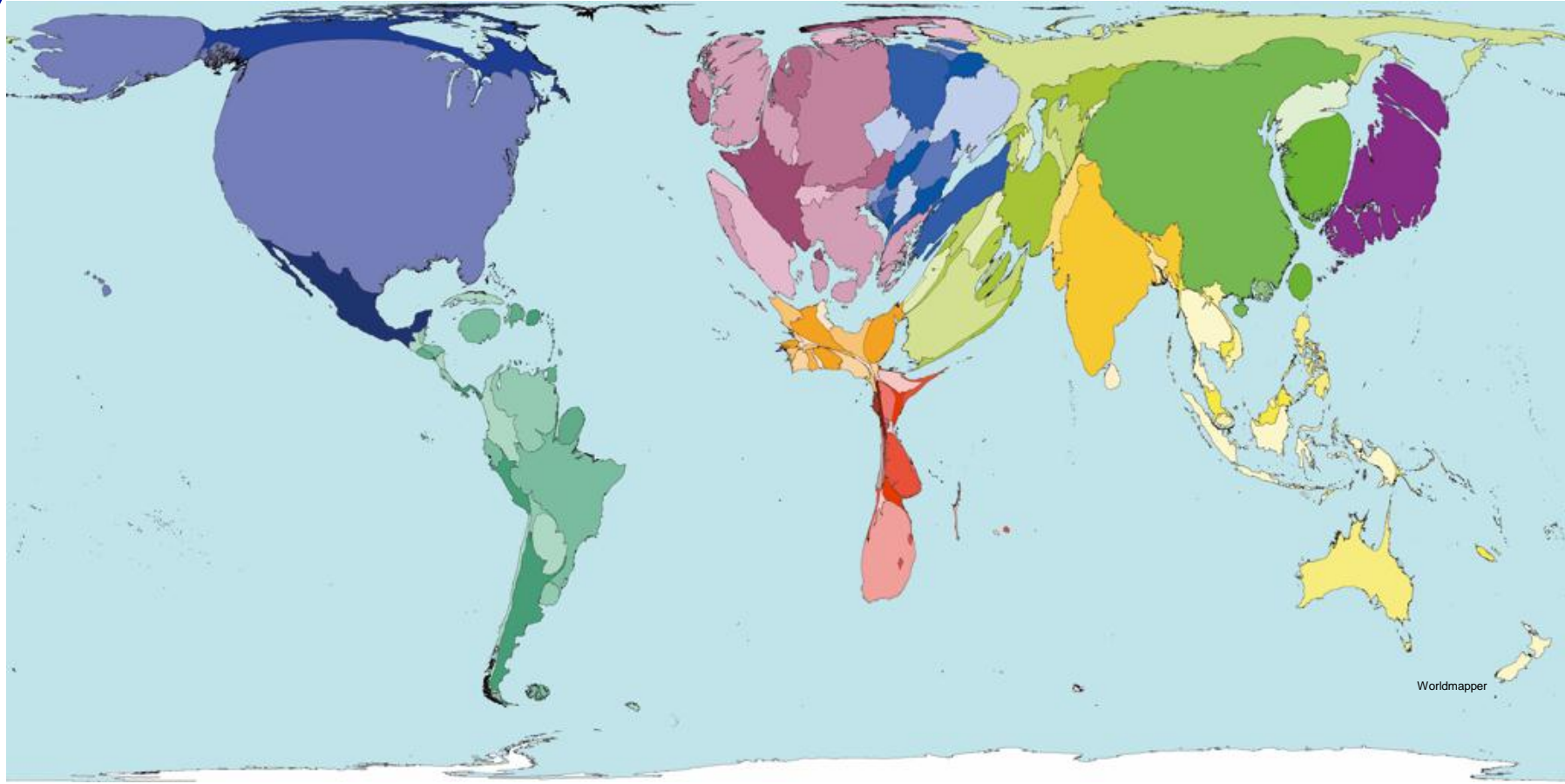
# The World According to Vehicle Freight Miles







