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ORNL/TM-2012/97

Vehicle Technologies' Fact of the Week 2011

April 2012

Prepared by

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UT-BATTELLE

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FACT OF THE WEEK 2011

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The authors would like to thank the project sponsors, Phil Patterson and Jake Ward, for their continued support and review of each weekly Fact. In addition, we thank Vicki Skonicki at Argonne National Laboratory for her invaluable role in posting the Facts on the Department of Energy's Vehicle Technologies Program website each week.

INTRODUCTION

Each week the U.S. Department of Energy's Vehicle Technology Program (VTP) posts a *Fact of the Week* on their website: http://www1.eere.energy.gov/vehiclesandfuels/ . These Facts provide statistical information, usually in the form of charts and tables, on vehicle sales, fuel economy, gasoline prices, and other transportation-related trends. Each Fact is a stand-alone page that includes a graph, text explaining the significance of the data, the supporting information on which the graph was based, and the source of the data. A link to the current Fact is available Monday through Friday on the VTP homepage, but older Facts are archived and still available at: http://www1.eere.energy.gov/vehiclesandfuels/facts/.

This report is a compilation of the Facts that were posted during calendar year 2011. The Facts were written and prepared by staff in Oak Ridge National Laboratory's Center for Transportation Analysis.

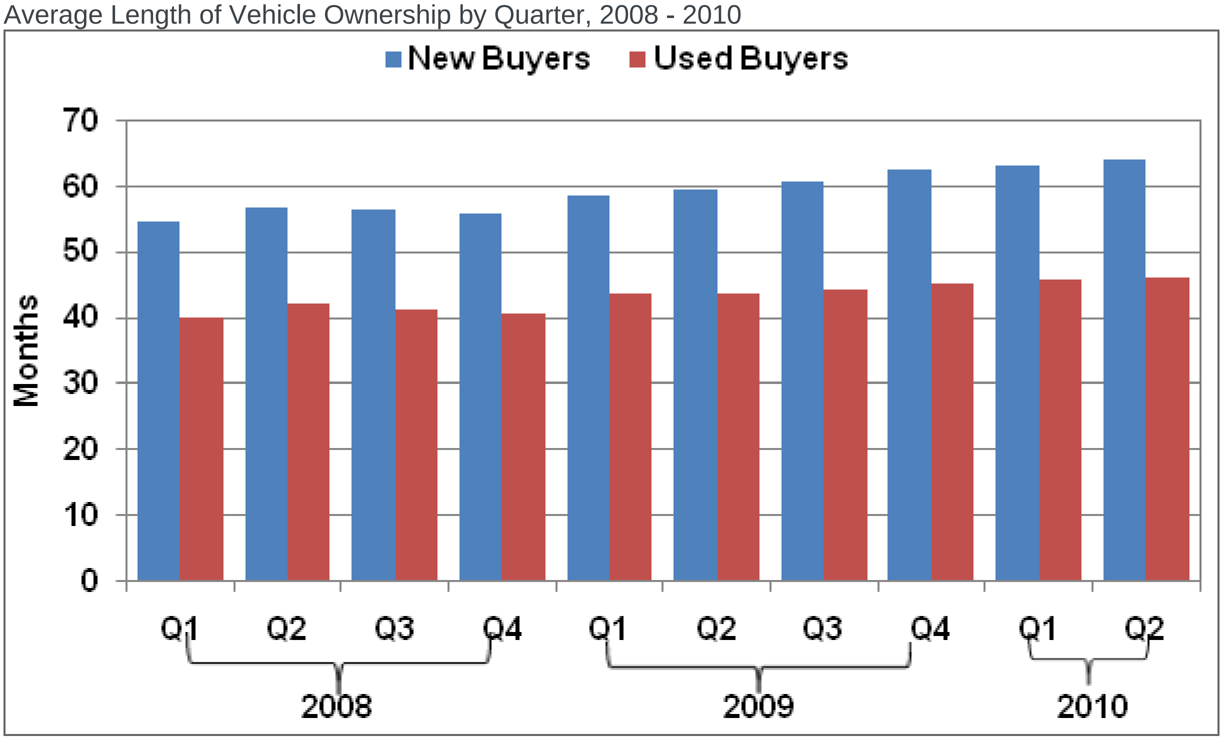
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Vehicle Technologies Program

Fact #656: January 3, 2011
Consumers Hold onto Vehicles Longer

Consumers are holding onto both their new and used vehicles for longer periods of time. The length of time a consumer keeps a new vehicle has risen each quarter since 2008 to an average of 63.9 months in the 2nd quarter of 2010. That is 4.5 months longer than the same quarter last year. For used vehicles, the average length is 46.1 months, up 2.3 months from the 2nd quarter of 2009.

Average Length of Vehicle Ownership by Quarter, 2008 - 2010



Supporting Information

Average Length of Vehicle Ownership Quarter 1, 2008 - Quarter 2, 2010			
Year	**Quarter**	**New Buyers (Months)**	**Used Buyers (Months)**
2008	Q1	54.6	40.0
2008	Q2	56.7	42.0
2008	Q3	56.3	41.3
2008	Q4	55.8	40.7
2009	Q1	58.6	43.7
2009	Q2	59.4	43.8
2009	Q3	60.6	44.2
2009	Q4	62.4	45.3
2010	Q1	63.2	45.9
2010	Q2	63.9	46.1

Source: R. L. Polk & Company, Latest Trends, "Consumers Continuing to Hold onto Vehicles Longer."

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

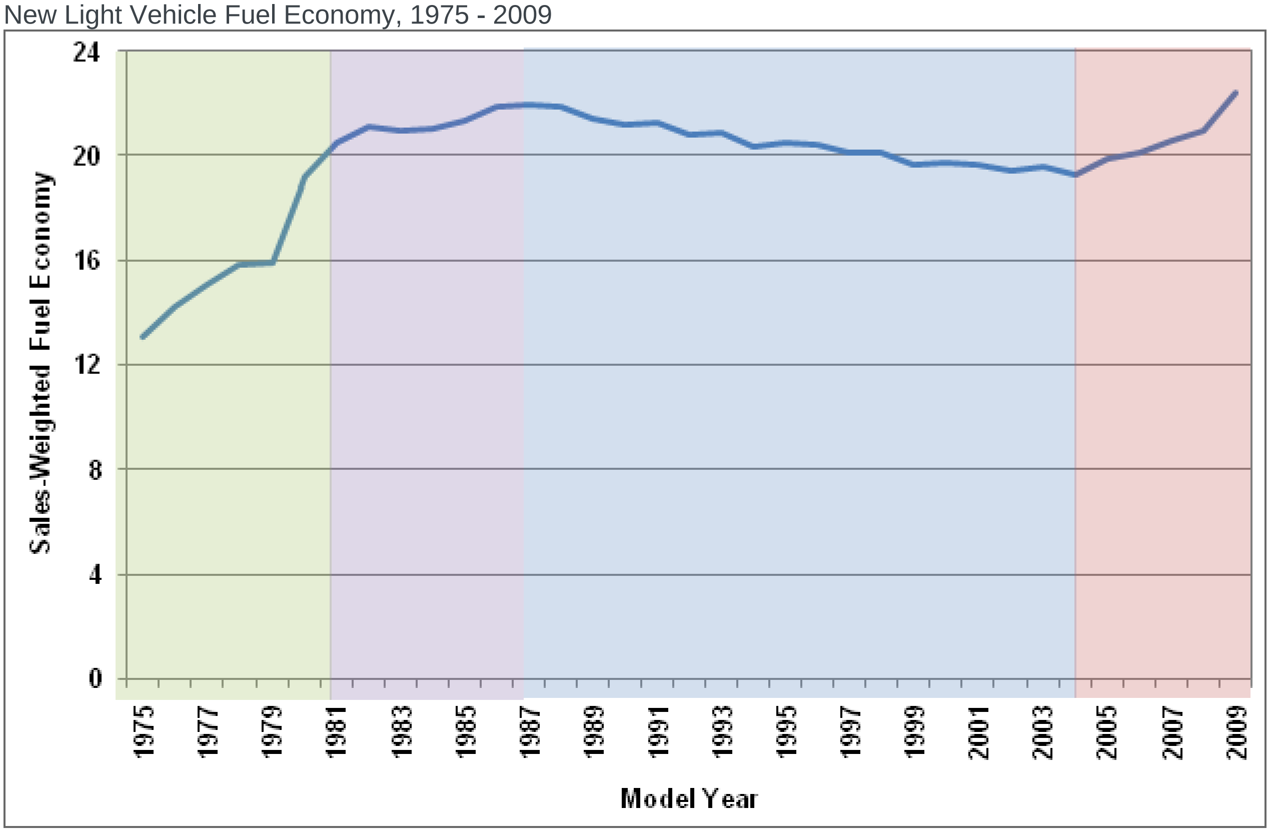
Vehicle Technologies Program

Fact #657: January 10, 2011
Record Increase for New Light Vehicle Fuel Economy

The sales-weighted fuel economy average of all light vehicles sold in model year (MY) 2009 was 1.4 miles per gallon (mpg) higher than MY2008. This is the largest annual increase in fuel economy since the Environmental Protection Agency (EPA) began recording new car fuel economy data in 1975. In addition, the 22.4 mpg average in 2009 is the highest fuel economy in the series, topping the previous high of 22.0 in 1987. According to the EPA, fuel economy has moved through four phases over the years:

- first, a rapid increase in fuel economy from 1975 to 1981;
- second, a slower increase until reaching a peak in 1987;
- third, a gradual decline until 2004; and
- fourth, an increase each year since 2004, with the largest increase in 2009.

New Light Vehicle Fuel Economy, 1975 - 2009



Note: Fuel economy data are EPA adjusted values.

Supporting Information

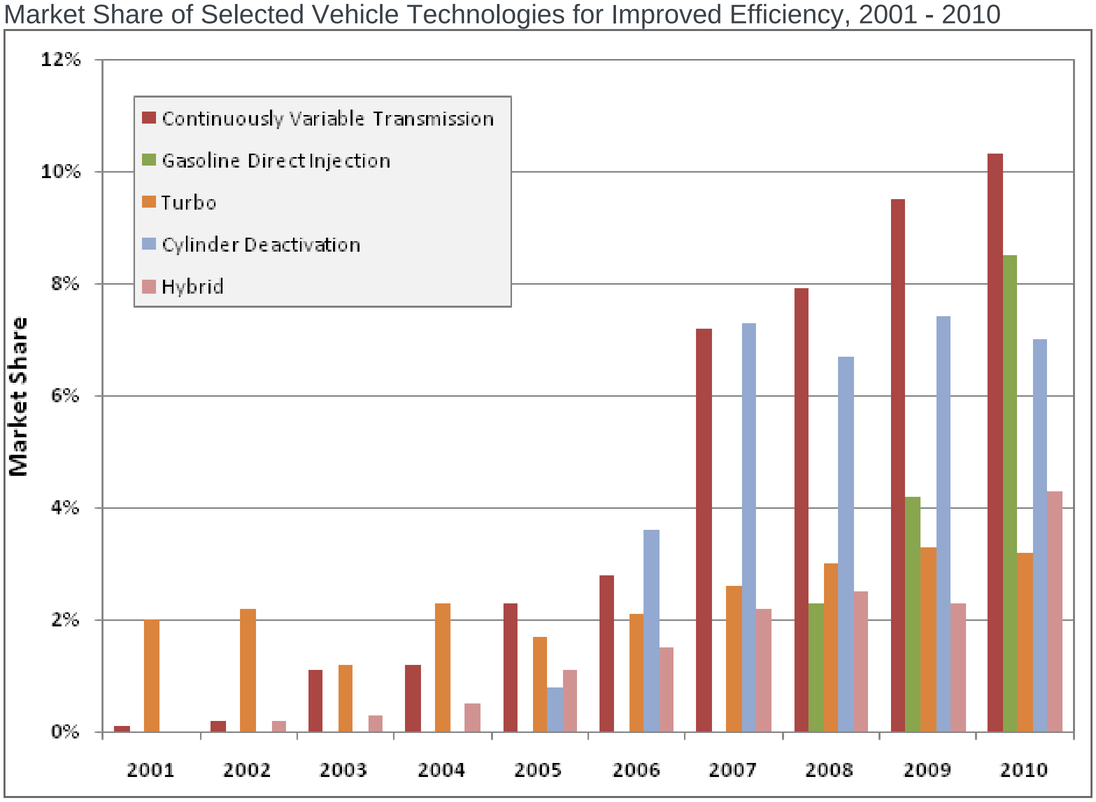
New Light Vehicle Fuel Economy, 1975-2009	
Model Year	**Miles per Gallon**
1975	13.1
1976	14.2
1977	15.1
1978	15.8
1979	15.9
1980	19.2
1981	20.5
1982	21.1
1983	21.0
1984	21.0
1985	21.3
1986	21.8
1987	22.0
1988	21.9
1989	21.4
1990	21.2
1991	21.2
1992	20.8
1993	20.9
1994	20.4
1995	20.5
1996	20.4
1997	20.1
1998	20.1
1999	19.7
2000	19.8
2001	19.6
2002	19.4

New Light Vehicle Fuel Economy, 1975-2009	
Model Year	**Miles per Gallon**
2003	19.6
2004	19.3
2005	19.9
2006	20.1
2007	20.6
2008	21.0
2009	22.4
Note: Fuel economy data are sales-weighted EPA adjusted values. **Source:** EPA, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2010, November 2010*.	

Fact #658: January 17, 2011
Increasing Use of Vehicle Technologies to Meet Fuel Economy Requirements

Vehicle manufacturers are turning to vehicle technologies to improve efficiency and meet strict fuel economy requirements. Over the last 10 years, the use of engine technologies like multi-valves and variable valve timing have become commonplace while other technologies like gasoline direct injection, cylinder deactivation, hybrid drivetrains and continuously variable transmissions have gained market share, particularly in the last 5 years. Though not a new technology, turbochargers have improved in recent years and manufacturers are increasingly viewing them as a way to meet performance requirements with smaller engines. Ford's popular EcoBoost engines use a combination of turbocharging and gasoline direct injection and there are other manufacturers employing this strategy as well.

Market Share of Selected Vehicle Technologies for Improved Efficiency, 2001 - 2010



Source: Environmental Protection Agency, Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2010.

Supporting Information

Leases as a Share of Total U.S. New Vehicle Sales, 2005-2010										
Technology	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Continuously Variable Transmission	0.1%	0.2%	1.1%	1.2%	2.3%	2.8%	7.2%	7.9%	9.5%	10.3%
Gasoline Direct Injection	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	4.2%	8.5%
Turbo	2.0%	2.2%	1.2%	2.3%	1.7%	2.1%	2.6%	3.0%	3.3%	3.2%
Cylinder Deactivation	0.0%	0.0%	0.0%	0.0%	0.8%	3.6%	7.3%	6.7%	7.4%	7.0%
Hybrid	0.0%	0.2%	0.3%	0.5%	1.1%	1.5%	2.2%	2.5%	2.3%	4.3%
Multi-Valve*	49.0%	53.3%	55.5%	62.3%	65.6%	71.7%	71.7%	76.4%	83.6%	86.1%
Variable Valve Timing*	19.6%	25.3%	30.6%	38.5%	45.8%	55.4%	57.3%	58.2%	72.0%	86.4%
*Multi-Valve and Variable Valve Timing not graphed.										

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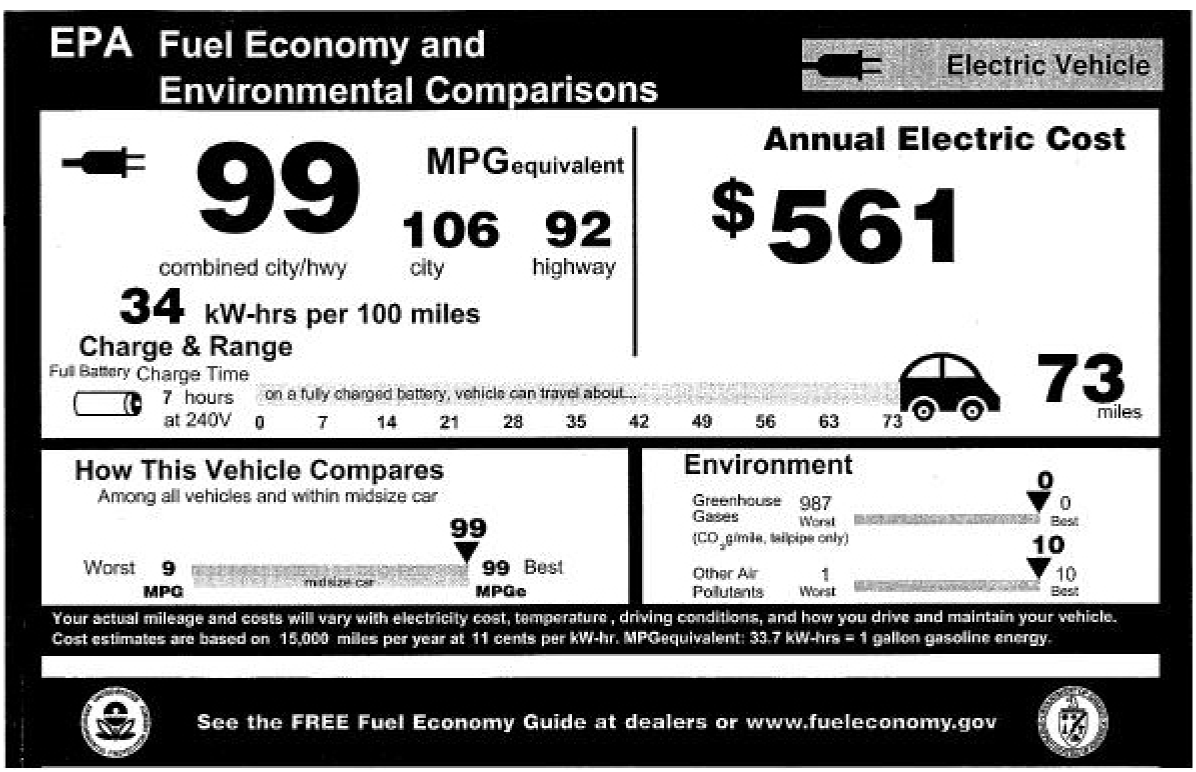
Vehicle Technologies Program

Fact #659: January 24, 2011
Fuel Economy Ratings for Vehicles Operating on Electricity

