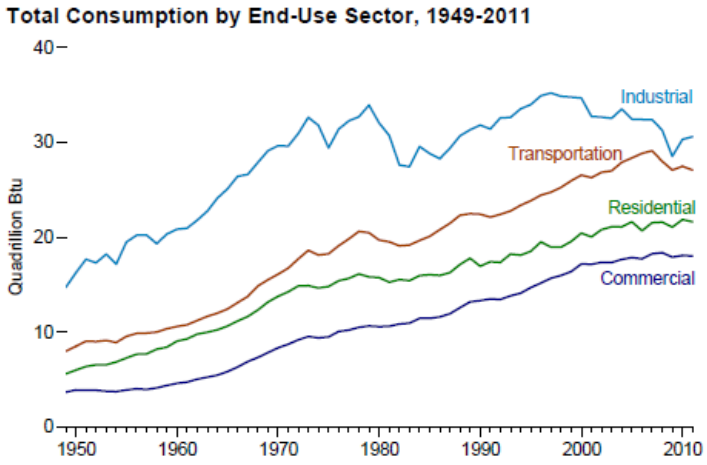
US Transportation Policy: Trending toward efficiency

November 12, 2013

Derek Greenauer
Global Government Affairs Manager
UL LLC
Derek.Greenauer@ul.com

US Energy Consumption by Sector

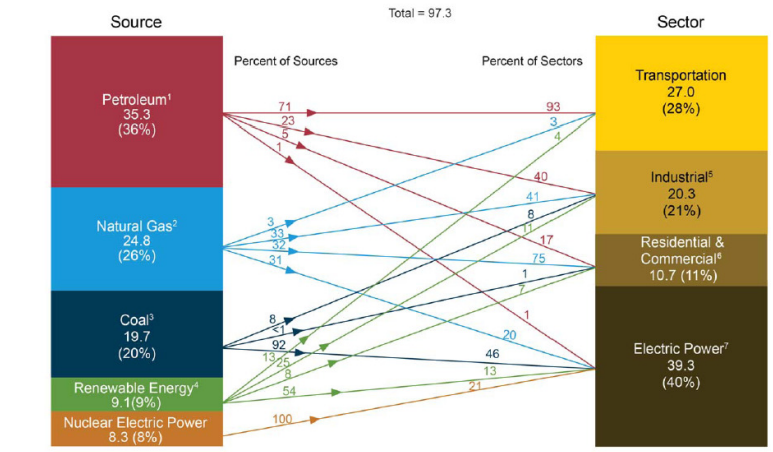


U.S. Energy Information Administration / Annual Energy Review 2011

2

US Energy Use by Source & Sector

Figure 2.0 Primary Energy Consumption by Source and Sector, 2011
(Quadrillion Btu)



[1] Does not include biofuels that have been blended with petroleum—biofuels are included in "Renewable Energy."
[2] Excludes supplemental gaseous fuels.
[3] Includes less than 0.1 quadrillion Btu of coal coke net imports.
[4] Conventional hydroelectric power, geothermal, solar/photovoltaic, wind, and biomass.
[5] Includes industrial combined-heat-and-power (CHP) and industrial electricity-only plants.
[6] Includes commercial combined-heat-and-power (CHP) and commercial electricity-only plants.
[7] Electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes 0.1 quadrillion Btu of electricity net imports not shown under "Source."

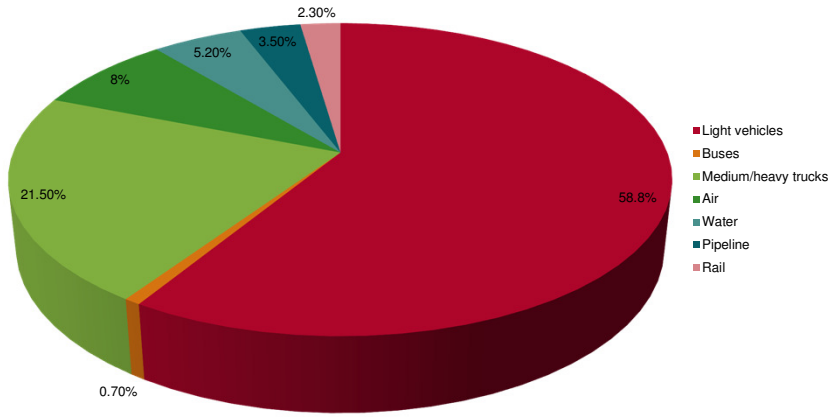
Notes: Primary energy in the form that it is first accounted for in a statistical energy balance, before any transformation to secondary or tertiary forms of energy (for example, coal is used to generate electricity). • Sum of components may not equal total due to independent rounding.