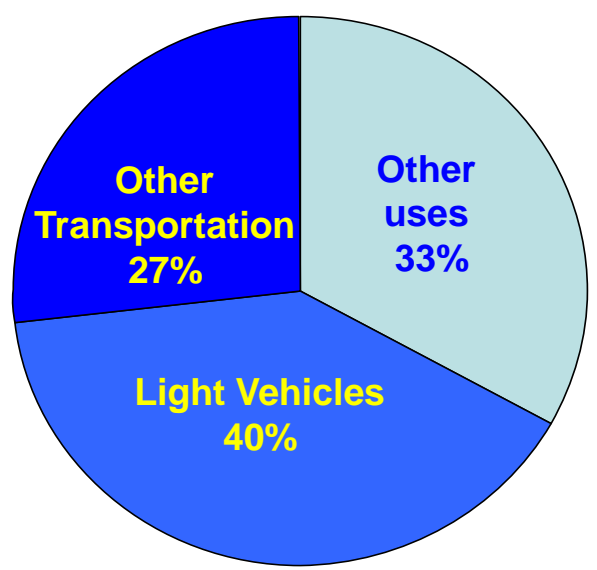
# The World According to Greenhouse Gases





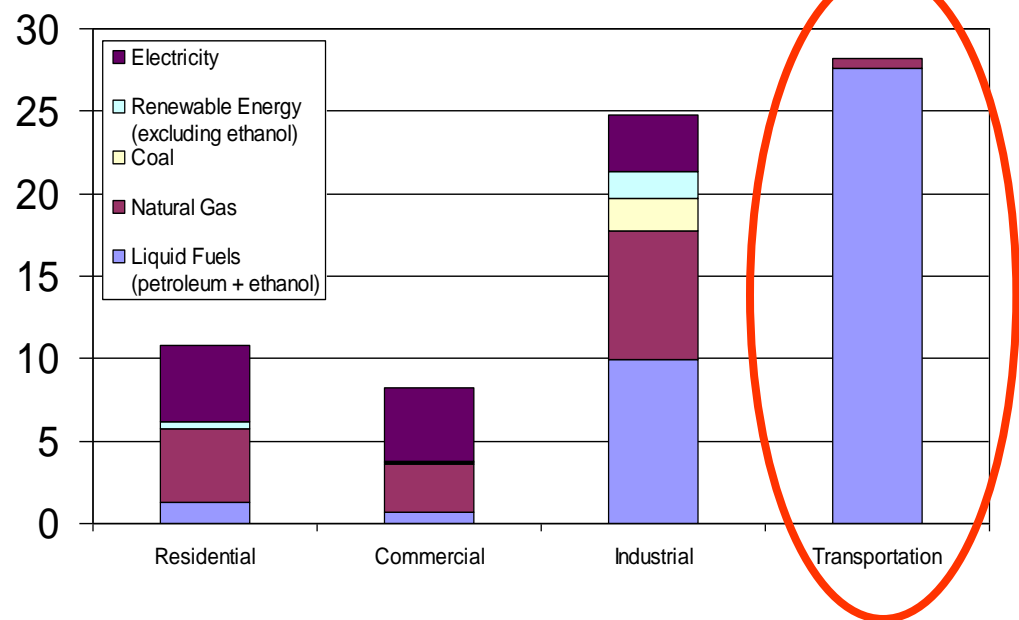
# Transportation and Oil Consumption

**Transportation Uses 67%**



**Transportation is 97% dependent on petroleum**

Energy Consumption by Sector and Source, 2006  
(quadrillion Btu per year)