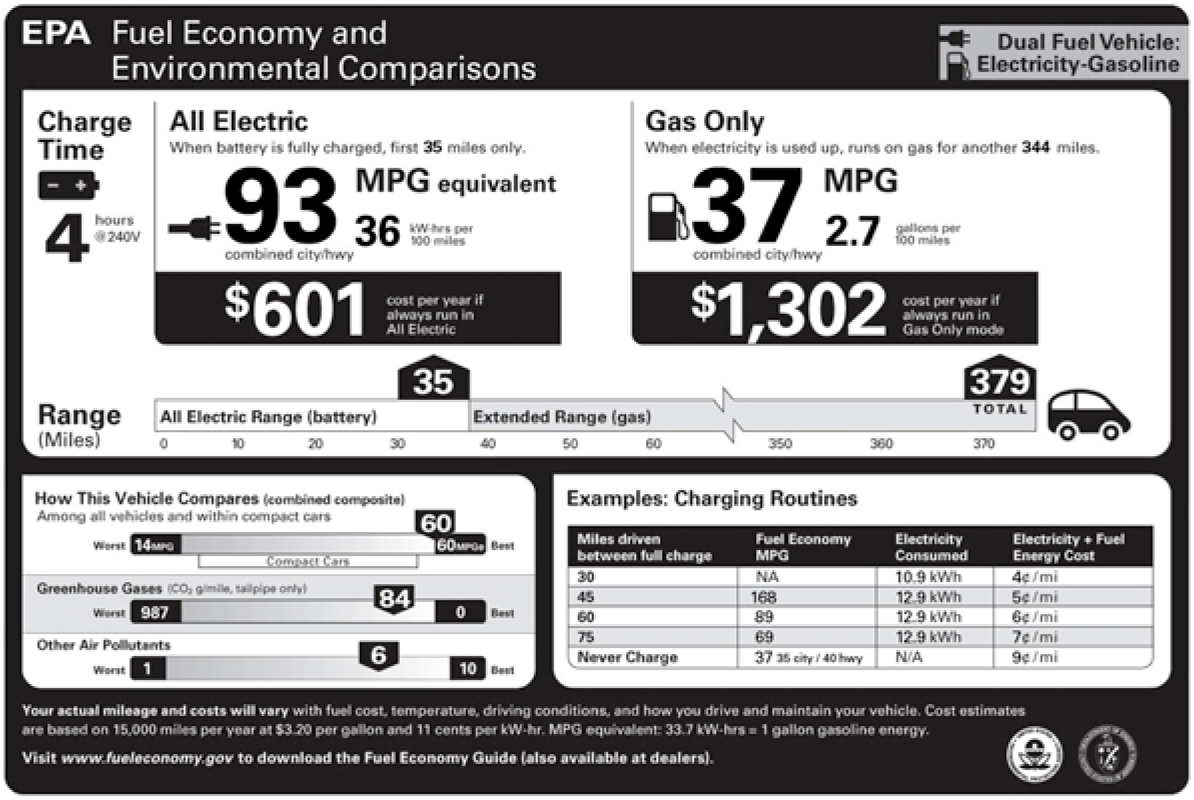
The Environmental Protection Agency has developed a new methodology for determining how fuel economy information will be displayed on the window sticker of a vehicle that operates on electricity. The fuel economy will be displayed in miles per gallon equivalent (MPGequivalent), so that consumers can compare the pure electric operating efficiency against traditional vehicles in the same class. The vehicle's range on electricity will also be displayed on the sticker. The calculation of MPGequivalent is based on 33.7 kilowatt-hours (kW-hrs) of electricity being equivalent to one gallon of gasoline, or 33.7kW-hrs = 1 MPGequivalent. The all-electric Nissan Leaf and the plug-in hybrid-electric Chevrolet Volt are the first two vehicles to use the new window sticker format. The Volt also has a fuel economy for driving in gasoline-only mode, which is measured in the familiar miles per gallon (MPG).

Example Window Stickers for Vehicles Operating on Electricity

Nissan Leaf



Chevy Volt



Supporting Information

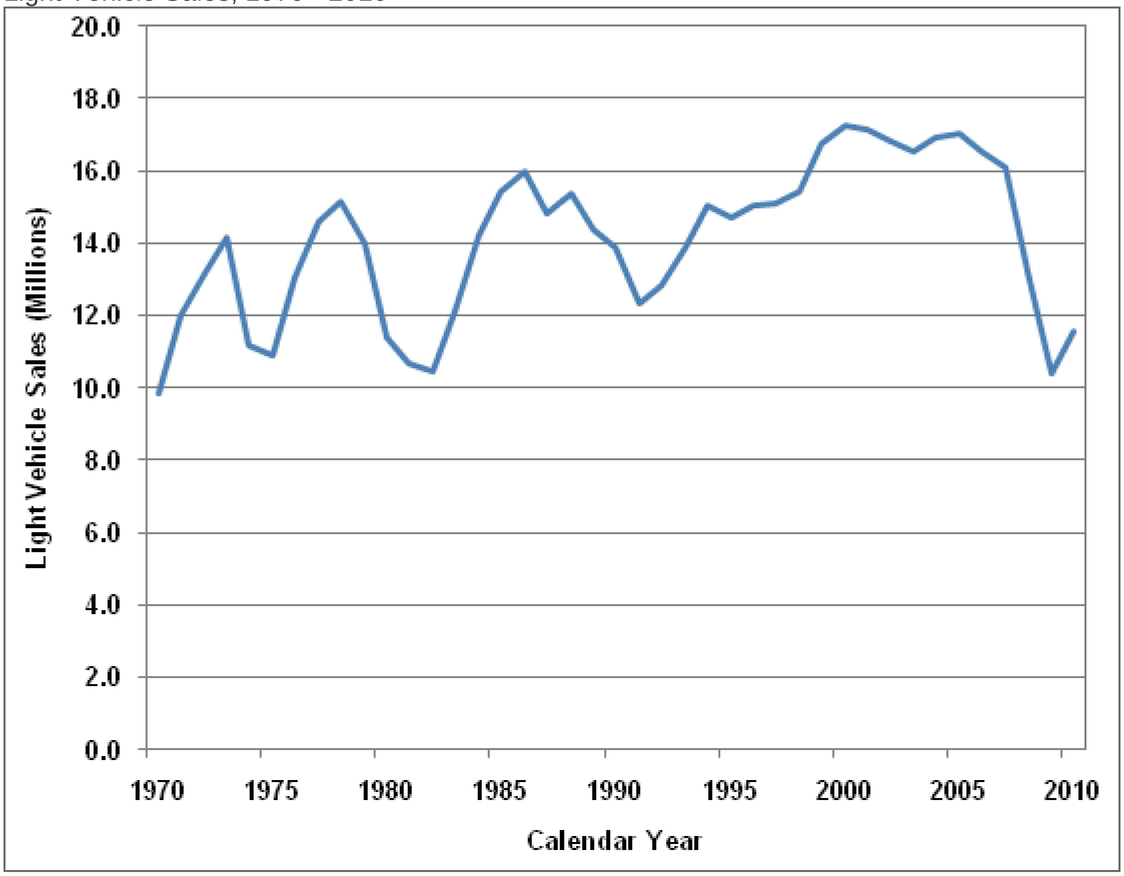
The Nissan Leaf EPA Window Sticker shows 99 MPGequivalent (combined city/highway) and a range of 73 miles. The Chevy Volt EPA Window Sticker shows 93 MPGequivalent (combined city/highway) in all electric mode and 37 MPG in gas only mode. The range of the Chevy Volt is 35 miles on electricity and 379 miles total (combining gasoline and electric range).

Source: U.S. Environmental Protection Agency

Fact #660: January 31, 2011
Light Vehicle Sales Rise in 2010

The total sales of light vehicles (cars and light trucks) in the U.S. have ranged between 10 million and 17 million over the course of the last 40 years. Though the sales have experienced highs and lows over this period, the recent sales plummet from 16.1 million vehicles in 2007 to 10.4 million vehicles in 2009 was the largest drop in the 40 year period with sales reduced to the 1982 level. Light vehicle sales increased to 11.6 million in 2010 (preliminary estimate).

Light Vehicle Sales, 1970 - 2010



Supporting Information

Light Vehicle Sales, 1970-2010				
Calendar Year	Sales (Millions)		Calendar Year	Sales (Millions)
1970	9.9		1990	13.9
1971	12.0		1991	12.3
1972	13.2		1992	12.8
1973	14.2		1993	13.9
1974	11.2		1994	15.0
1975	10.9		1995	14.7
1976	13.1		1996	15.0
1977	14.6		1997	15.1
1978	15.1		1998	15.4
1979	14.0		1999	16.8
1980	11.4		2000	17.2
1981	10.7		2001	17.1
1982	10.4		2002	16.8
1983	12.1		2003	16.5
1984	14.2		2004	16.9
1985	15.4		2005	17.0
1986	16.0		2006	16.5
1987	14.8		2007	16.1
1988	15.3		2008	13.2
1989	14.4		2009	10.4
			2010	11.6

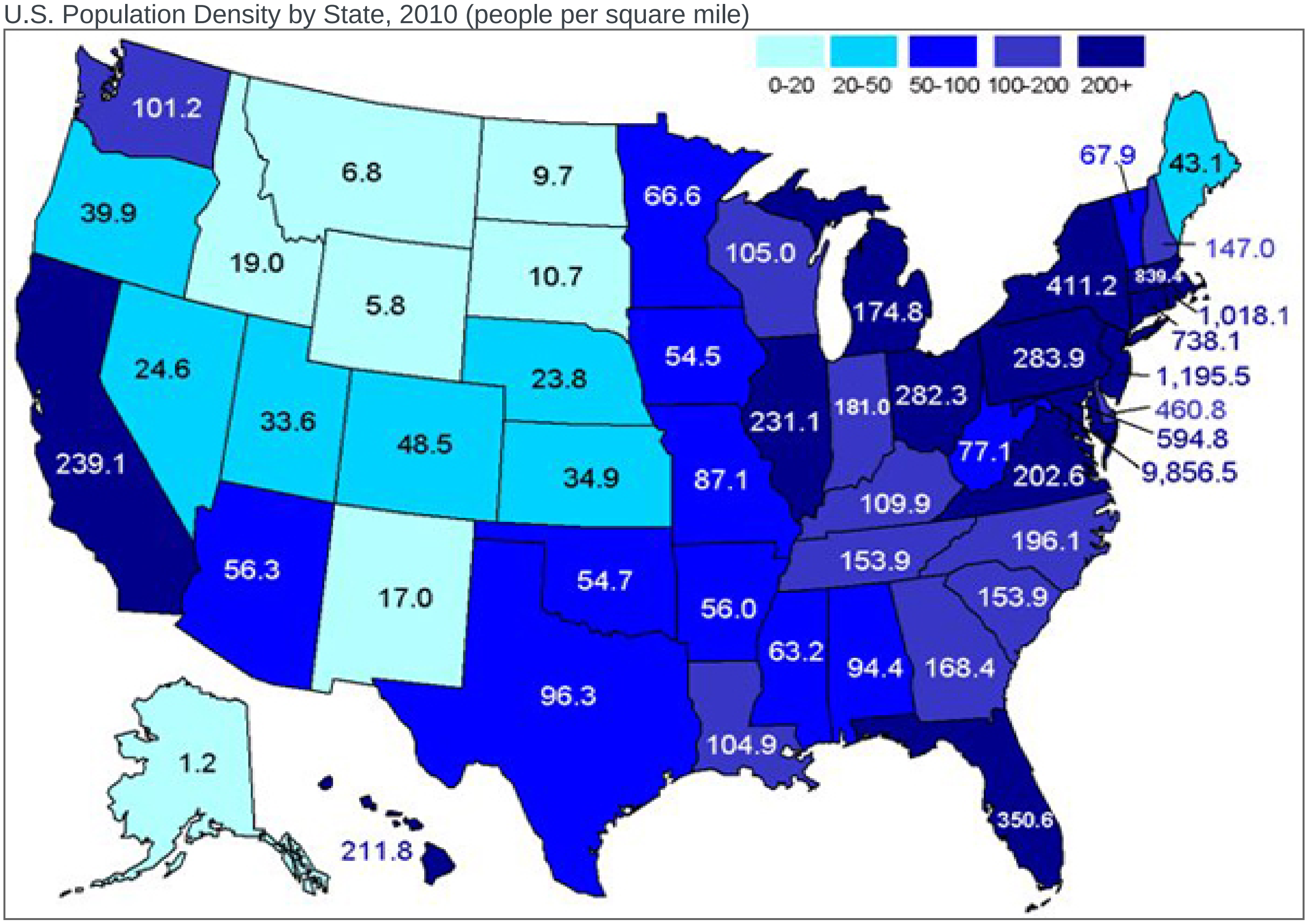
Note: 2010 data are preliminary.

Source: Ward's Autodata.

Fact #661: February 7, 2011
Population Density

The density of the population in the U.S., measured as the number of people per square mile, affects the way goods and people are transported. The newly released 2010 Census data show that, on a state by state basis, the District of Columbia has the most dense population, followed by New Jersey and Rhode Island. In the western states, the population is generally less dense, with the exceptions being California, Hawaii, and Washington. Every state except Michigan experienced increased population density from the 2000 Census to the 2010 Census.

U.S. Population Density by State, 2010 (people per square mile)



Note: Puerto Rico, a U.S. territory, was excluded from this analysis.

Supporting Information

U.S. Population, Population Density, and Rank by State, 2010			
State	Population	Population Density (People per Square Mile)	Population Density Rank
District of Columbia	601,723	9,856.5	1
New Jersey	8,791,894	1,195.5	2
Rhode Island	1,052,567	1,018.1	3
Massachusetts	6,547,629	839.4	4
Connecticut	3,574,097	738.1	5
Maryland	5,773,552	594.8	6
Delaware	897,934	460.8	7
New York	19,378,102	411.2	8
Florida	18,801,310	350.6	9
Pennsylvania	12,702,379	283.9	10
Ohio	11,536,504	282.3	11
California	37,253,956	239.1	12
Illinois	12,830,632	231.1	13
Hawaii	1,360,301	211.8	14
Virginia	8,001,024	202.6	15
North Carolina	9,535,483	196.1	16
Indiana	6,483,802	181.0	17
Michigan	9,883,640	174.8	18
Georgia	9,687,653	168.4	19
Tennessee	6,346,105	153.9	20
South Carolina	4,625,364	153.9	21
New Hampshire	1,316,470	147.0	22
Kentucky	4,339,367	109.9	23
Wisconsin	5,686,986	105.0	24
Louisiana	4,533,372	104.9	25
Washington	6,724,540	101.2	26

U.S. Population, Population Density, and Rank by State, 2010			
State	Population	Population Density (People per Square Mile)	Population Density Rank
Texas	25,145,561	96.3	27
Alabama	4,779,736	94.4	28
Missouri	5,988,927	87.1	29
West Virginia	1,852,994	77.1	30
Vermont	625,741	67.9	31
Minnesota	5,303,925	66.6	32
Mississippi	2,967,297	63.2	33
Arizona	6,392,017	56.3	34
Arkansas	2,915,918	56.0	35
Oklahoma	3,751,351	54.7	36
Iowa	3,046,355	54.5	37
Colorado	5,029,196	48.5	38
Maine	1,328,361	43.1	39
Oregon	3,831,074	39.9	40
Kansas	2,853,118	34.9	41
Utah	2,763,885	33.6	42
Nevada	2,700,551	24.6	43
Nebraska	1,826,341	23.8	44
Idaho	1,567,582	19.0	45
New Mexico	2,059,179	17.0	46
South Dakota	814,180	10.7	47
North Dakota	672,591	9.7	48
Montana	989,415	6.8	49
Wyoming	563,626	5.8	50
Alaska	710,231	1.2	51
United States	308,745,538	87.4	

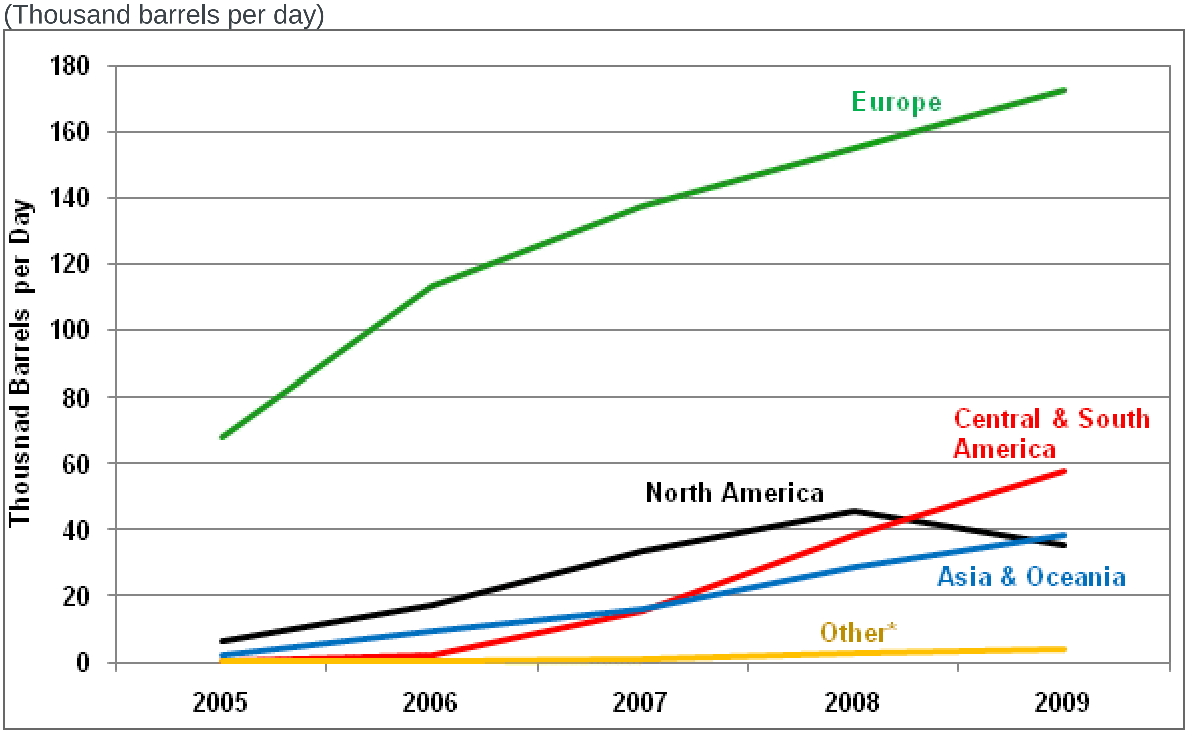
Note: Puerto Rico, a U.S. territory, was excluded from this analysis.

Source: U.S. Bureau of the Census

Fact #662: February 14, 2011
World Biodiesel Production

Europe has been the dominant region for biodiesel production with increased production each year since 2005. North America has been a distant second led by the United States until 2009. In 2009, U.S. biodiesel production fell by over 10 thousand barrels per day while continued growth in Central & South America and Asia & Oceania surpassed North America in production of biodiesel for the first time. The declining biodiesel production in the United States beginning in 2008 is likely due to changes in Federal subsidies for biodiesel as well as changes in foreign trade policy and the downturn of the economy.