Sources: U.S. Energy Information Administration, *Annual Energy Review 2011*, Tables 1.3, 2.1b-2.1f, 10.3, and 10.4.

U.S. Energy Information Administration / Annual Energy Review 2011

3

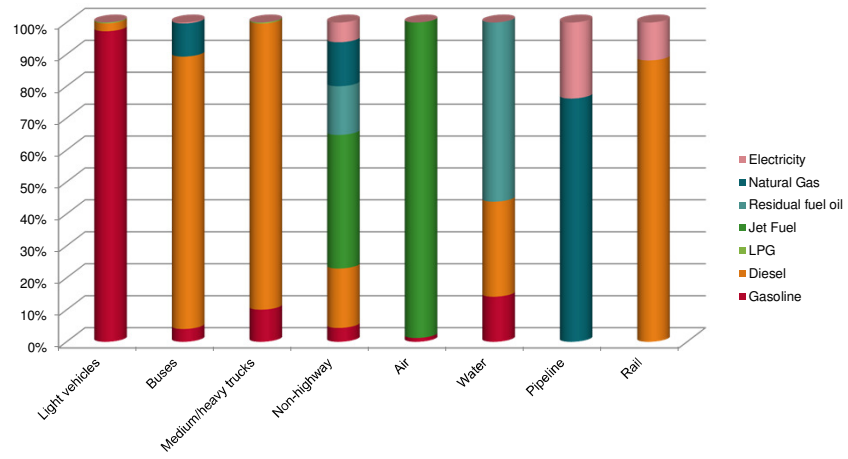
2011 US Transportation Energy Use by Mode



Source: 2013 Transportation Energy Data Book, Oak Ridge National Laboratory

4

2011 US Fuel Use by Mode



Source: 2013 Transportation Energy Data Book, Oak Ridge National Laboratory

5

US Transportation Efficiency Policy Overview

Regulatory Requirements

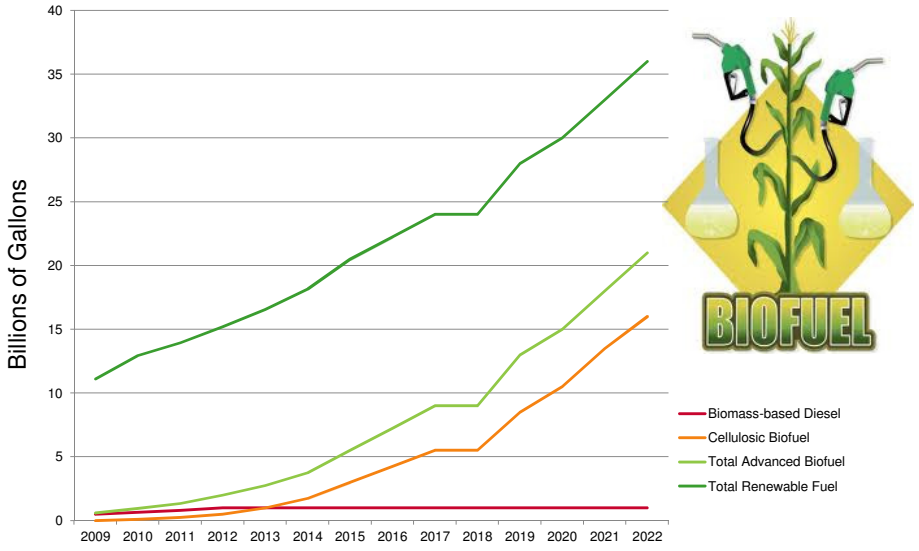
- Renewable Fuel Standard (RFS)
- Increase Corporate Average Fuel Economy (CAFÉ) standards
  - Passenger Vehicles and Light Trucks