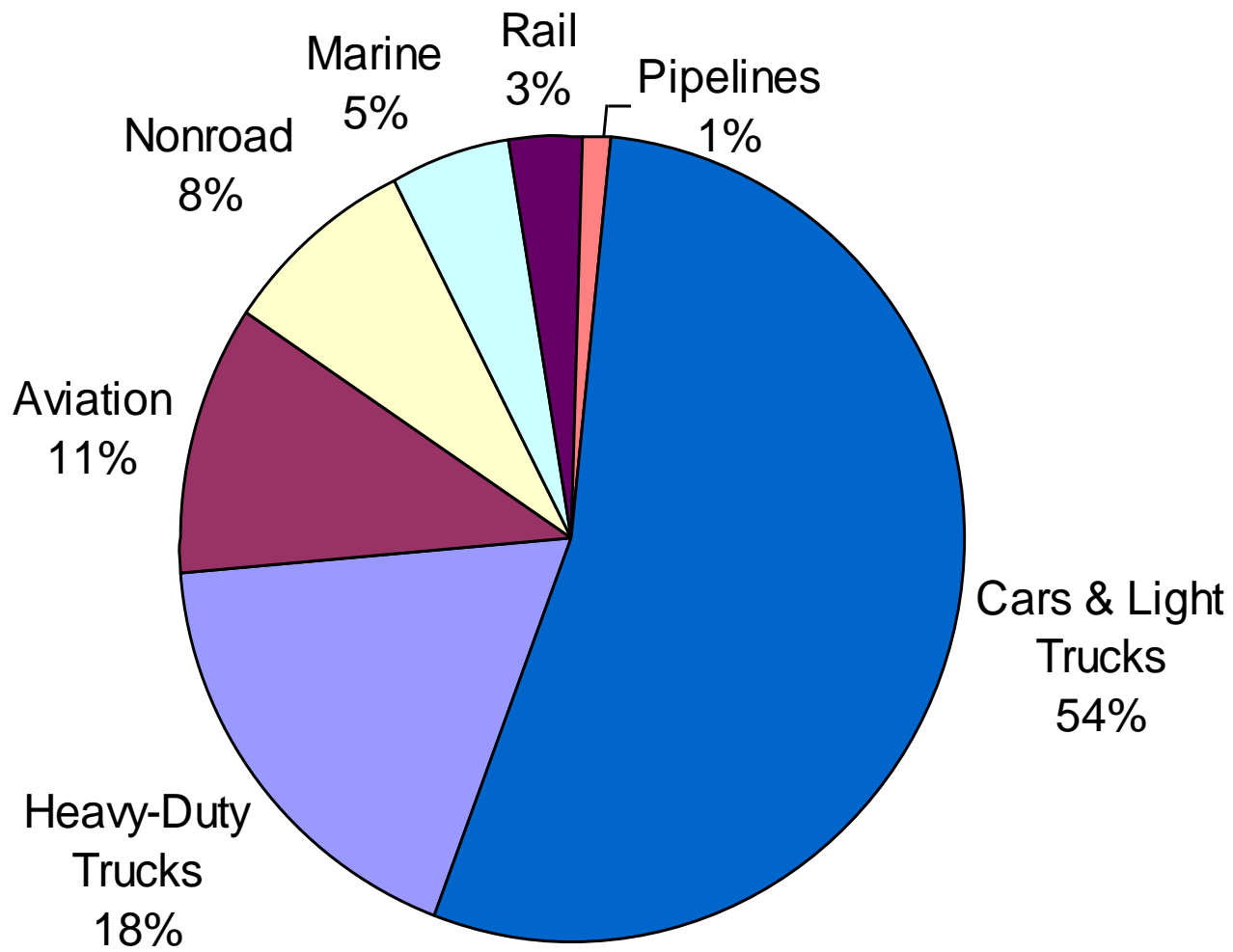


Source: Annual Energy Outlook 2008



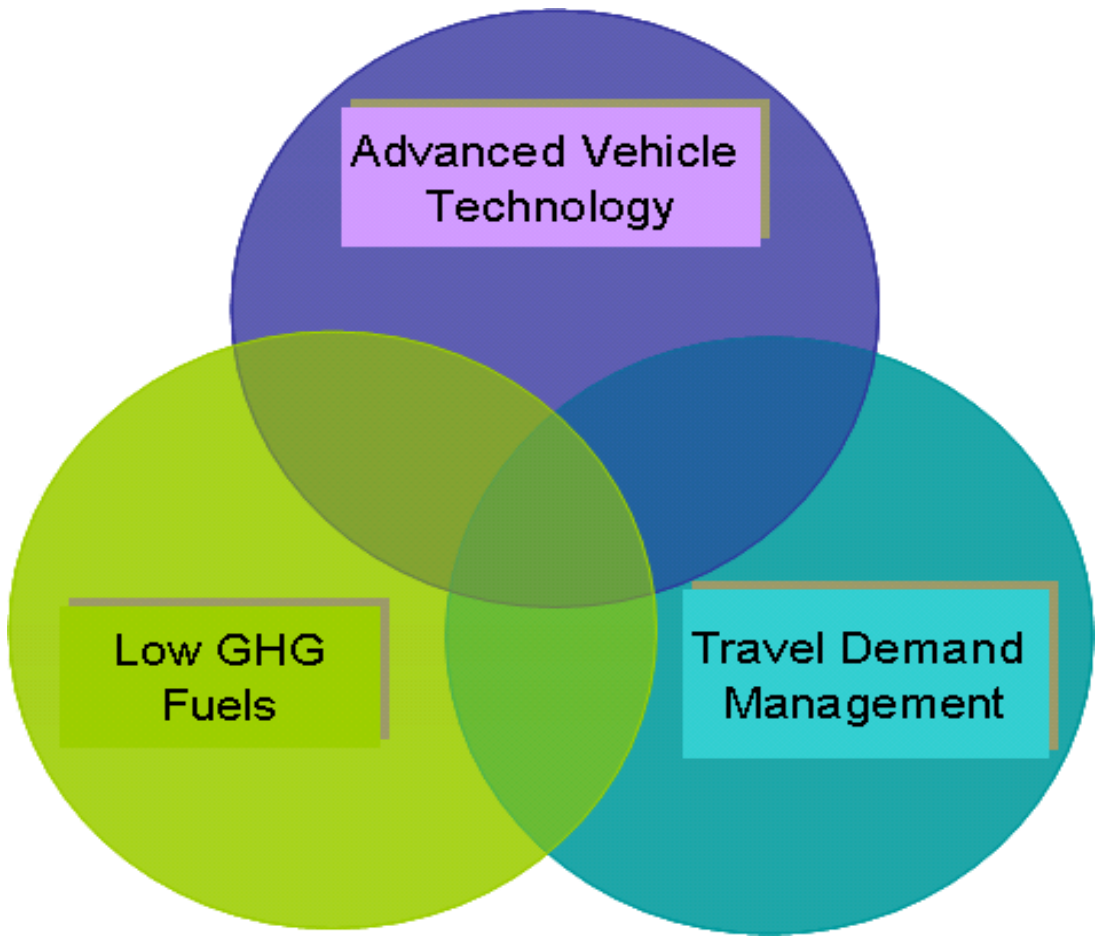


# U.S. Transportation GHG Emissions (2006)





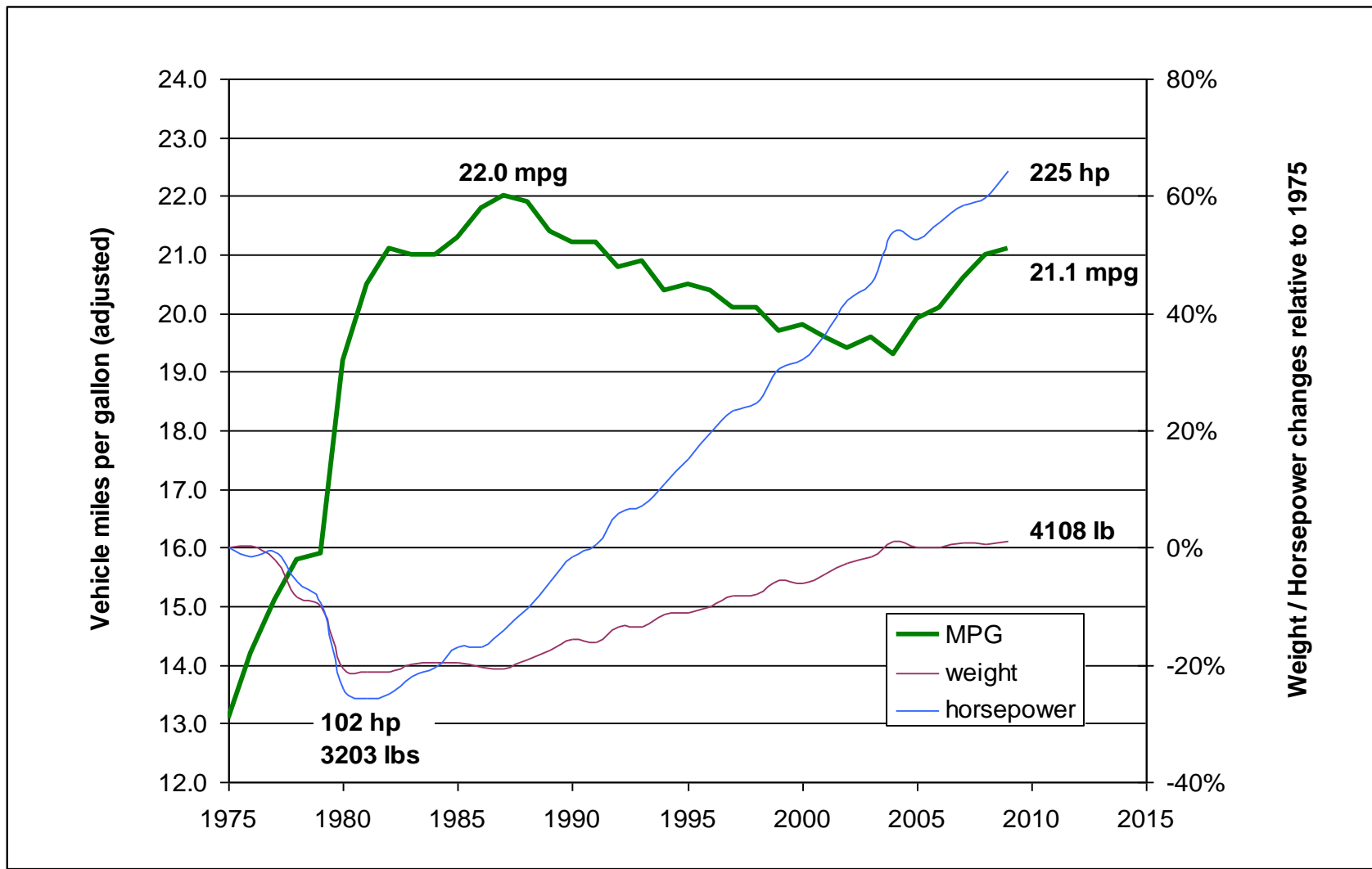
# Strategy: Use System Approach





# Vehicle Trends 1975-2009

## Where has all the technology gone?





# National Clean Car Program



“I believe that it’s possible, in the next 20 years, for vehicles to use half the fuel and produce half the pollution that they do today.”

- President Obama, May 19, 2009 Rose Garden remarks



# New Clean Vehicle Standards

- First national greenhouse gas standards in the U.S.
  - 23% reduction
- Equivalent to 35.5 mpg if all reductions came from fuel economy improvements
- Benefits
  - 1.8 billion barrels of oil reduced
  - 960 million metric tons of CO<sub>2</sub> reduced
  - Total benefits of \$240 billion



# Robust Technical Analysis

- Significant new analysis
  - peer reviewed estimates for mfg costs
  - technology effectiveness based on vehicle simulation modeling
  - new peer-reviewed technology and cost model