World Biodiesel Production by Region and Selected Countries, 2005-2009
(Thousand barrels per day)



Supporting Information

World Biodiesel Production by Region and Selected Countries, 2005-2009 (Thousand barrels per day)					
Region/Country	**2005**	**2006**	**2007**	**2008**	**2009**
North America	6.1	17.1	33.7	45.9	35.2
United States	5.9	16.3	32.0	44.1	32.9
Central & South America	0.5	2.2	15.2	38.6	57.9
Europe	68.1	113.2	137.5	155.0	172.6
Asia & Oceania	2.2	9.1	15.8	28.8	38.5
Other*	0.3	0.3	0.7	2.5	3.9
World	77.2	142.0	202.9	270.9	308.2

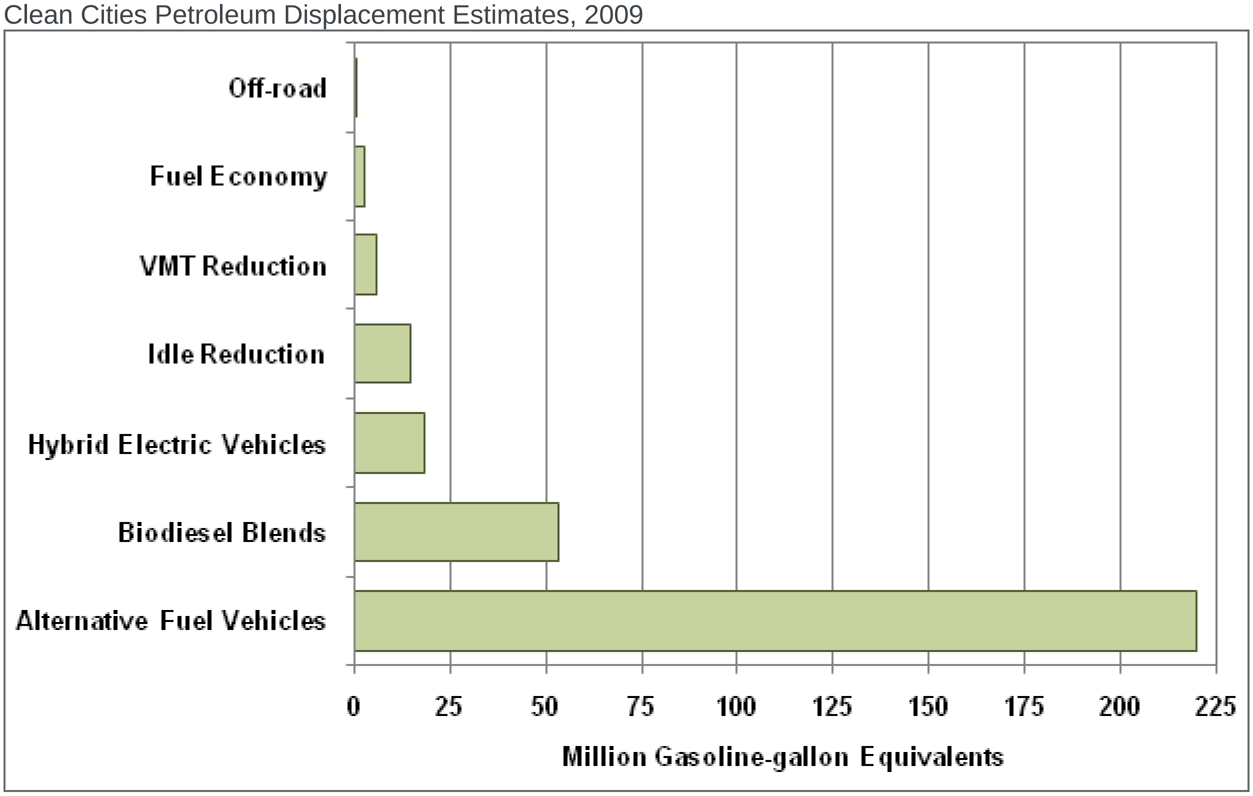
*Other includes Africa, Eurasia and the Middle East.

Source: Energy Information Administration, International Energy Statistics, Biofuels Production. The above table was derived from an interactive table generated on December 9, 2010.

Fact #663: February 21, 2011
Clean Cities Program Petroleum Displacement Estimates for 2009

Each year, estimates are made of the amount of petroleum that is displaced by the efforts of the U.S. Department of Energy's Clean Cities Program. These estimates are based on data provided by Clean Cities Coalition coordinators around the country and serve as an indicator of the impact of the coalitions. According to the program estimates, advancing the role of alternative fuel vehicles had the largest effect on petroleum – 220.1 gasoline-gallon equivalents (GGE), or 69.8% of total displacement. Using biodiesel blends instead of 100% petroleum-based diesel accounted for 53.5 GGEs, which was 17% of petroleum displacement. Other petroleum-saving approaches included using hybrid electric vehicles in the place of traditional vehicles, using idle reduction technologies and programs, vehicle miles of travel (VMT) reduction programs, fuel economy projects, and using alternative fuels in off-road equipment.

Clean Cities Petroleum Displacement Estimates, 2009



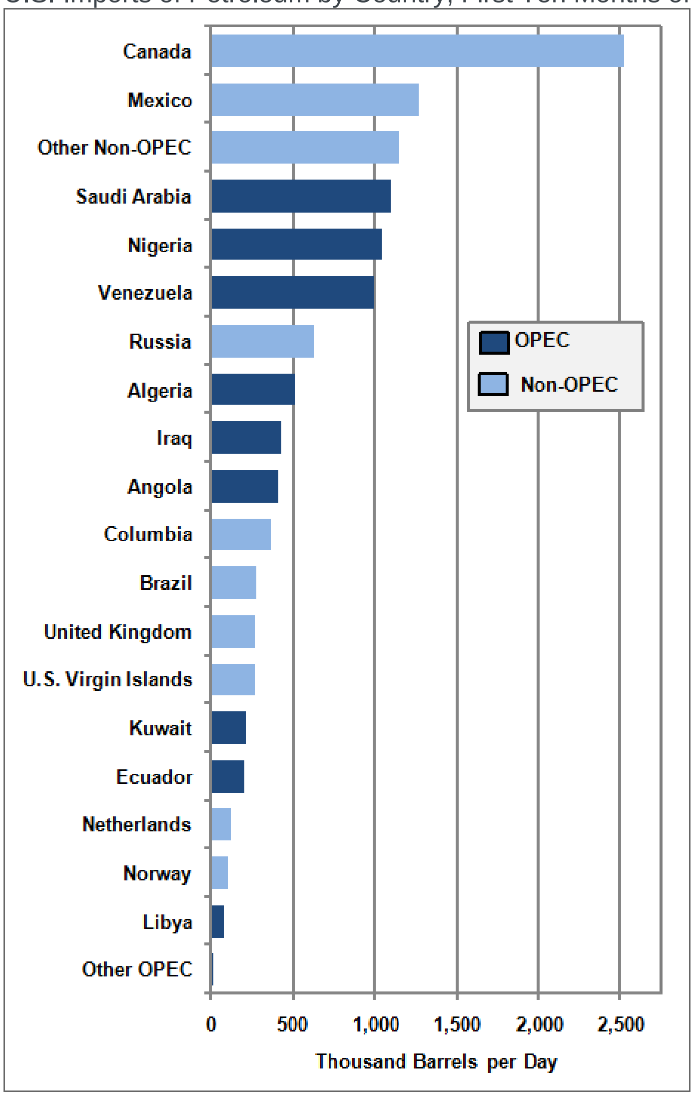
Supporting Information

Clean Cities Petroleum Displacement Estimates by Technology Type, 2009		
Approach	Million Gasoline-gallon Equivalents Displaced	Displacement Share
Using **Alternative Fuels Vehicles** in place of traditional vehicles	220.1	69.8%
Using **Biodiesel Blends** in place of fully petroleum-based fuel	53.5	17.0%
Using **Hybrid Electric Vehicles** in place of traditional vehicles	18.1	5.7%
Idle Reduction technologies and programs, such as truck-stop electrification, onboard idle reduction, and idle reduction policies	14.7	4.7%
VMT Reduction projects such as carpooling, work-from-home, biking, and public transportation	5.7	1.8%
Fuel Economy projects such as low-resistance tires, trailer aerodynamics, and cylinder deactivation	2.6	0.8%
Off-road vehicles, such as forklifts, farm equipment, and recreational equipment, using alternative fuels in place of petroleum-based fuel	0.6	0.2%
Total	315.3	100.0%
Source: National Renewable Energy Laboratory, *Clean Cities Annual Metrics Report 2009*, NREL/TP-7A20-49389, November 2010.		

Fact #664: February 28, 2011
2010 U.S. Petroleum Imports by Country

The U.S. imported almost 12 million barrels per day in 2010, according to data for the first ten months of the year. Canada, Mexico and other non-OPEC countries are the top three places from which the U.S. imported petroleum. Saudi Arabia, Nigeria, and Venezuela – which are all OPEC nations – each provided the U.S. with about one million barrels per day of petroleum. Libya, also part of OPEC, provided the U.S. with only 76 thousand barrels per day.

U.S. Imports of Petroleum by Country, First Ten Months of 2010



Supporting Information

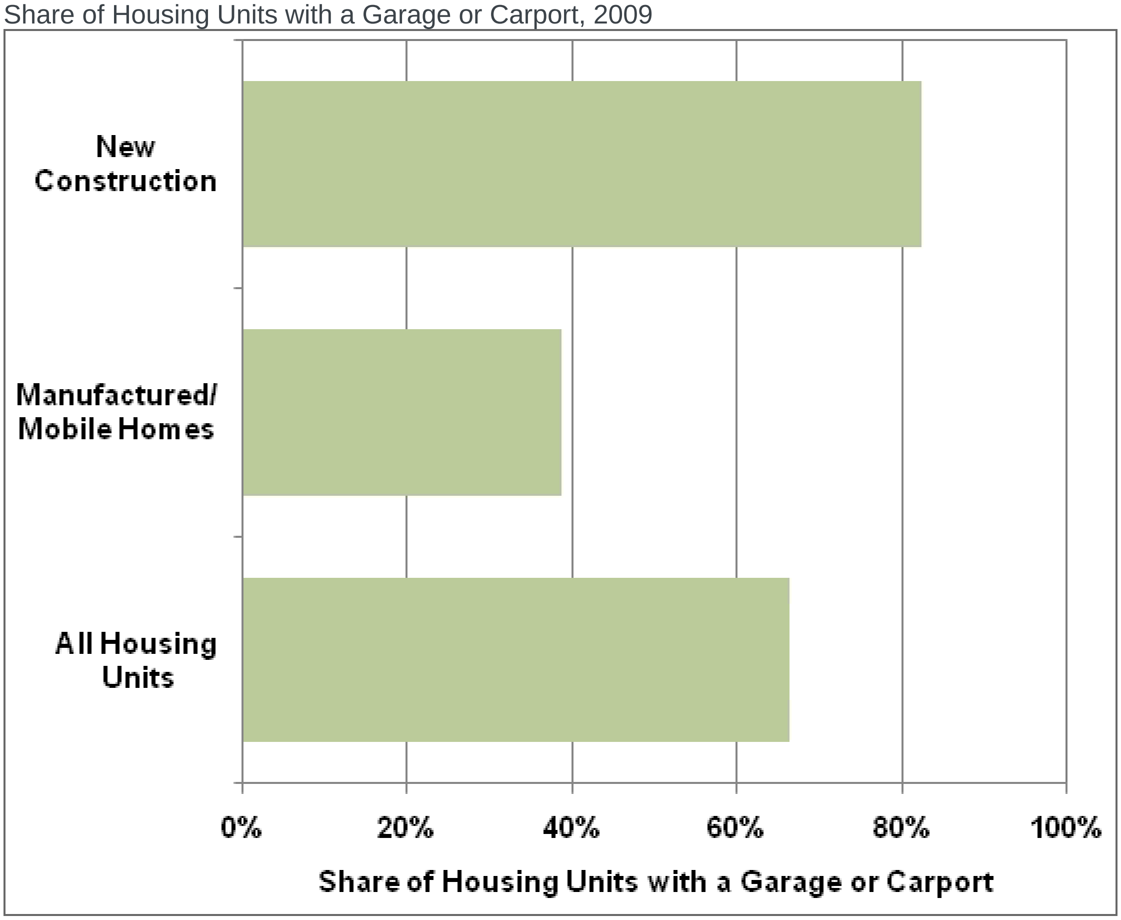
U.S. Petroleum Imports, First Ten Months of 2010 (Thousand Barrels per Day)			
OPEC		**Non-OPEC**	
Algeria	503	Brazil	275
Angola	409	Canada	2,516
Ecuador	198	Columbia	366
Iraq	429	Mexico	1,263
Kuwait	207	Netherlands	117
Libya	76	Norway	97
Nigeria	1,037	Russia	626
Saudi Arabia	1,090	U.S. Virgin Islands	263
Venezuela	998	United Kingdom	265
Other OPEC	3	Other Non-OPEC	1,147
OPEC Average	**4,949**	**Non-OPEC Average**	**6,935**

Source: Energy Information Administration, January 2011 Monthly Energy Review, Table 3.3.

Fact #665: March 7, 2011
Garage Availability for Plug-in Vehicles

According to the 2009 American Housing Survey, two-thirds of all housing units in the U.S. have a garage or carport. The access to electricity that a garage or carport may provide is important for the light vehicle manufacturers who are selling or planning to sell electric vehicles or plug-in hybrid vehicles. The good news for those manufacturers is that 82.3% of newly constructed housing units (4 years old or less) have a garage or carport. Those living in manufactured housing/mobile homes are the least likely to have a garage or carport.

Share of Housing Units with a Garage or Carport, 2009



Note: New construction is any housing unit that is 4 years old or less.
A housing unit is a house, apartment, group of rooms, or single room occupied or intended for occupancy as separate living quarters. Group quarters, such as orphanages, nursing homes, dormitories, and military barracks are not included.

Supporting Information

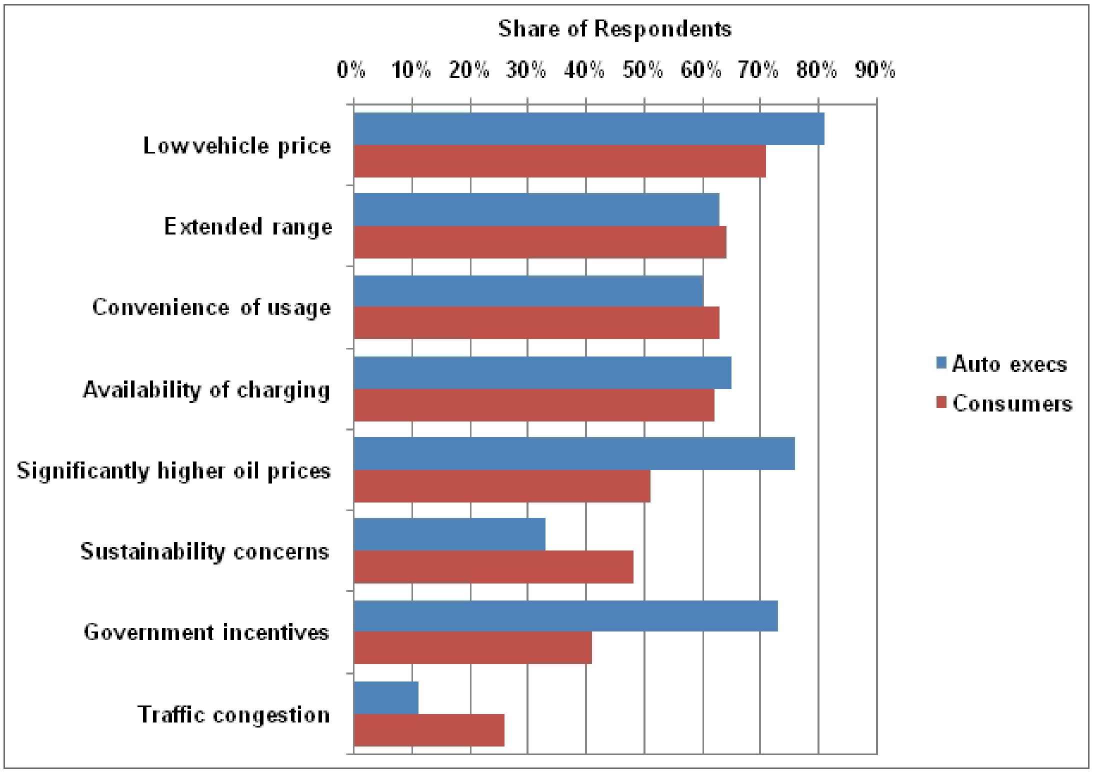
Share of Housing Units with a Garage or Carport, 2009		
	Number of housing units (Millions)	Share of units with a garage or carport
New Construction (4 years old or less)	4.8	82.3%
Manufactured/Mobile Homes	6.8	38.6%
All Housing Units	111.8	66.4%
Source: U.S. Bureau of the Census, 2009 American Housing Survey, Table 2-7.		

Fact #666: March 14, 2011
Survey Says Electric Vehicle Prices Are Key

November/December 2010 surveys of 1,716 drivers and 123 automobile industry executives indicate that both groups believe a low electric vehicle price would motivate consumers to switch from a conventional vehicle to an electric-only vehicle (EV). More than half of the drivers surveyed also indicated that an extended vehicle range, the convenience of usage, and the availability of charging stations would motivate them to purchase an EV. The automobile industry executives however, placed higher emphasis on the price of oil and government incentives, with more than 70% of the executives naming those as important to consumers. Sustainability concerns and traffic congestion were chosen as a motivating factor more often by consumers than by the executives.

Responses to Survey on Electric Vehicles, November/December 2010

Consumers were asked: What would motivate you to switch from using a vehicle that currently runs on gasoline, diesel or hybrid to an electric-only vehicle?
Auto industry executives were shown the same question and asked to rate the importance consumers place on each choice.


Share of Respondents
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
Low vehicle price
Extended range
Convenience of usage
Availability of charging
Significantly higher oil prices
Sustainability concerns
Government incentives
Traffic congestion
Auto execs
Consumers

Supporting Information

Consumers were asked: What would motivate you to switch from using a vehicle that currently runs on gasoline, diesel or hybrid to an electric-only vehicle?

Auto industry executives were shown the same question and asked to rate the importance consumers place on each choice.