Voluntary Approaches

- Transition to cleaner, domestic-based fuels
  - Clean Cities Coalitions
- Research, develop, and deploy new technologies
  - Hydrogen Fuel Cells

6

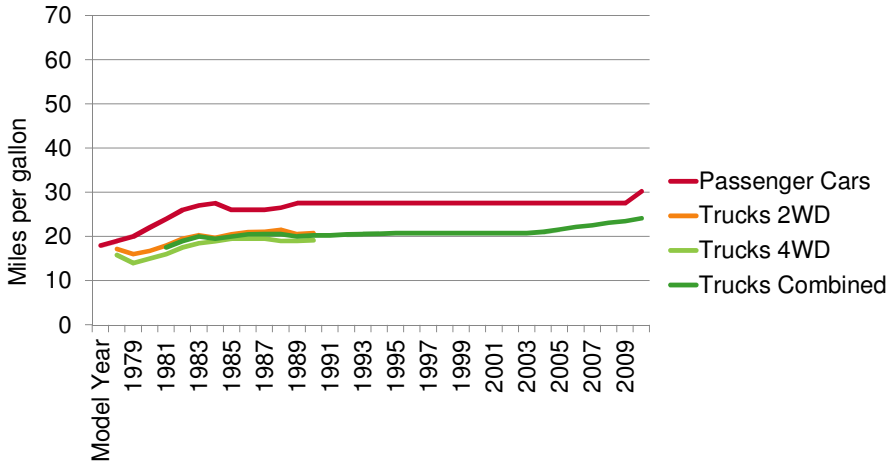
Regulations: Renewable Fuel Standard



Source: US Environmental Protection Agency

7

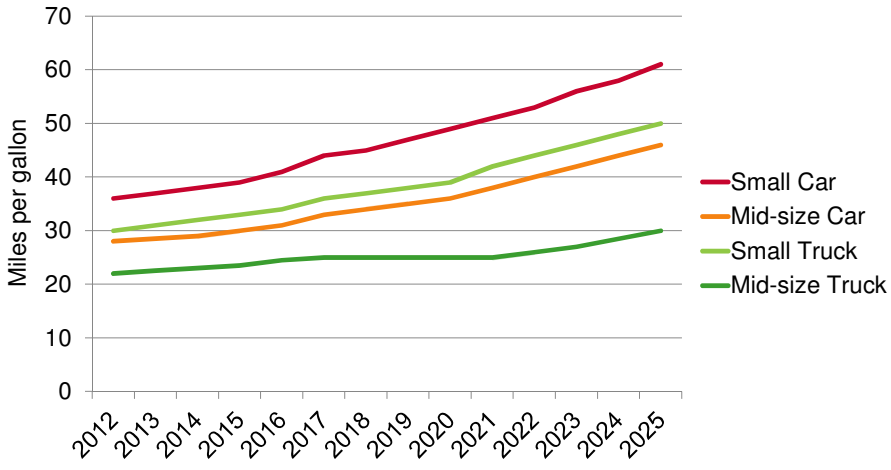
Regulations: CAFÉ Standards 1978 - 2011



Source: US National Highway Traffic Safety Administration