- Transparency
  - baselines and projections based on publicly reviewable data
  - model inputs and outputs available for review
  - commenters can use data to do alternative analysis





# Technology Feasibility

- Large penetration of currently available technologies
  - Gasoline direct injection
  - Engine Down-sizing with Turbocharging
  - 6 speed transmissions/dual clutch
  - High efficiency, low leak AC systems
  - Engine start-stop systems
- Innovative Features
  - Use of air conditioning credits
  - Flexible fueled vehicle credits
  - Early credit opportunities and incentives for advanced technologies



# White House Announcement - May 2010

- Next phase of National Clean Car Program: MY2017 - 2025
- First-ever GHG/Fuel Economy Standards for Commercial Trucks
- Review of non-GHG Standards for Passenger Vehicles



May 21, 2010



# National Clean Car Program: MY2017 - 2025

## Passenger Cars and Light-Duty Trucks

- EPA and the NHTSA requested to develop a coordinated national program to improve fuel efficiency and reduce GHG emissions for model years 2017-2025.
- Administrators of EPA and NHTSA to work with the State of California to develop, by September 1, 2010 a technical assessment to inform the rulemaking process.
- Issue by September 30, 2010 a joint Notice of Intent to Issue a Proposed Rule that includes key elements of the program, potential standards for 2017-2025, and a schedule for setting those standards.



# GHG Standards for Trucks

- EPA and NHTSA work on joint rulemaking under the CAA and EISA to establish fuel efficiency and GHG emissions standards for commercial MD and HD vehicles, beginning in model year 2014.
- The Administrators of EPA and NHTSA are requested to:
  - include fuel efficiency and GHG standards that take into account the market structure of the trucking industry and unique demands of HD vehicle applications
  - Seek harmonization with applicable State standards
  - Consider the findings and recommendations of the NAS report on MD and HD truck regulation
  - Strengthen the industry and enhance job creation in the US
- Final rule to be issued by July 30, 2011