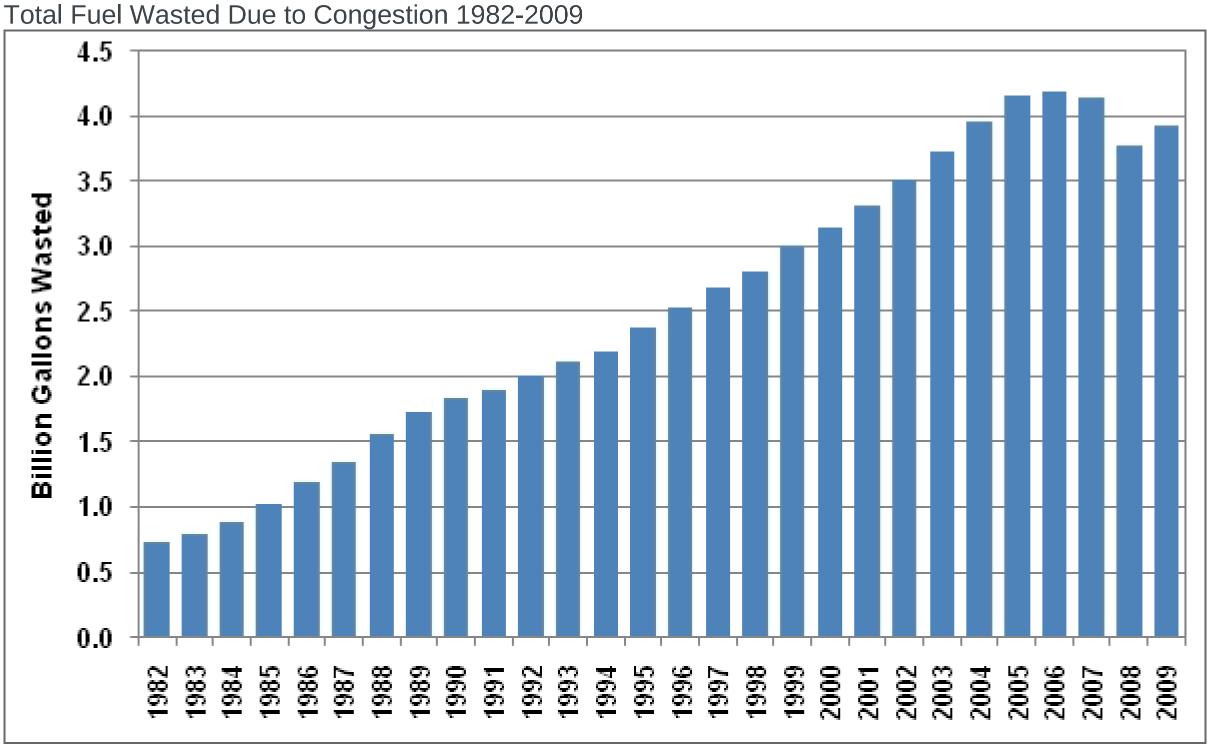
	Consumers	**Auto Executives**
Innovative pricing models or lower price overall	71%	81%
Extended reach or range of the vehicles	64%	63%
Convenience of usage or services	63%	60%
Availability of charging infrastructure	62%	65%
Significantly higher oil prices	51%	76%
Green image or sustainability concerns	48%	33%
Government incentives or regulations	41%	73%
Traffic congestion	26%	11%

Source:
IBM Institute for Business Value, survey of nationally representative sample of 1,716 American drivers, December 2010; and interviews with 123 automobile industry executives, November 2010.

Fact #667: March 21, 2011
Fuel Wasted in Traffic Congestion

The researchers at the Texas Transportation Institute have recently published new estimates of the effects of traffic congestion. The trend toward increased congestion eased in 2007 and 2008 with the downturn in the economy but began to rise again in 2009 along with economic activity. In 2009, nearly 4 billion gallons of fuel were wasted due to traffic congestion; up 160 million gallons from 2008 but still lower than the peak of 4.4 billion gallons wasted in 2006.

Total Fuel Wasted Due to Congestion 1982-2009



Supporting Information

Total Fuel Wasted Due to Congestion, 1982-2009			
Year	Fuel Wasted (Billion gallons)	Year	Fuel Wasted (Billion gallons)
1982	0.73	1996	2.53
1983	0.80	1997	2.68
1984	0.88	1998	2.81
1985	1.03	1999	3.01
1986	1.20	2000	3.15
1987	1.35	2001	3.31
1988	1.56	2002	3.51
1989	1.73	2003	3.72
1990	1.84	2004	3.95
1991	1.90	2005	4.15
1992	2.01	2006	4.19
1993	2.11	2007	4.14
1994	2.19	2008	3.77
1995	2.37	2009	3.93

Source: Texas Transportation Institute, *2010 Urban Mobility Report*, December 2010.

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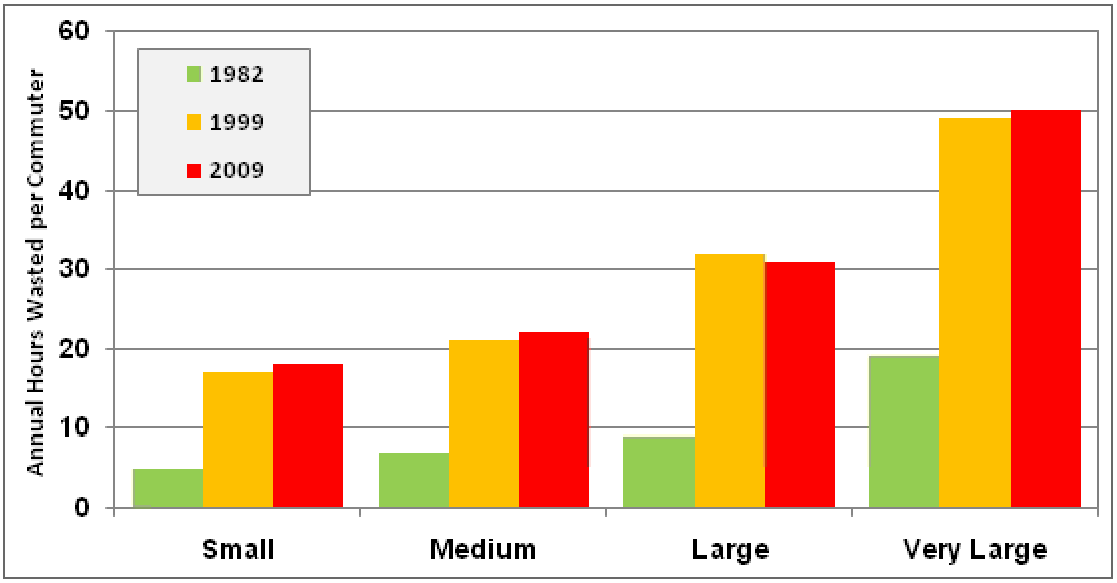
Vehicle Technologies Program

Fact #668: March 28, 2011
Time Wasted Due to Traffic Congestion

According to the Texas Transportation Institute's latest study on traffic congestion, all urban areas have experienced increased congestion in the seventeen-year period from 1982 to 2009, but congestion has changed little from 1999 to 2009. As expected, traffic congestion is worse in very large urban areas, but congestion has grown in small areas, too. The amount of time commuters in private vehicles waste due to congestion has more than doubled from 1982 to 2009 for each of the urban areas shown.

Average Annual Hours Wasted Per Commuter Due to Congestion by Urban Area Size Category, 1982, 1999 and 2009



Note:
For commuters in private vehicles.

Definitions:
Small Urban Areas – Less than 500,000 population.
Medium Urban Areas – Over 500,000 but less than 1 million population.
Large Urban Areas – Over 1 million and less than 3 million population.
Very Large Urban Areas – Over 3 million population.

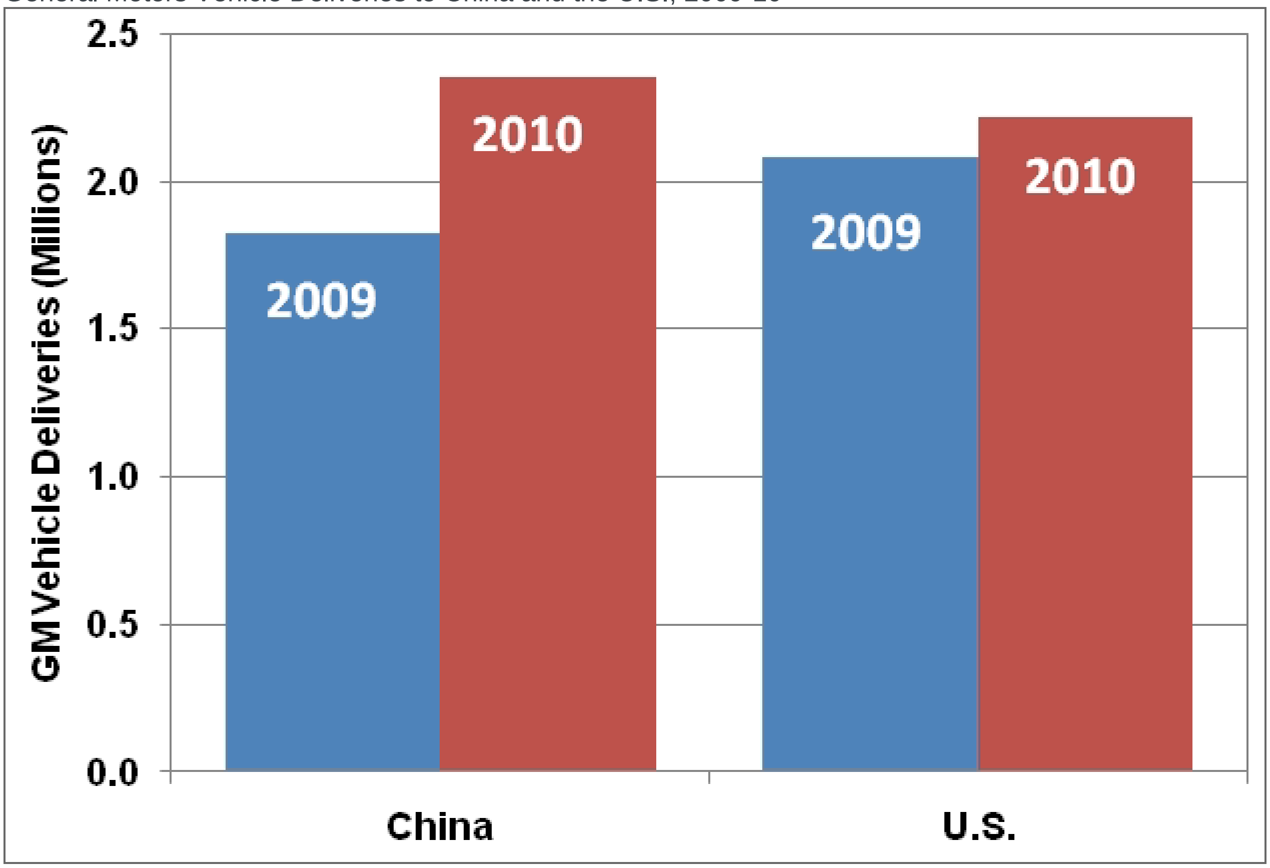
Supporting Information

Average Annual Hours Wasted Per Commuter Due to Congestion by Urban Area Size Category, 1982, 1999 and 2009			
Urban Area	**1982**	**1999**	**2009**
Small	5	17	18
Medium	7	21	22
Large	9	32	31
Very Large	19	49	50
Source: Texas Transportation Institute, *2010 Urban Mobility Report*, December 2010.			

Fact #669: April 4, 2011
GM Sells More Vehicles in China than in the U.S.

For the first time ever, General Motors (GM) sold more cars and trucks in China than in the United States. The demand in China grew by 29% from 2009 to 2010, while demand in the U.S. grew 6%. These data include cars, light trucks, and heavy trucks.

General Motors Vehicle Deliveries to China and the U.S., 2009-10



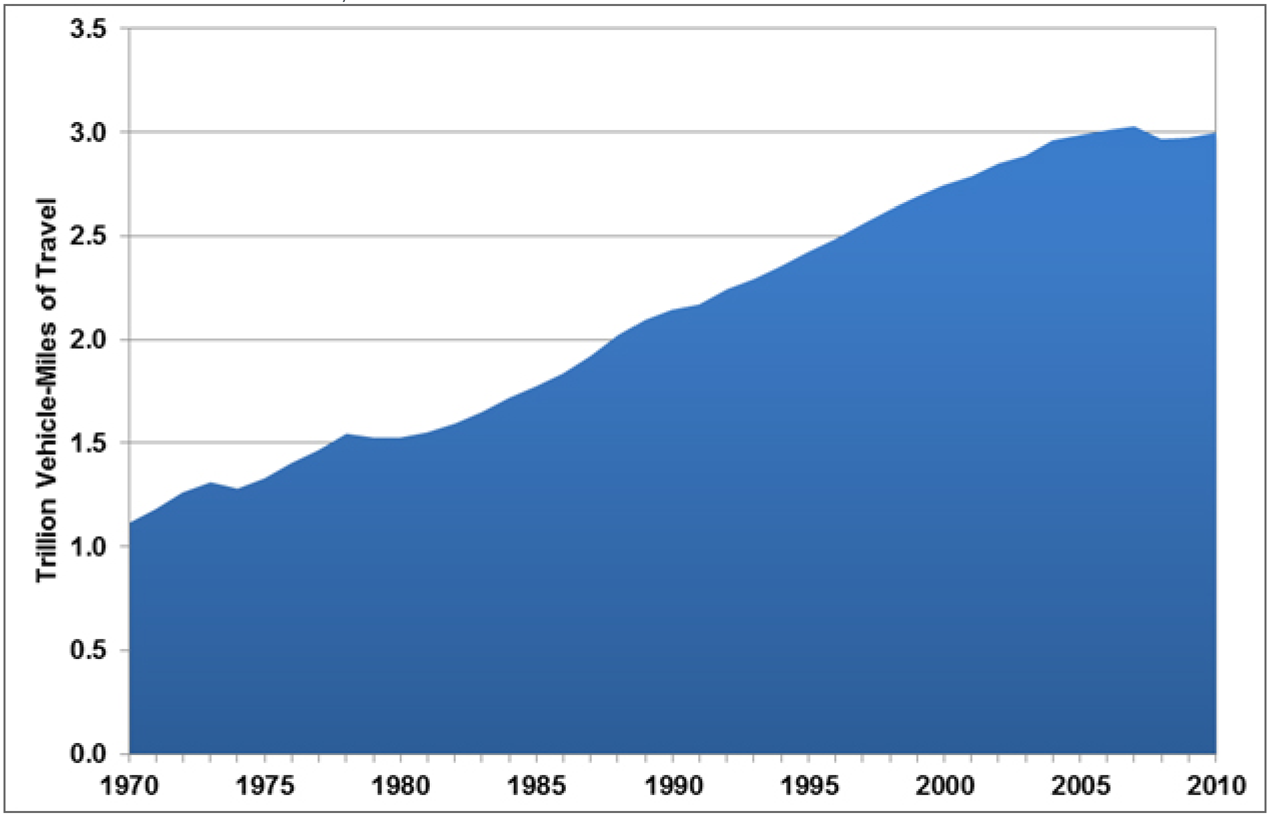
Supporting Information

General Motors Vehicle Deliveries to China and the U.S., 2009-10			
	2009 (Million Vehicles)	**2010 (Million Vehicles)**	**Percent Change**
China	1.83	2.35	29%
U.S.	2.08	2.22	6%
Source: USA Today, "GM sells more vehicle in China than in U.S.," January 24, 2011. [Original data source: General Motors.]			

Fact #670: April 11, 2011
Vehicle-Miles of Travel Rises in 2010

The preliminary estimates from the Federal Highway Administration show that vehicle-miles of travel (VMT) increased slightly in 2010 over the previous year, but have not surpassed the peak of 3.03 trillion miles in 2007. Total U.S. VMT declined during the economic downturns in the mid-70's, early 80's, and in 2008.

Total Vehicle-Miles of Travel, 1970 - 2010



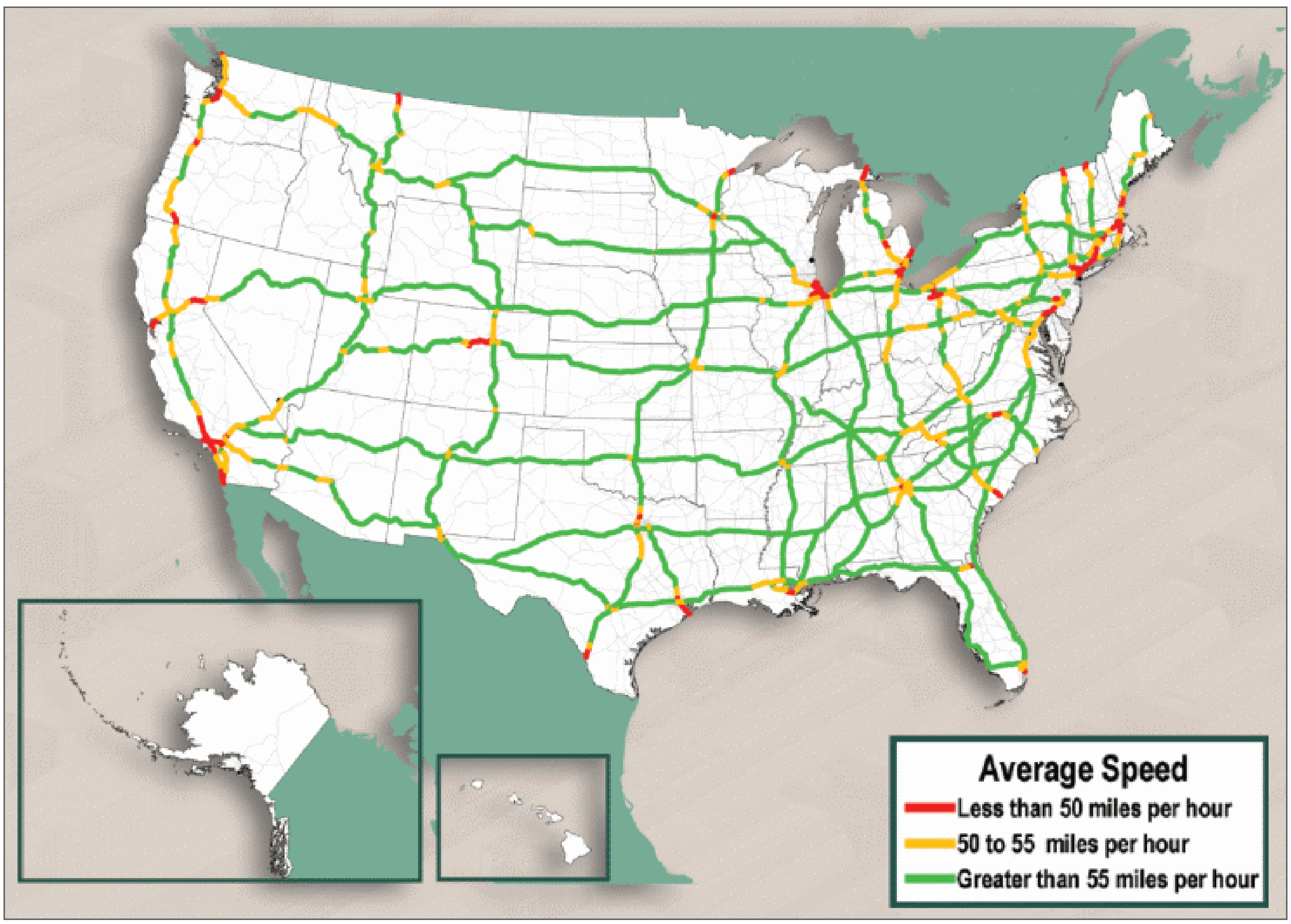
Supporting Information

Total Vehicle-Miles of Travel, 1970-2010				
Year	Trillion Miles		Year	Trillion Miles
1970	1.11		1991	2.17
1971	1.18		1992	2.25
1972	1.26		1993	2.30
1973	1.31		1994	2.36
1974	1.28		1995	2.42
1975	1.33		1996	2.49
1976	1.40		1997	2.56
1977	1.47		1998	2.63
1978	1.54		1999	2.69
1979	1.53		2000	2.75
1980	1.53		2001	2.79
1981	1.56		2002	2.86
1982	1.60		2003	2.89
1983	1.65		2004	2.96
1984	1.72		2005	2.99
1985	1.77		2006	3.01
1986	1.83		2007	3.03
1987	1.92		2008	2.97
1988	2.03		2009	2.98
1989	2.10		2010	3.00
1990	2.14			

Sources: 1970-2008: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Series*.
2009-2010: U.S. Department of Transportation, Federal Highway Administration, Traffic Volume Trends.