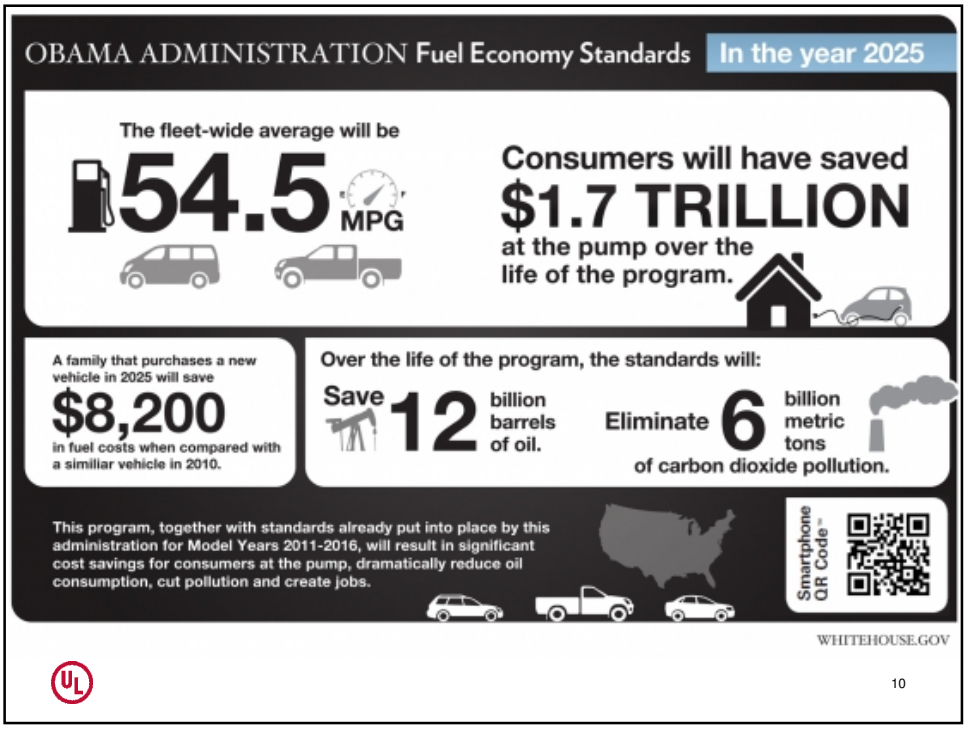
8

Regulations: CAFÉ Standards 2012 - 2025



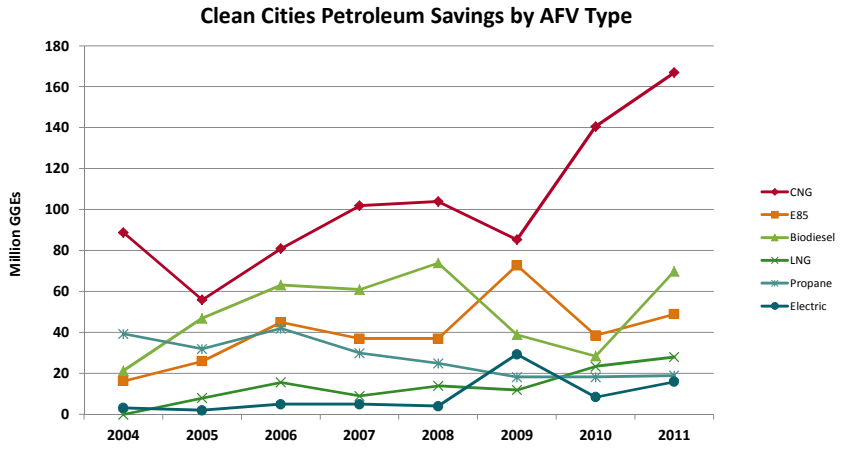
Source: US National Highway Traffic Safety Administration

9



10

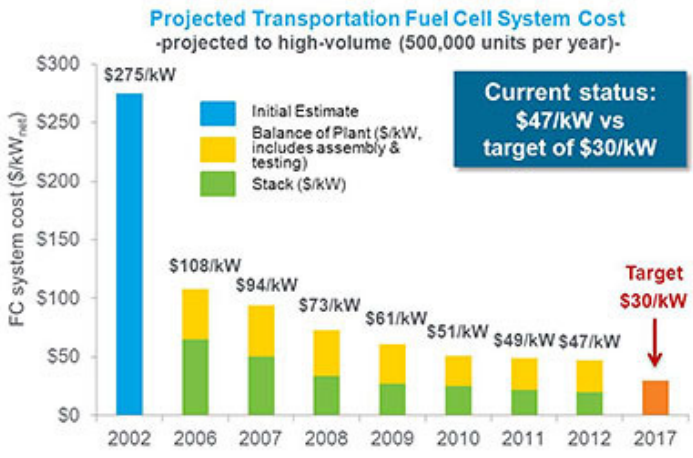
US DOE Clean Cities Program Success



Source: US Department of Energy

11

RD&D – Hydrogen Fuel Cells



Source: US Department of Energy

12

Thank You

Kop Hun

13