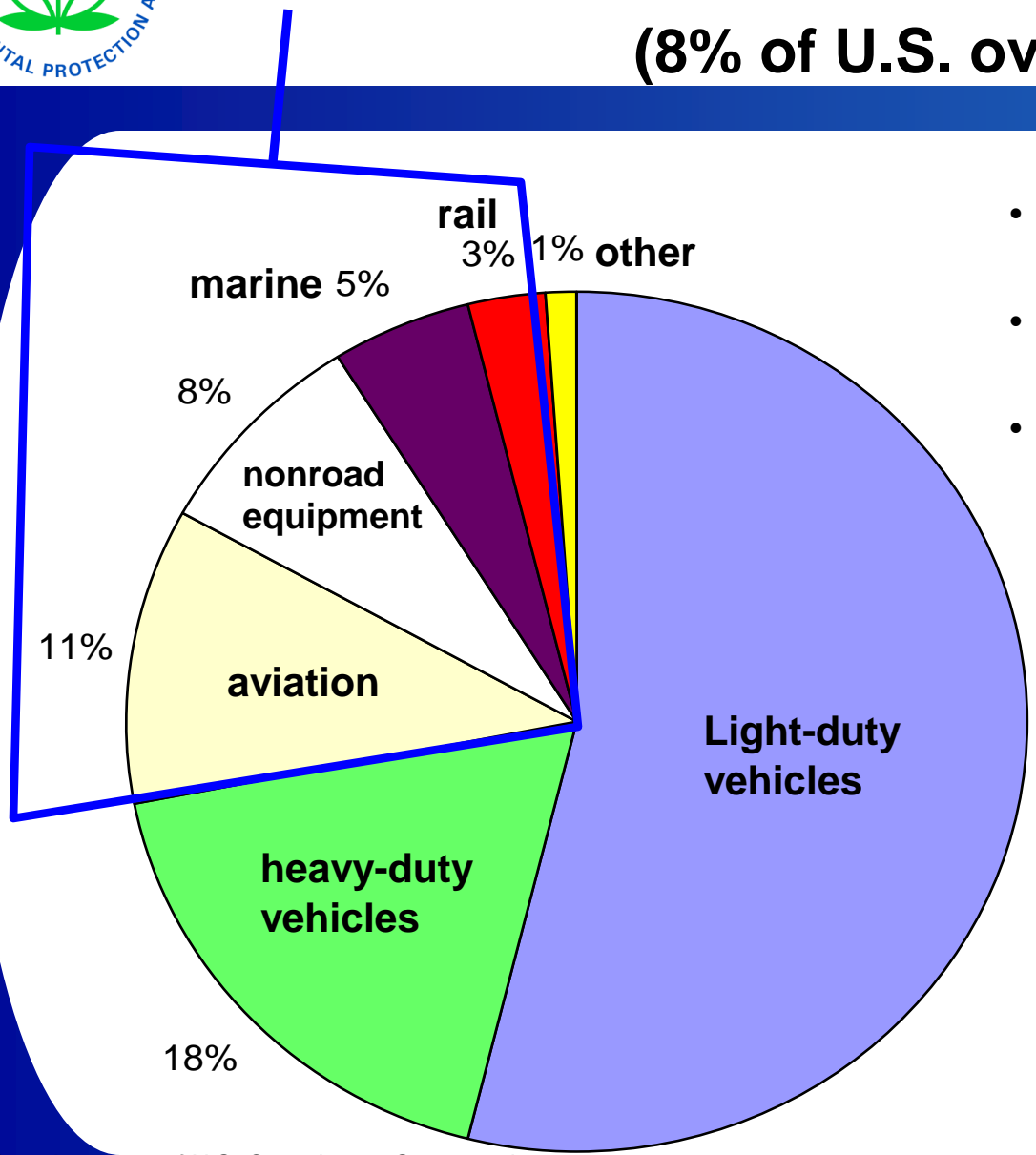


# Cleaner Vehicles and Fuels (Tier 3)

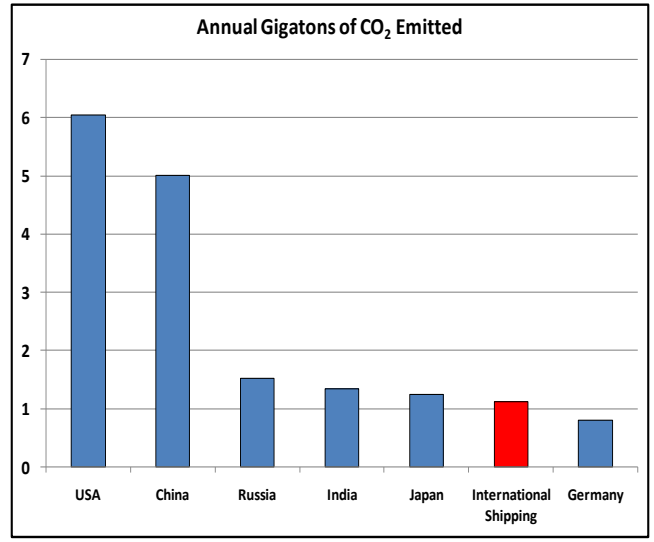
- EPA to review current non-greenhouse gas emissions regulations for new vehicles/engines and fuels
- Promulgate regulations if the Administrator finds new regulations are required.