Fact #671: April 18, 2011
Average Truck Speeds

The Federal Highway Administration studies traffic volume and flow on major truck routes by tracking more than 500,000 trucks. The average speed of trucks on selected interstate highways is between 50 and 60 miles per hour (mph). The average operating speed of trucks is typically below 55 mph in major urban areas, border crossings, and in mountainous terrain. The difference in average speed between peak traffic times and non-peak hours can be as much as 1.5 mph (I-45) or as little as 0.2 mph (I-81).



Supporting Information

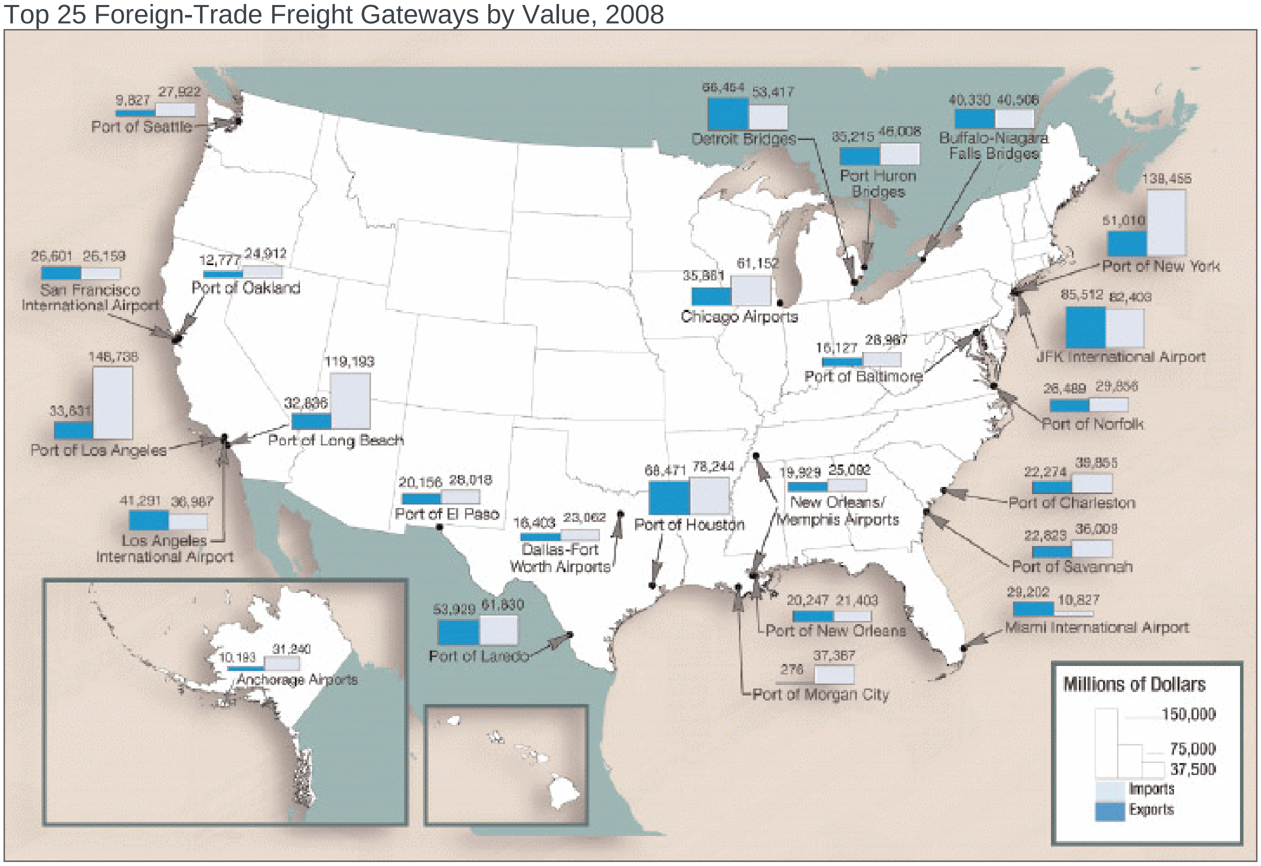
Average Truck Speeds on Selected Interstate Highways				
Interstate Route	Average Operating Speed	Peak Period Average Speed	Non-Peak Period Average Speed	Difference between Non-peak and Peak Speeds
	(Miles per Hour)			
5	52.8	52.0	53.1	1.1
10	57.4	56.7	57.6	0.9
15	56.7	56.2	56.9	0.7
20	59.2	58.8	59.3	0.5
24	57.2	56.6	57.4	0.8
25	58.9	58.5	59.3	0.8
26	53.7	53.3	54.6	1.3
35	56.8	55.9	57.0	1.1
40	58.6	58.3	58.8	0.5
45	54.9	53.9	55.4	1.5
55	57.0	56.8	57.2	0.4
65	57.9	57.3	58.2	0.9
70	56.8	56.5	57.1	0.6
75	56.7	56.1	57.0	0.9
76	54.5	54.5	54.8	0.3
77	54.7	54.3	55.1	0.8
80	57.7	57.4	57.9	0.5
81	56.6	56.6	56.8	0.2
84	54.2	53.3	54.8	1.5
85	57.3	56.5	57.4	0.9

Average Truck Speeds on Selected Interstate Highways				
Interstate Route	Average Operating Speed	Peak Period Average Speed	Non-Peak Period Average Speed	Difference between Non-peak and Peak Speeds
	(Miles per Hour)			
87	54.1	53.8	54.5	0.7
90	57.1	56.8	57.4	0.6
91	53.4	52.9	54.2	1.3
94	56.7	56.2	56.8	0.6
95	56.2	55.2	56.3	1.1
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Facts and Figures 2010, Figure 3-13 and Table 3-8.				

Fact #672: April 25, 2011
Freight Gateways in the U.S.

The top 25 places (in terms of freight value) that freight is shipped into and out of the U.S. are listed on the map below. Import values are shown by the gray bar, while export values are shown by the blue bar. Of the top 25 places, twelve are water ports, five are land-border crossings, and eight are air gateways. In most cases, the value of the imports exceeds the exports.

Top 25 Foreign-Trade Freight Gateways by Value, 2008



Supporting Information

Top 25 Foreign-Trade Gateways by Value, 2008					
Gateway Route	Type	Rank	Exports	Imports	Total
			(Billion U.S. Dollars)		
New York, NY	Water	1	51	138.5	189.5
Los Angeles, CA	Water	2	33.6	148.7	182.4
John F. Kennedy International, NY	Air	3	85.5	82.4	167.9
Long Beach, CA	Water	4	32.8	119.2	152
Houston, TX	Water	5	68.5	78.2	146.7
Detroit, MI	Land	6	66.5	53.7	120.2
Laredo, TX	Land	7	53.9	61.8	115.8
Chicago, IL	Air	8	35.9	61.2	97
Port Huron, MI	Land	9	35.2	46	81.2
Buffalo-Niagara Falls, NY	Land	10	40.3	40.5	80.8
Los Angeles International, CA	Air	11	41.3	37	78.3
Charleston, SC	Water	12	22.3	39.9	62.1
Savannah, GA	Water	13	22.8	36	58.8
Norfolk, VA	Water	14	26.5	29.9	56.3
San Francisco International, CA	Air	15	26.6	26.2	52.8
El Paso, TX	Land	16	20.2	28	48.2
Baltimore, MD	Water	17	16.1	29	45.1
New Orleans, LA	Air	18	19.9	25.1	45
New Orleans, LA	Water	19	20.2	21.4	41.7
Anchorage, AK	Air	20	10.2	31.2	41.4
Miami International, FL	Air	21	29.2	10.8	40
Dallas-Fort Worth, TX	Air	22	16.4	23.1	39.5
Seattle, WA	Water	23	9.8	27.9	37.7

Top 25 Foreign-Trade Gateways by Value, 2008					
Gateway Route			Exports	Imports	Total
	Type	Rank	(Billion U.S. Dollars)		
Oakland, CA	Water	24	12.8	24.9	37.7
Morgan City, LA	Water	25	0.3	37.4	37.7

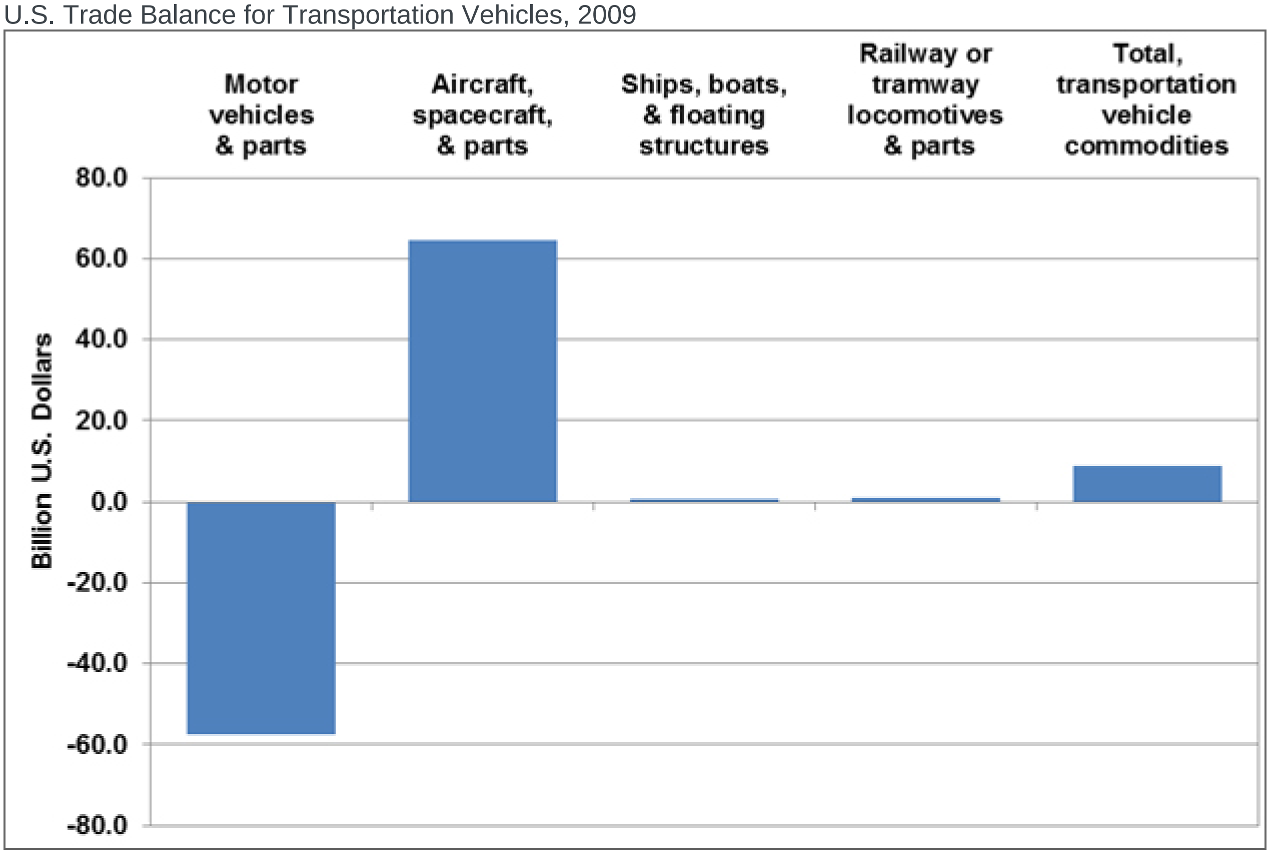
Notes: Data for all air gateways include a low level (generally less than 2%-3% of the total value) of small user-fee airports located in the same region. Air gateways not identified by airport name (e.g., Chicago, IL, and others) include major airport(s) in that geographic area in addition to small regional airports. Due to Census Bureau confidentiality regulations, data for courier operations are included in the airport totals for JFK International Airport, New Orleans, Los Angeles, Cleveland, Chicago, Miami, and Anchorage.

Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, *Freight Facts and Figures 2010*, Figure 2-2.

Fact #673: May 2, 2011
U.S. Trade Balance for Transportation Vehicles

Motor vehicles, aircraft, ships, and rail locomotives are imported to and exported from the U.S. The trade balance (exports minus imports) shows that the U.S. imports more motor vehicles and parts than it exports. However, aircraft, spacecraft, and parts are exported more often than imported. Comparatively few water and rail vehicles are traded, thus the trade balance for those modes is small. Transportation vehicles make up 12% of the total of all commodities traded.

U.S. Trade Balance for Transportation Vehicles, 2009



Supporting Information

U.S. Trade in Transportation Vehicle Commodities, 2009 (Billion U.S. dollars)				
	Exports	Imports	Total Trade	Trade Balance
Motor vehicles & parts	73.6	131.1	204.7	-57.5
Aircraft, spacecraft, & parts	83.0	18.3	101.3	64.6
Ships, boats, & floating structures	2.0	1.3	3.3	0.8
Railway or tramway locomotives & parts	2.2	1.3	3.5	1.0
Total, transportation vehicle commodities	160.8	151.9	312.8	8.9
Total, all commodities	1,056.9	1,557.9	2,614.8	-500.9
Vehicle commodities share of trade	15.2%	9.8%	12.0%	1.8%

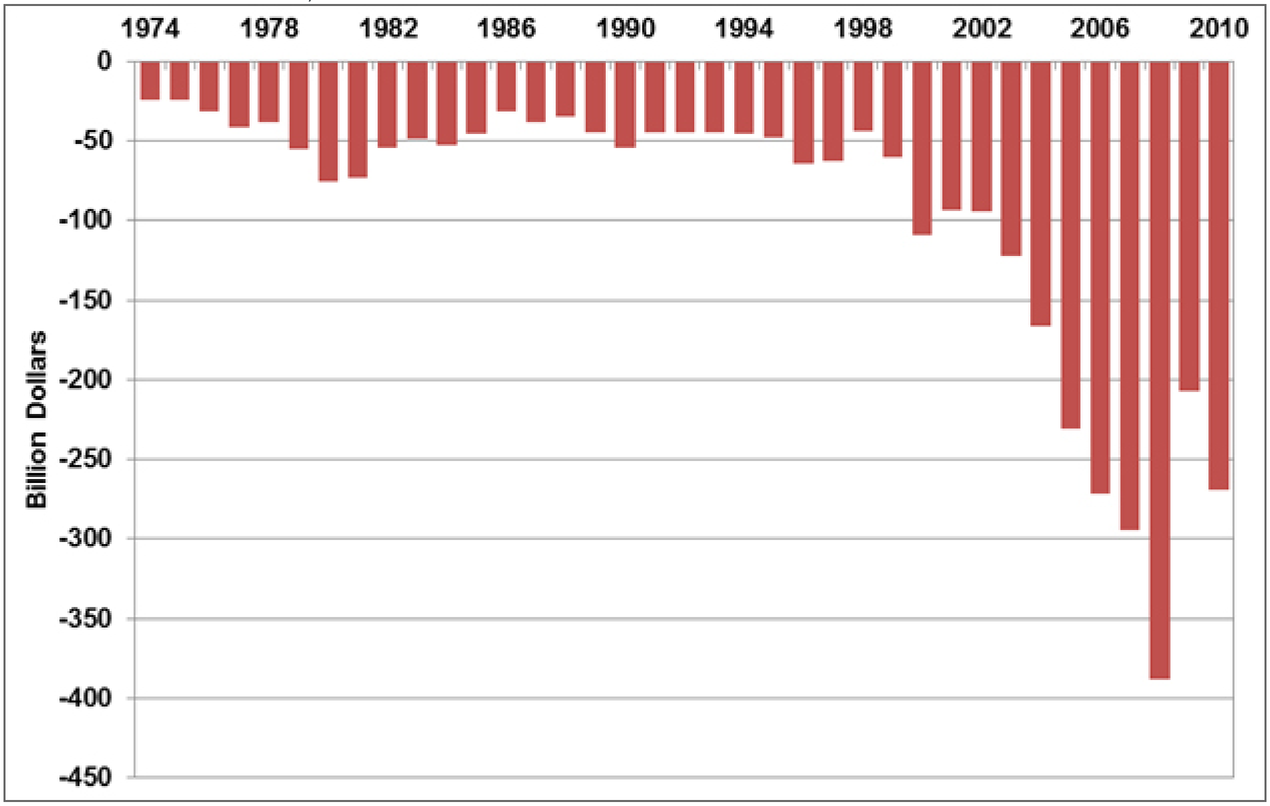
Note: Total trade = exports plus imports. Trade Balance = exports minus imports.

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, Pocket Guide to Transportation, 2011, Table 4-5.

Fact #674: May 9, 2011
Petroleum Trade Balance

The trade balance (exports minus imports) for petroleum has been negative for more than a quarter of a century, meaning that the U.S. imports more petroleum than it exports. The largest petroleum trade deficit was in 2008, when the U.S. imported $449.8 billion and exported only $61.6 billion.

Petroleum Trade Balance, 1970-2010



Note: Trade balance = exports minus imports. Includes crude oil, petroleum preparations, liquefied propane and butane, and other mineral fuels.

Supporting Information

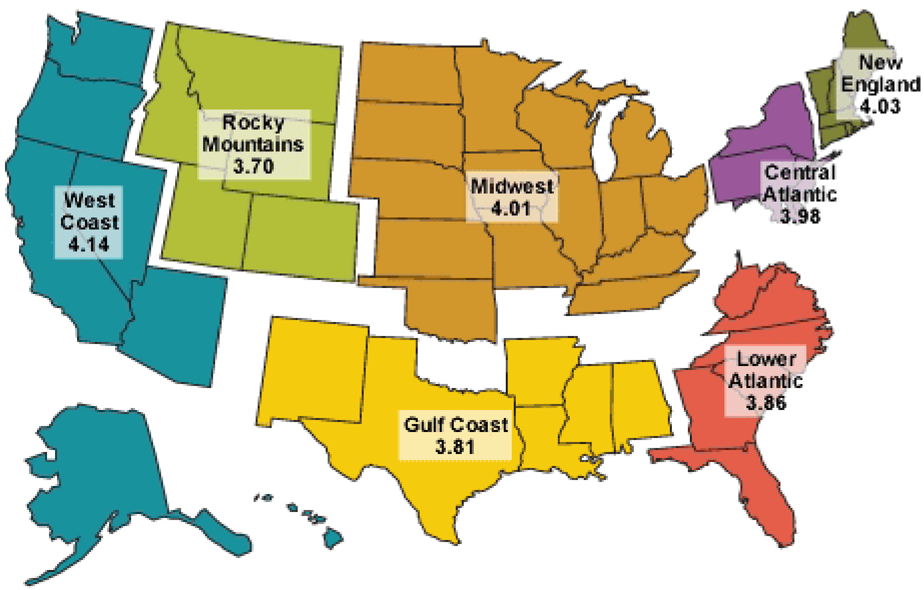
Petroleum Exports, Imports, and Trade Balance, 1970-2010			
Year Route	Petroleum Exports	Petroleum Imports	Petroleum Balance
	(Billion Dollars)		
1974	0.792	24.668	-23.876
1975	0.907	25.197	-24.289
1976	0.998	32.226	-31.228
1977	1.276	42.368	-41.093
1978	1.561	39.526	-37.965
1979	1.914	56.715	-54.801
1980	2.833	78.637	-75.803
1981	3.696	76.659	-72.963
1982	5.947	60.458	-54.511
1983	4.557	53.217	-48.659
1984	4.470	56.924	-52.454
1985	4.707	50.475	-45.768
1986	3.640	35.142	-31.503
1987	3.922	42.285	-38.363
1988	3.693	38.787	-35.094
1989	5.021	49.704	-44.683
1990	6.901	61.583	-54.682
1991	6.954	51.350	-44.396
1992	6.412	51.217	-44.805
1993	6.215	51.046	-44.831
1994	5.659	50.835	-45.176
1995	6.321	54.368	-48.047
1996	7.984	72.022	-64.038
1997	8.592	71.152	-62.560
1998	6.574	50.264	-43.690
1999	7.118	67.173	-60.055

Petroleum Exports, Imports, and Trade Balance, 1970-2010			
Year Route	**Petroleum Exports**	**Petroleum Imports**	**Petroleum Balance**
	(Billion Dollars)		
2000	10.192	119.251	-109.059
2001	8.868	102.747	-93.879
2002	8.569	102.663	-94.094
2003	10.209	132.433	-122.224
2004	13.130	179.266	-166.136
2005	19.155	250.068	-230.913
2006	28.171	299.714	-271.543
2007	33.293	327.620	-294.327
2008	61.695	449.847	-388.152
2009	44.509	251.833	-207.324
2010	64.540	333.354	-268.814
Source: U.S. Department of Energy, Energy Information Administration, Monthly Energy Review, Table 1.5.			

Fact #675: May 16, 2011
Gasoline Prices by Region, May 2, 2011

The West Coast region paid the highest prices for gasoline averaging $4.14 for a gallon of regular gasoline while the Rocky Mountain region paid the least at $3.70 per gallon. The southern states, including the Gulf Coast Region and the Lower Atlantic region, paid less than the states in the Midwest, Central Atlantic and New England regions where gasoline was about $4.00 per gallon.

Regular grade gasoline prices at retail outlets by region for May 2, 2011 (dollars per gallon, including taxes)



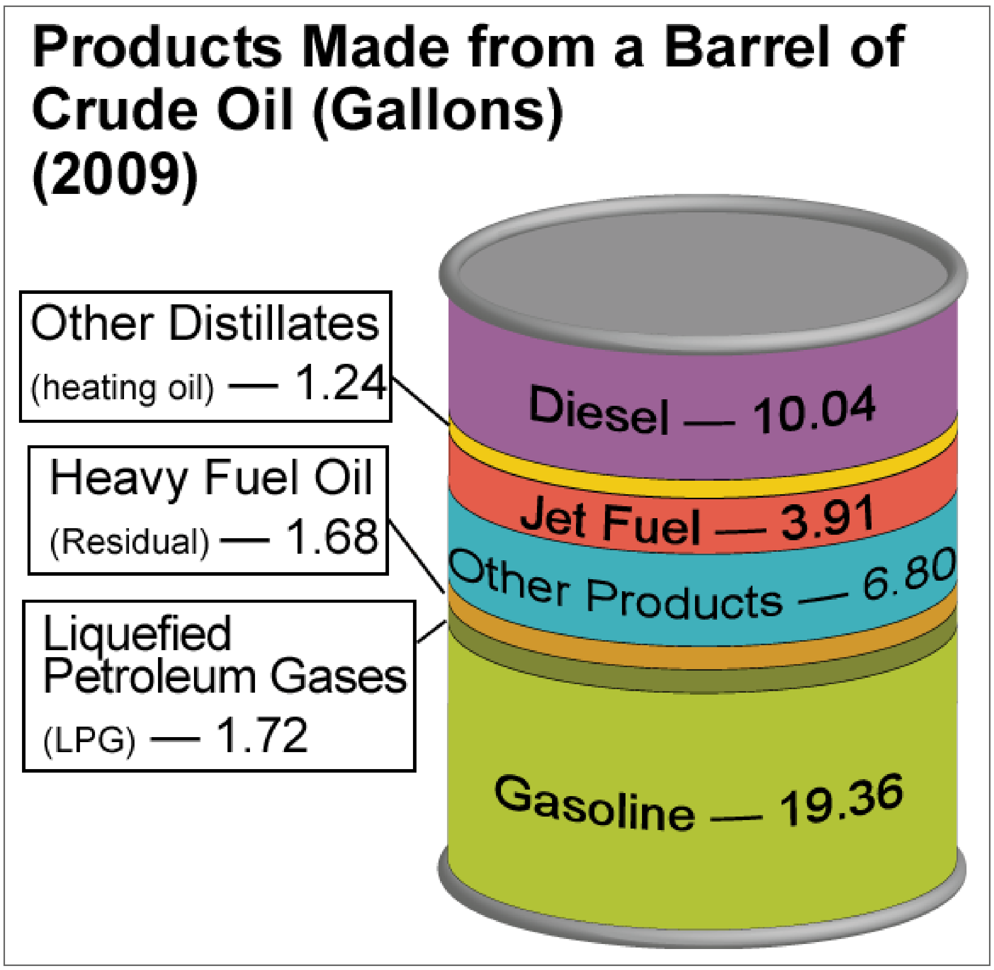
Source: U.S. Energy Information Administration, *EIA-878, Motor Gasoline Price Survey*.

Supporting Information

Regular Grade Gasoline Prices by Region, May 2, 2011	
Region	**Price per gallon including taxes**
West Coast	$4.14
New England	$4.03
Midwest	$4.01
Central Atlantic	$3.98
Lower Atlantic	$3.86
Gulf Coast	$3.81
Rocky Mountains	$3.70
Source: U.S. Energy Information Administration, EIA-878, *Motor Gasoline Price Survey*.	

Fact #676: May 23, 2011
U.S. Refiners Produce about 19 Gallons of Gasoline from a Barrel of Oil

A standard U.S. barrel contains 42 gallons of crude oil which yields about 44 gallons of petroleum products. The additional 2 gallons of petroleum products come from refiner gains which result in an additional 6% of product. As shown in the figure below, a little more than 19 gallons of gasoline and 10 gallons of diesel fuel are produced from a barrel of crude oil by U.S. refiners. Other products such as jet fuel and heating oil make up the remaining one third.



Note: Product yields are based on 2009 U.S. refining data.

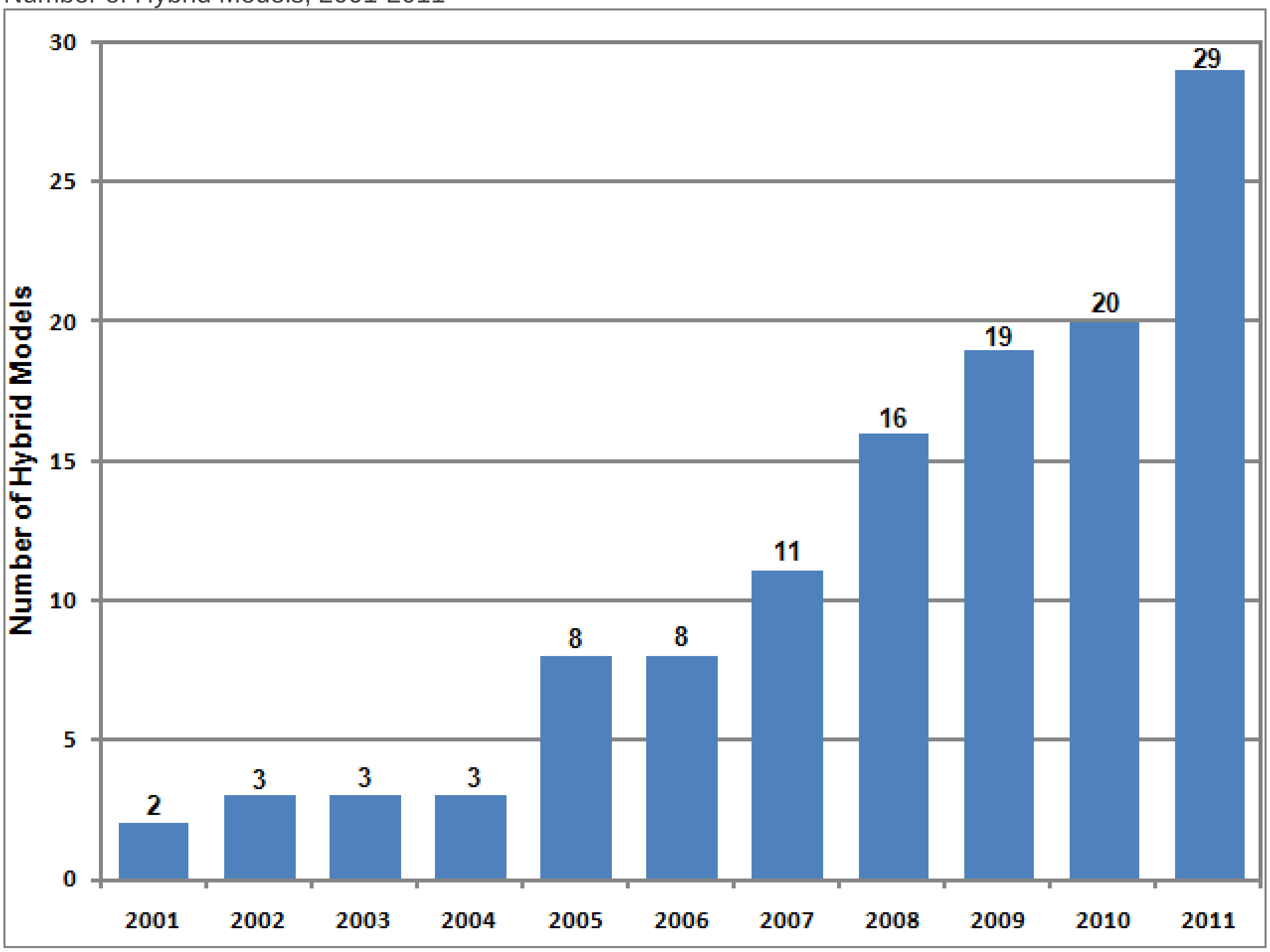
Supporting Information

Products Made from a Barrel of Crude Oil		
Products	**Gallons**	**Percent**
Gasoline	19.36	43.3%
Diesel	10.04	22.4%
Jet Fuel	3.91	8.7%
Liquefied Petroleum Gases	1.72	3.8%
Heavy Fuel Oil	1.68	3.8%
Other Distillates	1.24	2.8%
Other Products	6.80	15.2%
Total	**44.75**	**100.0%**
Source: U.S. Energy Information Administration, *What Fuels Are Made from Crude Oil?*		

Fact #677: May 30, 2011
Number of Hybrid Models, 2001-2011

In 2001 there were only 2 hybrid models for consumers to choose from. Ten years later, the number of hybrid models available to consumers has increased to 29 models. Between the 2010 and 2011 model year, the number of hybrids increased by 9 models, the greatest increase yet.

Number of Hybrid Models, 2001-2011



Supporting Information

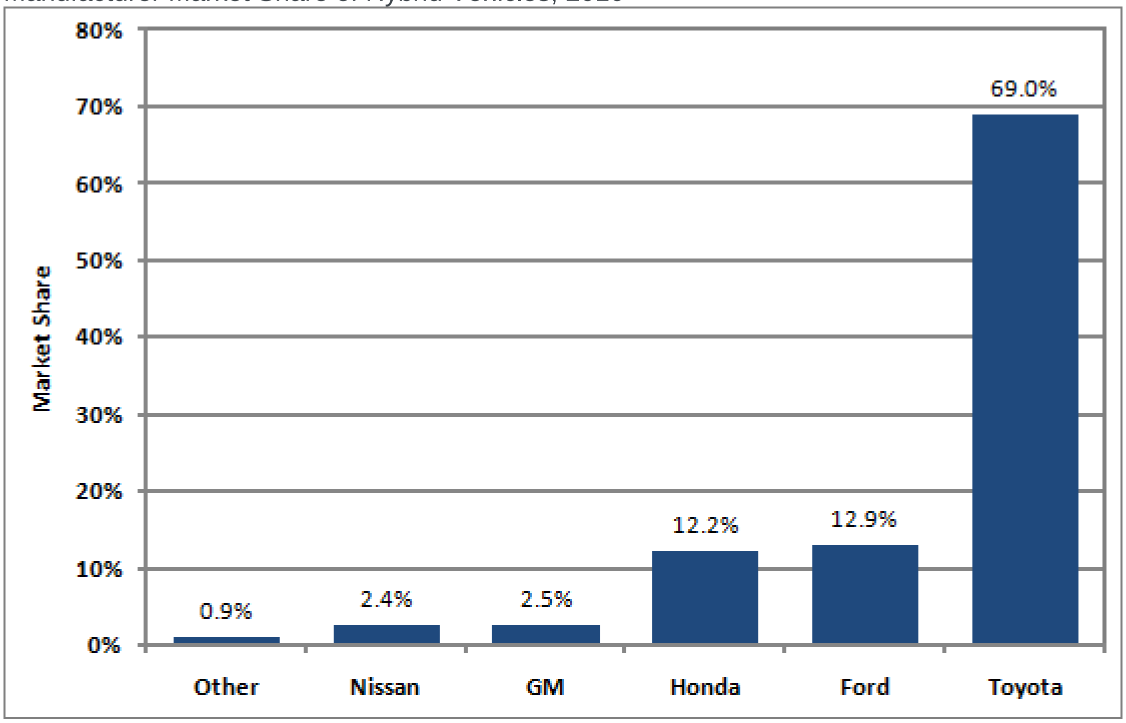
Number of Hybrid Models Available, 2001-2011	
Year	**Models**
2001	2
2002	3
2003	3
2004	3
2005	8
2006	8
2007	11
2008	16
2009	19
2010	20
2011	29

Source: U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center, *OEM AFV/HEV/Diesel Light Duty Model Offerings by Fuel Type 1991-2011*.

Fact #678: June 6, 2011
Manufacturer Market Share of Hybrid Vehicles, 2010

From a total of 274,210 hybrid vehicle sales in 2010, over two thirds (69%) were manufactured by the Toyota Motor Company. Ford and Honda together accounted for about a quarter of hybrid vehicle sales while GM and Nissan together sold about 5%. Other manufacturers including Porsche, Mazda, Mercedes and BMW totaled less than 1% of hybrid vehicle sales.

Manufacturer Market Share of Hybrid Vehicles, 2010



Note: Other includes Porsche, Mazda, Mercedes and BMW.

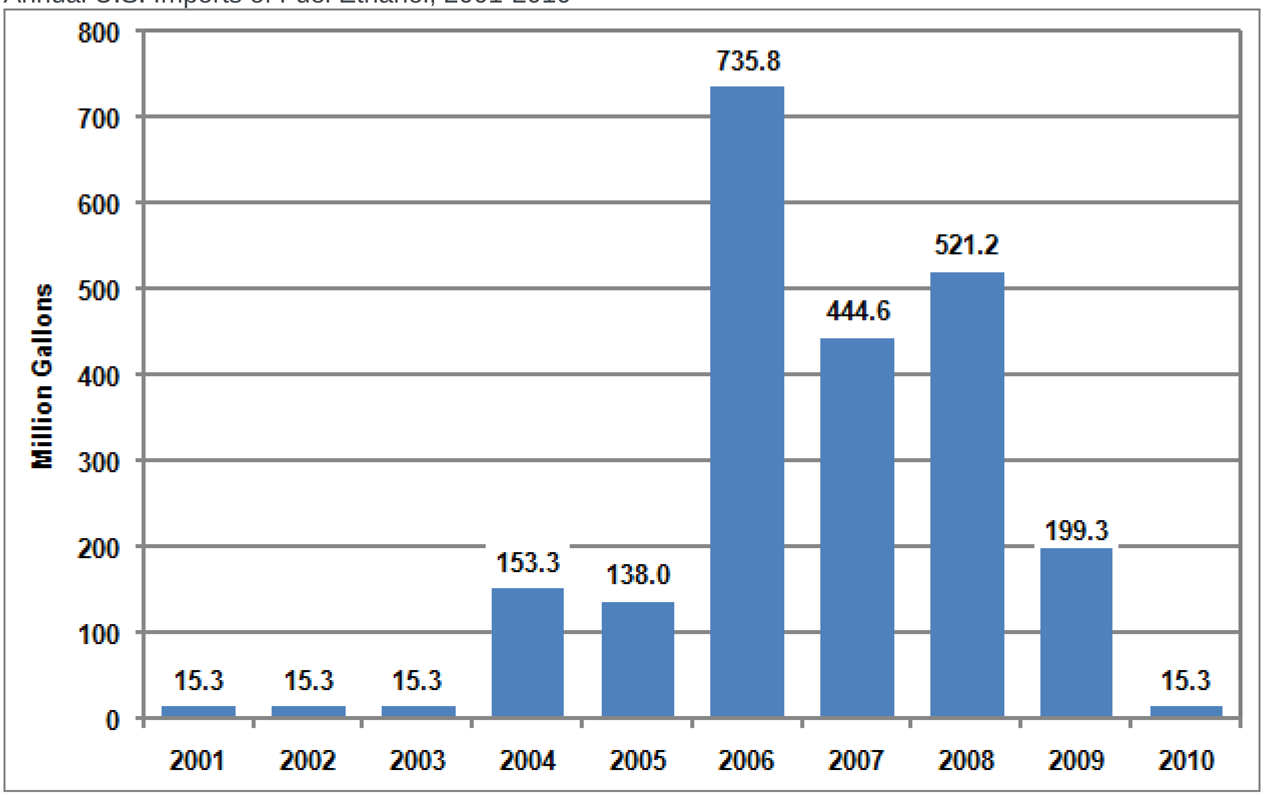
Supporting Information

Manufacturer Market Share of Hybrid Vehicles, 2010		
Manufacturer	**Sales**	**Market Share**
Toyota	189,187	69.0%
Ford	35,496	12.9%
Honda	33,547	12.2%
GM	6,759	2.5%
Nissan	6,710	2.4%
Other	2,511	0.9%
Total	**274,210**	100.0%
Source: U.S. Department of Energy, Alternative Fuels & Advanced Vehicles Data Center, *HEV Sales by Model*.		