# Nonroad and Aviation sectors contribute 27% of U.S. mobile source GHGs (8% of U.S. overall total)



- 97% of all nonroad GHG impact is from CO2
- Other 3% is mostly from rail and ship refrigeration HFCs
- Marine and aviation sectors have substantial international components that are not reflected in this pie chart



from Inventory of U.S. Greenhouse Gases and Sinks: 1990-2007





# Marine/Aircraft/Nonroad GHG Petitions

- Plaintiffs:
  - Center for Biological Diversity (CBD); Center for Food Safety; Friends of the Earth (FOE); International Center for Technology Assessment (ICTA); Oceana
- Historical CAA rulemaking progression: Light-duty → Heavy-duty → Nonroad
  - tracks natural order of technology transfer
  - Helps address extreme complexity of NR sector (hundreds of companies, thousands of applications)
- As marine and aviation present important international considerations, we are pursuing C3 OGV marine and aircraft GHGs through international forums
  - IMO
  - ICAO

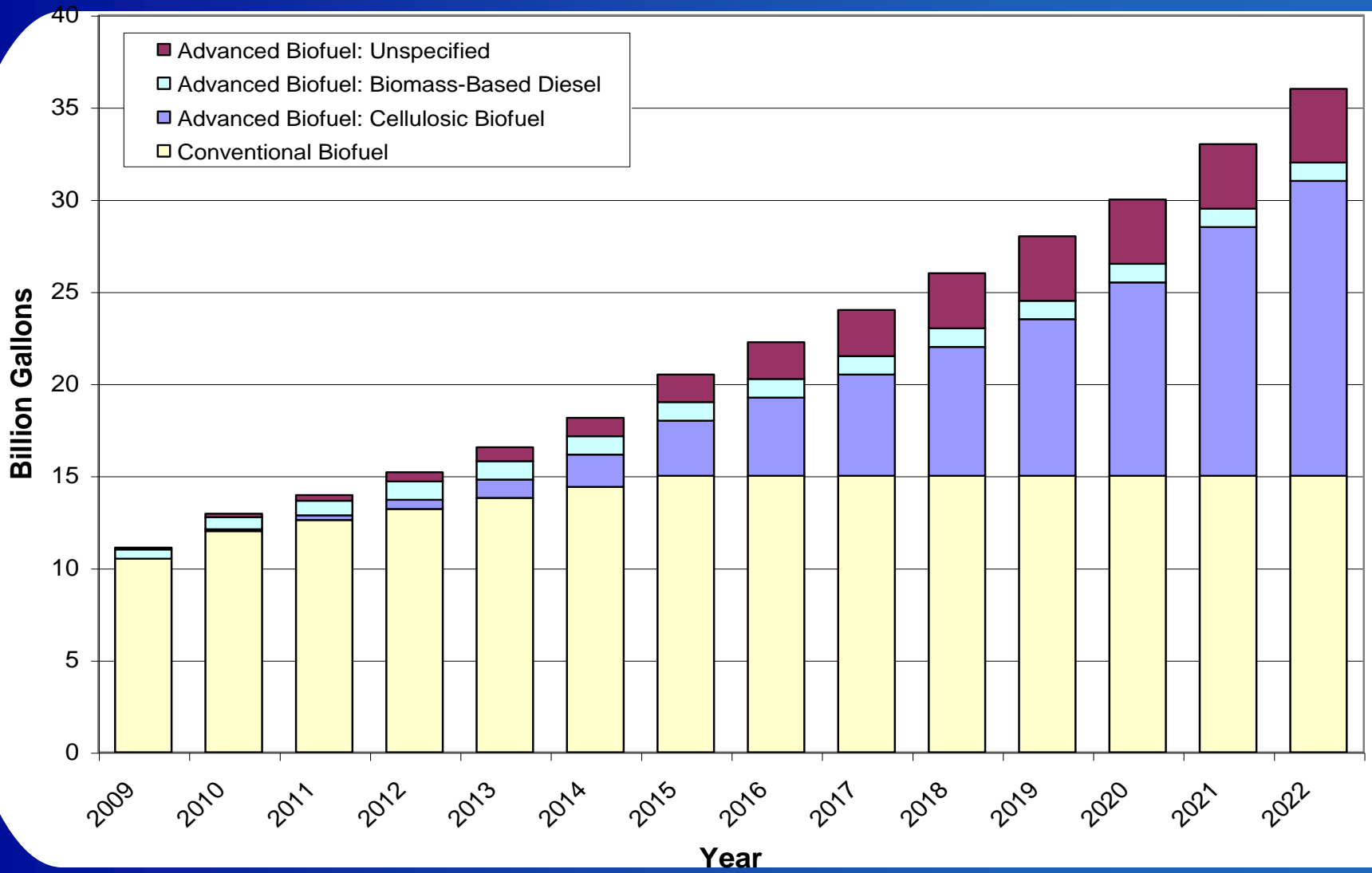


# Renewable Fuel Standards

- **Petroleum Consumption, Energy Security and Fuel Costs:**
  - Replace about 7 percent of expected annual gasoline and diesel consumption in 2022
  - Decrease oil imports by \$41.5 billion
- **Greenhouse Gas Emissions:**
  - Reduce emissions by 138 million metric tons -- equivalent to the annual emissions of 27 million passenger vehicles.
- **Agriculture Sector and Related Impacts:**
  - Expand the market for agricultural products— increasing net farm income by an estimate of \$13 billion dollars
- **Emissions and Air Quality:**
  - EISA directs the agency to further evaluate these potential impacts and to mitigate, to the extent possible, any adverse impacts.



# Expansion Fuels in RFS-2





# Technology Transformation Not Enough

- Low Carbon Vehicles and Fuels Necessary, but Insufficient
- Need to Improve the System
- Significant Infrastructure Changes Needed
- Align Transport Funding with National Climate and Energy Goals



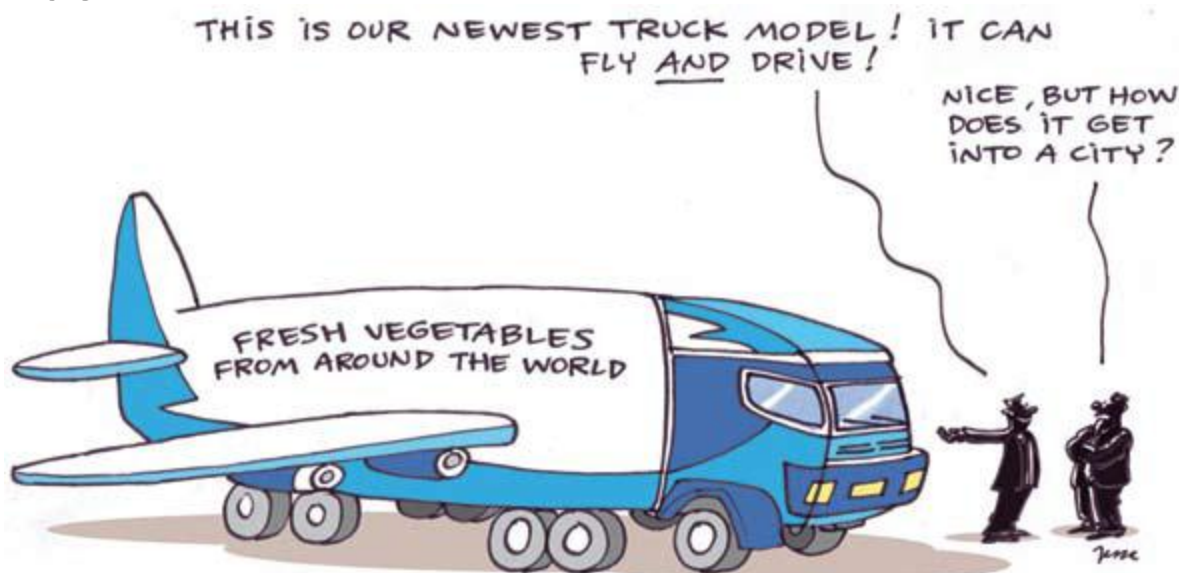
# Addressing the Supply Chain

- EPA's SmartWay Transport Partnership promotes greenhouse gas reductions and energy efficiency in goods movement across the supply chain
- Partners save money by reducing fuel use and emissions, which protects the environment, supports greener jobs and strengthens US competitiveness



# SmartWay Offers

- Tools and resources to assess and track emissions
- Testing and identification of low carbon technologies
- Innovative financing for cleaner technologies
- Partner engagement and recognition to improve performance







# Looking to the Future

Important to Align Federal Policy Levers:

- Regulatory Policy
- Tax Policy
- Research & Development Policy



“There is no greater prize in life than working hard at work worth doing”

--President Theodore Roosevelt