Fact #679: June 13, 2011
U.S. Imports of Fuel Ethanol Drop Sharply

U.S. imports of fuel ethanol were low until 2004 when imports began to rise sharply. By 2006 imports of fuel ethanol reached a record high of 735.8 million gallons. As domestic supply of fuel ethanol increased to meet demand, imports of fuel ethanol began to drop after 2006. By 2010, imports declined to pre-2004 levels.

Annual U.S. Imports of Fuel Ethanol, 2001-2010



Supporting Information

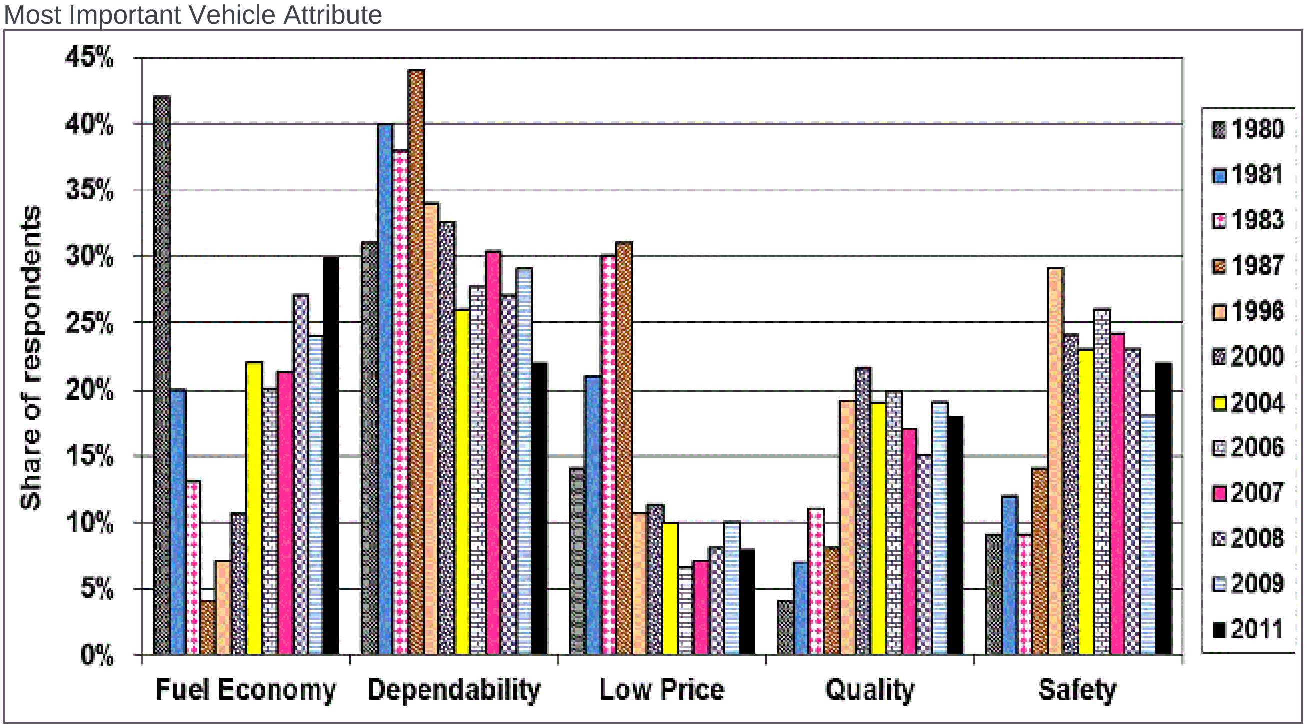
U.S. Imports of Fuel Ethanol, 2001-2010	
Year	**Million Gallons**
2001	15.3
2002	15.3
2003	15.3
2004	153.3
2005	138.0
2006	735.8
2007	444.6
2008	521.2
2009	199.3
2010	15.3

Source: Energy Information Administration, *Annual Imports of U.S. Fuel Ethanol*.

Fact #680: June 20, 2011
Fuel Economy is "Most Important" When Buying a Vehicle

A June 2011 survey asked the question "Which one of the following attributes would be MOST important to you in your choice of your next vehicle?" The choices were fuel economy, dependability, low price, quality, and safety. This same question was asked in previous surveys and the results are compared in the graph below. Dependability was chosen most often in nearly every survey, but fuel economy surpassed it in 2011. Thirty percent of the survey respondents indicated that fuel economy would be the most important vehicle attribute, while only 22% of respondents chose dependability.

Most Important Vehicle Attribute



Supporting Information

Q: Which one of the following attributes would be most important in your choice of your next vehicle?						
Year	**Fuel Economy**	**Dependability**	**Low Price**	**Quality**	**Safety**	**Total**
1980	42%	31%	14%	4%	9%	100%
1981	20%	40%	21%	7%	12%	100%
1983	13%	38%	30%	11%	9%	101%
1985	8%	41%	29%	12%	10%	100%
1987	4%	44%	31%	8%	14%	101%
1996	7%	34%	11%	19%	29%	100%
2000	11%	33%	11%	22%	24%	100%
2001	11%	30%	8%	22%	30%	100%
2004	22%	26%	10%	19%	23%	100%
2005	12%	33%	7%	21%	28%	100%
2006	20%	28%	7%	20%	26%	100%
2007	21%	30%	7%	17%	24%	100%
2008	27%	27%	8%	15%	23%	100%
2009	24%	29%	10%	19%	18%	100%
2011	30%	22%	8%	18%	22%	100%

Source:
For 1980-87: J. D. Power (data based on new car buyers).
For 1998: Opinion Research Corporation International for NREL, Study # 707089, February 19 – 22, 1998, N = 1,019.
For 2000: Opinion Research Corporation International for NREL, Study # 709318, August 3 – 6, 2000, N = 1,013.
For 2001: Opinion Research Corporation International for NREL, Study # 710288, July 12, 2001, N = 1,004.
For 2004: Opinion Research Corporation International for NREL, Study # 713228, May 27, 2004, N=949.
For 2005: Opinion Research Corporation International for NREL, Study # 714209, May 20, 2005, N=1012.
For 2006: Opinion Research Corporation International for NREL, Study # 715238, June 8, 2006, N=1,007.
For 2007: Opinion Research Corporation International for NREL, Study # 716328, August 9, 2007, N=1010.
For 2008: Opinion Research Corporation International for NREL, Study # 717318, August 3, 2008, N=1,005.
For 2009: Opinion Research Corporation International for NREL, Study # 718339, August 14-17, 2009, N=1003.
For 2011: Opinion Research Corporation International for NREL, Study # 720229, June 3 - 6, 2011, N=1,011.

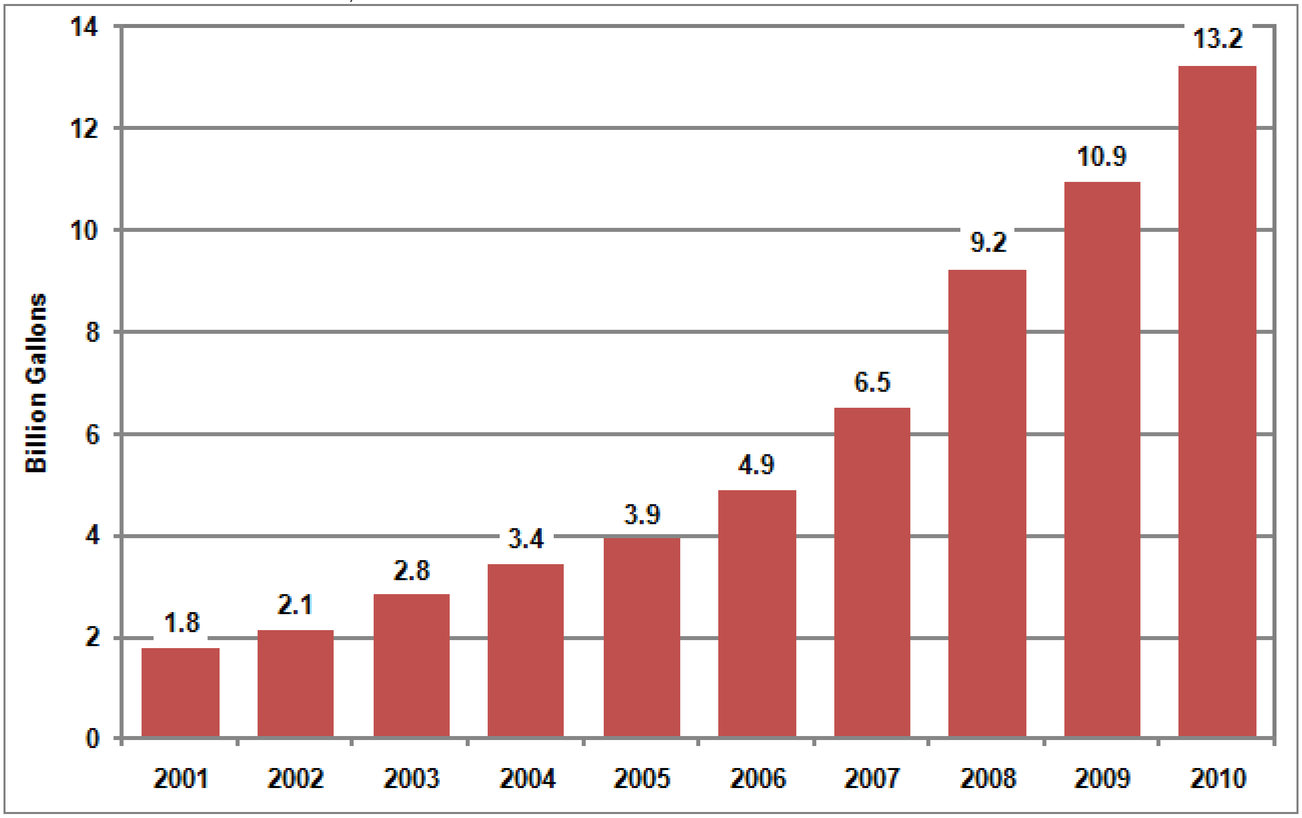
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Vehicle Technologies Program

Fact #681: June 27, 2011
U.S. Ethanol Production, 2001-2010

Ethanol production has been rising rapidly over the last 10 years driven largely by government standards requiring the use of renewable fuels. The first Renewable Fuels Standard (RFS) was established in 2005 and required the use of 4 billion gallons of renewable fuels by 2006 and 7.5 billion gallons by 2012. In 2007, the Energy Independence and Security Act superseded and expanded the original RFS to require an annual use of 9 billion gallons of biofuels in 2008 and 36 billion gallons to be used annually by 2022. Because ethanol is the dominant biofuel in the U.S., there is a strong relationship between the RFS standards and ethanol production.

U.S. Fuel Ethanol Production, 2010



Supporting Information

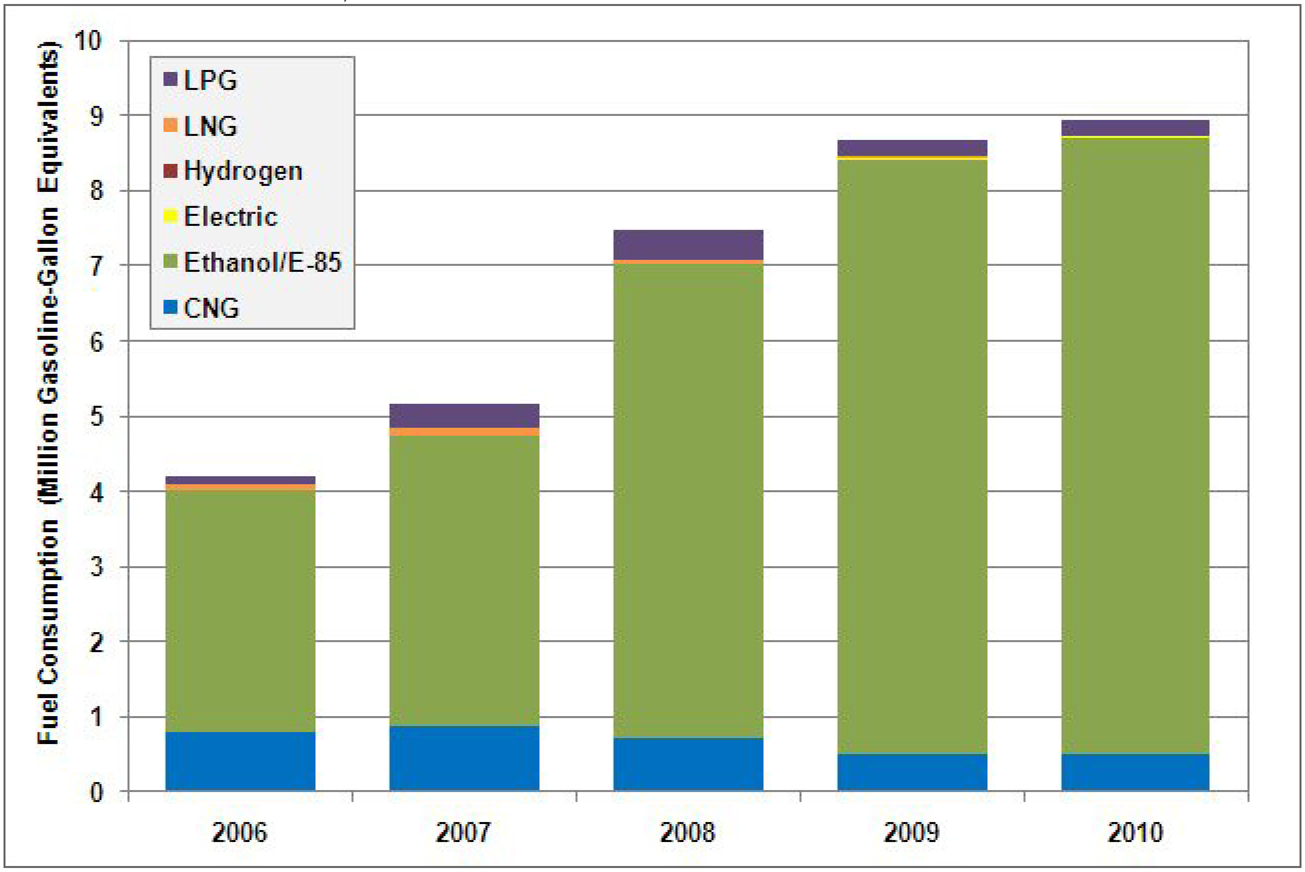
U.S. Fuel Ethanol Production	
Year	**Billion Gallons**
2001	1.8
2002	2.1
2003	2.8
2004	3.4
2005	3.9
2006	4.9
2007	6.5
2008	9.2
2009	10.9
2010	13.2

Sources:
2001 - 2008: Energy Information Administration, EIA-819 Monthly Oxygenate Report Historical.
2009 - 2010: Energy Information Administration, April Petroleum Supply Monthly, Table 1.

Fact #682: July 4, 2011
Federal Alternative Fuel Use

The Federal Government used nearly 9 million gasoline-gallon equivalents of alternative fuel in 2010. The majority of the fuel used (92%) was E-85, a combination of 85% ethanol and 15% gasoline. The Government's use of liquefied petroleum gas (LPG), compressed natural gas (CNG), and liquefied natural gas (LNG) has declined over the last few years. In 2010, electricity use grew due to a large acquisition of electric vehicles for the Federal fleet.

Federal Alternative Fuel Use, 2006-2010



Supporting Information

Federal Alternative Fuel Use (Gasoline-gallon Equivalents)					
Fuel Type	**2006**	**2007**	**2008**	**2009**	**2010**
CNG	806,985	888,694	731,228	499,249	503,535
Electric	5,449	5,316	4,357	3,996	36,383
Ethanol/E-85	3,205,693	3,853,449	6,292,555	7,921,649	8,200,471
LNG	89,577	94,512	59,302	34,939	481
LPG	105,135	321,545	399,069	207,564	194,868
Hydrogen	0	0	38	431	790
Total	4,212,839	5,163,516	7,486,549	8,667,828	8,936,528

Source:
General Services Administration, 2010 Federal Fleet Report, Table 5-1.

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Vehicle Technologies Program

Fact #683: July 11, 2011
Federal Tax Credits for the Purchase of Advanced Technology Vehicles

The Federal Government has encouraged the use of different transportation fuels by allowing tax credits on vehicle purchases. The purchase of a traditional (non-plug-in) hybrid vehicle was eligible for a tax credit of up to $3,400 from 2005 through 2010. Diesels, which are more efficient than gasoline vehicles, were eligible for a similar tax credit, as were alternative-fuel vehicles. All of those credits were discontinued at the end of calendar year 2010. Now, electric vehicles and plug-in hybrid-electric vehicles are the only ones for which a tax credit is available – up to $7,500. To find out more about these tax credits, go to the IRS website, or FuelEconomy.Gov.

Federal Government Tax Incentives for Advanced Technology Vehicles

Vehicle Type	Calendar Year in which the Vehicle was Purchased	Maximum Credit Amount	Vehicles Currently Eligible for a Tax Credit	
Plug-in Hybrid-Electric Vehicles	2010 - on*	$7,500		2011 Chevrolet Volt
Electric Vehicles	2009 - on*#	$7,500		2010 Coda Sedan
				2011 Nissan Leaf
				2011 Smart For Two

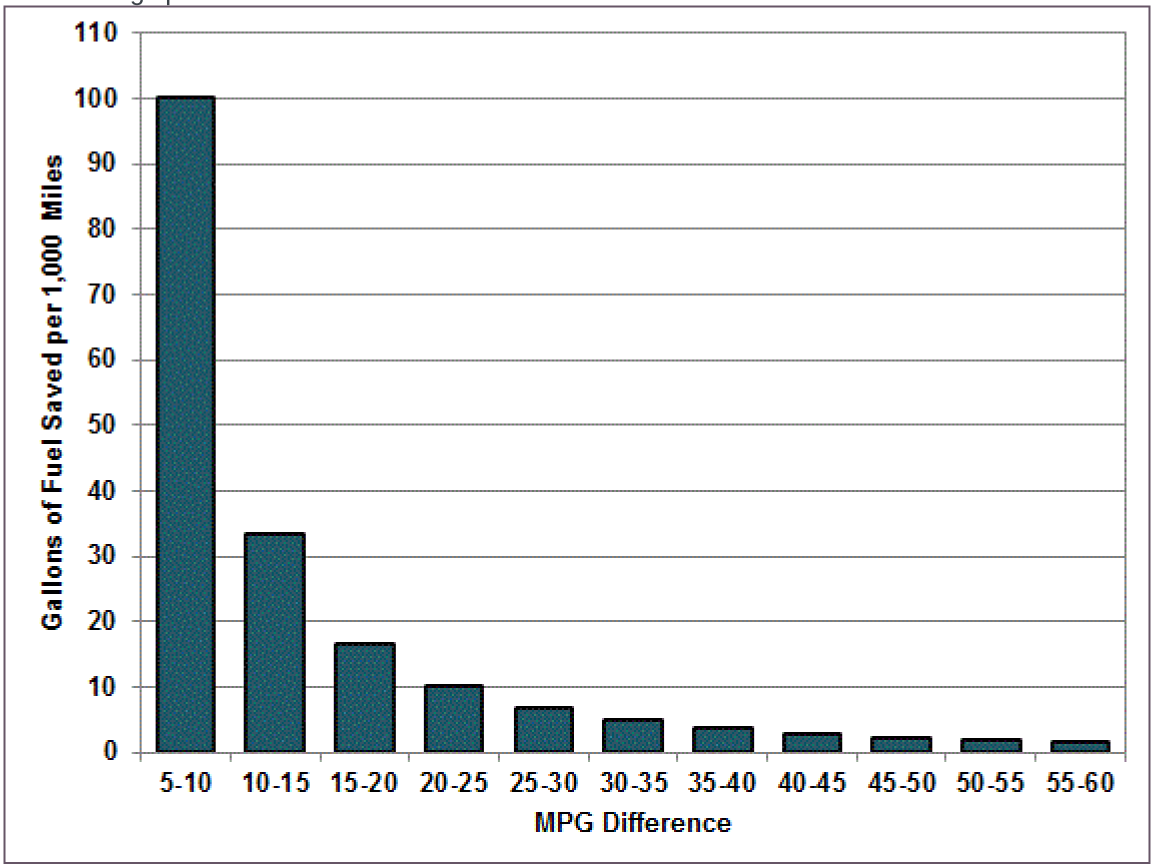
				2008-2010 Tesla Roadster
				2011 Wheego LiFe
Hybrids	2005 - 2010	$3,400	Purchases made after December 31, 2010 are not eligible for the tax credit.	
Diesels	2005 - 2010	$3,400		
Compressed Natural Gas	2005 - 2010	$3,400		
Liquefied Natural Gas	2005 - 2010	$3,400		
Liquefied Petroleum Gas	2005 - 2010	$3,400		
Hydrogen	2005 - 2010	$3,400		
M85 (85% Methanol)	2005 - 2010	$3,400		

Source: U.S. Department of Energy and U.S. Environmental Protection Agency, www.fueleconomy.gov website, June 2011.
* Phase-out of this tax credit is determined by the number of vehicles produced.
# Requirements for this credit changed between 2009 and 2010.

Fact #684: July 18, 2011
Fuel Economy versus Fuel Savings

An increase in fuel economy by 5 miles per gallon (mpg) does not translate to a constant fuel savings amount. Thus, trading a low-mpg car or truck for one with just slightly better mpg will save more fuel than trading a high-mpg car or truck for one that is even higher. For example, trading a truck that gets 15 mpg for a new one that gets 20 mpg will save 16.7 gallons of fuel for every 1,000 miles driven. In contrast, trading a 35 mpg car for a new car that gets 40 mpg will save 3.6 gallons of fuel for every 1,000 miles driven. These fuel savings are additive; that is, going from 15 mpg to 25 mpg saves 26.7 gallons per thousand miles driven — 16.7 gallons (15-20 mpg difference) plus 10.0 gallons (20-25 mpg difference).

Fuel Savings per Thousand Miles



Supporting Information

If you have a car with this fuel economy...	And you trade it for a car with this fuel economy...	You save this many gallons for every 1,000 miles you drive
5 mpg	10 mpg	100.00
10 mpg	15 mpg	33.3
15 mpg	20 mpg	16.7
20 mpg	25 mpg	10.0
25 mpg	30 mpg	6.7
30 mpg	35 mpg	4.8
35 mpg	40 mpg	3.6
40 mpg	45 mpg	2.8
45 mpg	50 mpg	2.2
50 mpg	55 mpg	1.8
55 mpg	60 mpg	1.5
Source: U.S. Department of Energy and Environmental Protection Agency, Fuel Economy Guide Website.		

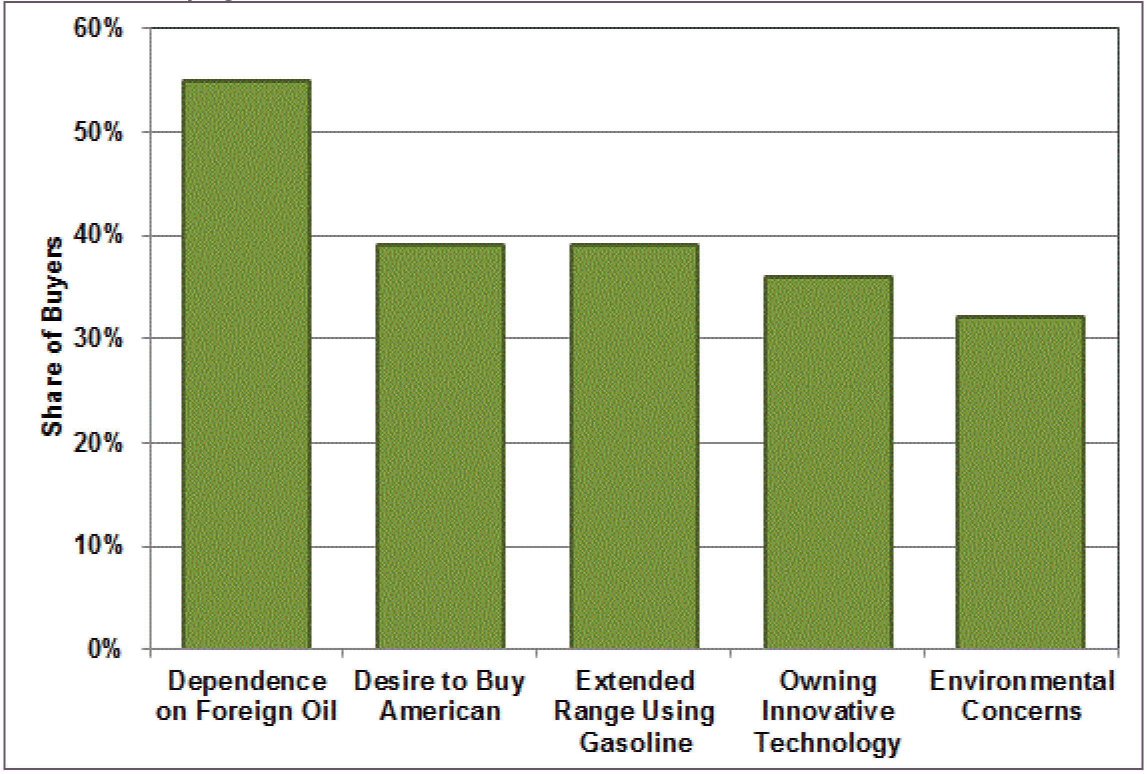
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Vehicle Technologies Program

Fact #685: July 25, 2011
Reasons for Buying a Plug-in Hybrid Vehicle

General Motors has been gathering feedback from customers who purchased the 2011 Chevrolet Volt, which is the only plug-in hybrid vehicle (PHEV) on the market today. Through May 2011, about 2,100 Volts have been sold. The top reason cited for purchasing a Volt is to reduce America's dependence on foreign oil. A desire to buy American and the vehicle's extended range by using gasoline tied for second. Environmental concerns were fifth on the list of reasons to purchase the vehicle. According to General Motors, current Volt owners drive two-thirds of the time in electric mode, and travel an average of 900 miles before refilling the gasoline tank.

Reasons for Buying a PHEV



Supporting Information

Reasons for Buying a PHEV	Share of Buyers
Dependence on Foreign Oil	55%
Desire to Buy American	39%
Extended Range Using Gasoline	39%
Owning Innovative Technology	36%*
Environmental Concerns	32%

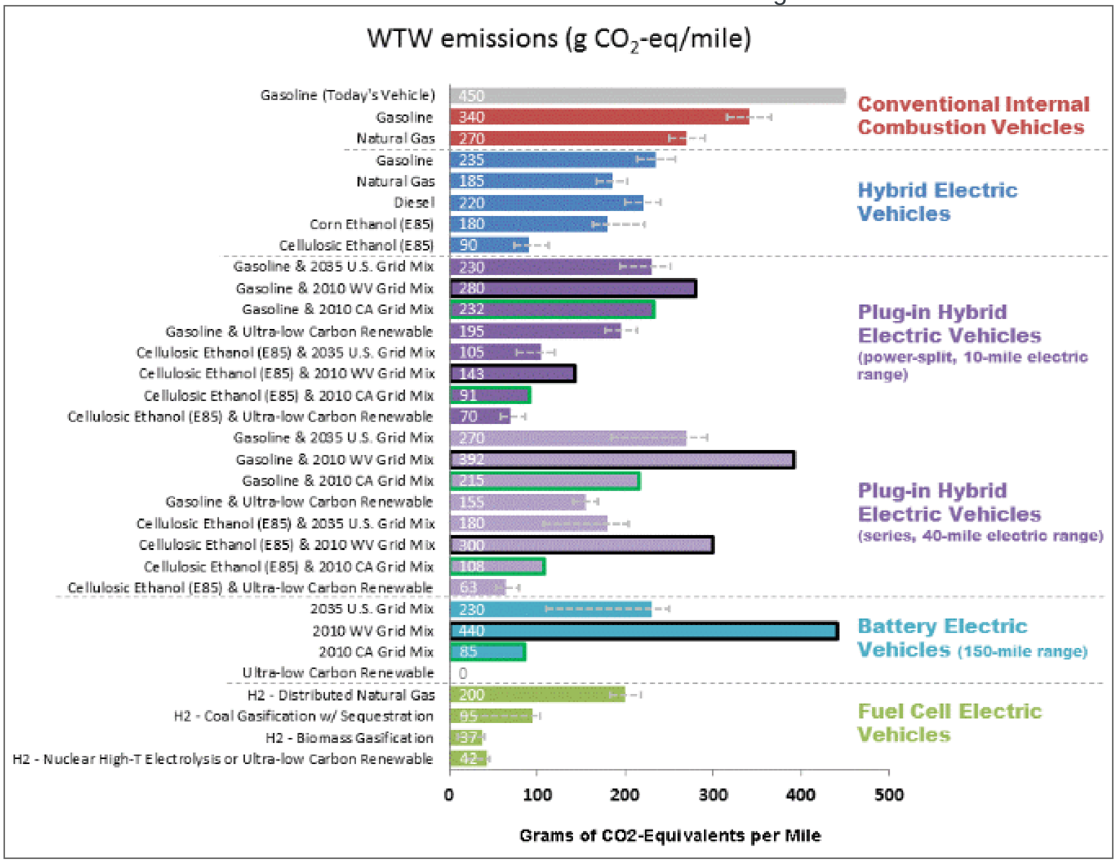
* Estimated. Exact percentage cannot be determined from available information. However, the actual number is between 32% and 39%.

Sources: Crain Communications, Automotive News, June 20, 2011. [Original source: General Motors.] Cristi Landy, Chevrolet Volt Marketing Director

Fact #686: August 1, 2011
Emissions and Energy Use Model - GREET

The Greenhouse Gases, Regulated Emission, and Energy Use in Transportation (GREET) Model is a full life-cycle model for evaluating the energy and emission impacts of various vehicle and fuel combinations. The first version of the GREET model was released in 1996. Since then, the model has been updated and expanded to include additional vehicle types and fuels. The results below are from GREET Model 1.8d.1. The California grid mix (bars outlined in green) was chosen due to the high renewable energy mix in that state. In contrast, the West Virginia grid mix (bars outlined in black) is primarily coal. Both of these are compared against the average U.S. grid mix for various vehicle technologies.

Well-to-Wheel Emissions for Various Fuels and Vehicle Technologies



Note: H2 = hydrogen; High-T = high-temperature

Supporting Information

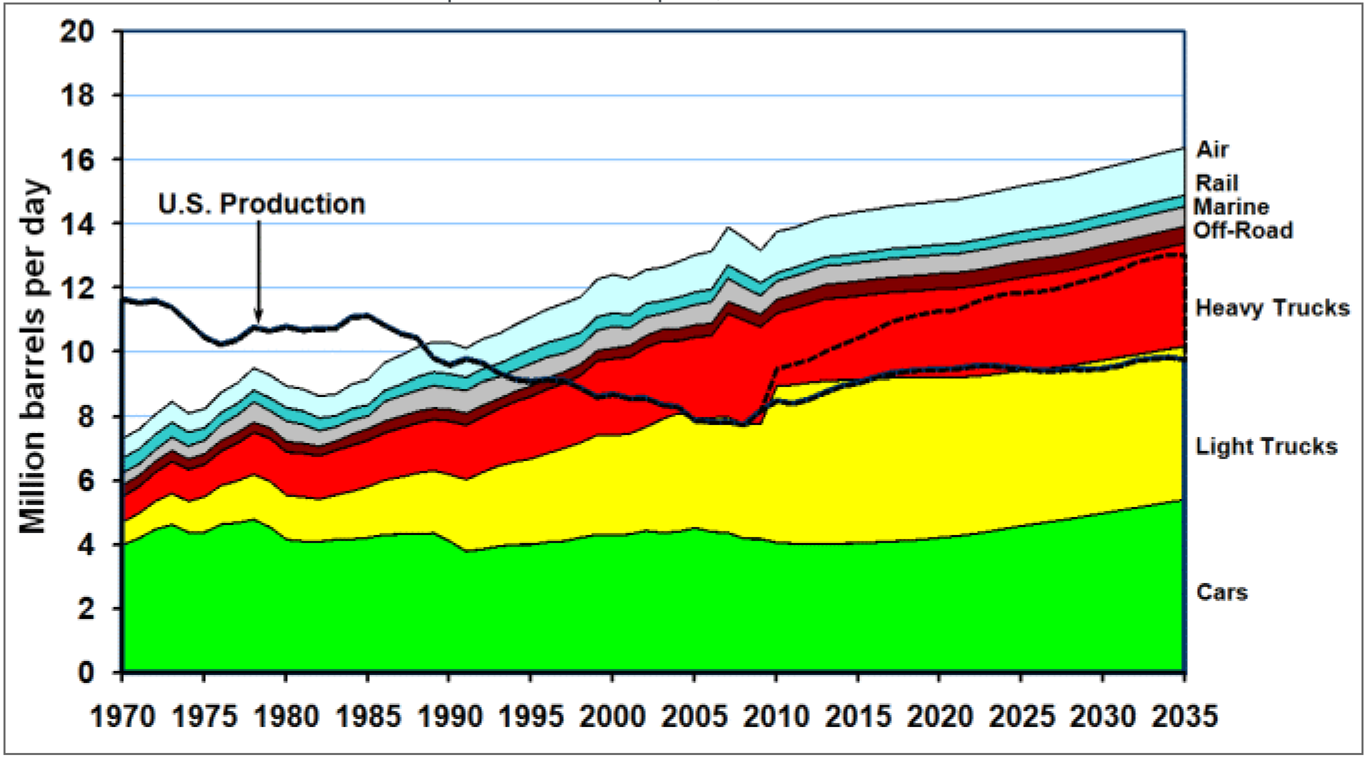
Well-to-Wheel Emissions for Various Fuels and Vehicle Technologies		
Fuel	Grams of CO2-Equivalent per Mile	Vehicle Technology
Gasoline (Today's Vehicle)	450	Conventional Internal Combustion Vehicles
Gasoline	340	
Natural Gas	270	
Gasoline	235	Hybrid Electric Vehicles
Natural Gas	185	
Diesel	220	
Corn Ethanol (E85)	180	
Cellulosic Ethanol (E85)	90	
Gasoline & 2035 U.S. Grid Mix	230	Plug-in Hybrid Electric Vehicles (power-split, 10-mile electric range)
Gasoline & 2010 WV Grid Mix	280	
Gasoline 2010 CA Grid Mix	232	
Gasoline & Ultra-low Carbon Renewable	195	
Cellulosic Ethanol (E85) & 2035 U.S. Grid Mix	105	
Cellulosic Ethanol (E85) & 2010 WV Grid Mix	143	
Cellulosic Ethanol (E85) & 2010 CA Grid Mix	91	
Cellulosic Ethanol (E85) & Ultra-low carbon Renewable	70	
Gasoline & 2035 U.S. Grid Mix	270	Plug-in Hybrid Electric Vehicles (series, 40-mile electric range)
Gasoline & 2010 WV Grid Mix	392	
Gasoline & 2010 CA Grid Mix	215	
Gasoline & Ultra-low Carbon Renewable	155	
Cellulosic Ethanol (E85) & 2035 U.S. Grid Mix	180	

Well-to-Wheel Emissions for Various Fuels and Vehicle Technologies		
Fuel	**Grams of CO2-Equivalent per Mile**	**Vehicle Technology**
Cellulosic Ethanol (E85) & 2010 WV Grid Mix	300	
Cellulosic Ethanol (E85) & 2010 CA Grid Mix	108	
Cellulosic Ethanol (E85) & Ultra-low carbon Renewable	63	
2035 U.S. Grid Mix	230	Battery Electric Vehicles (150-mile range)
2010 WV Grid Mix	440	
2010 CA Grid Mix	85	
Ultra-low Carbon Renewable	0	
H2 - Distributed Natural Gas	200	Fuel Cell Electric Vehicles
H2 - Coal Gasification w/Sequestration	95	
H2 - Biomass Gasification	37	
H2 - Nuclear High-T Electrolysis or Ultra-low Carbon Renewable	42	
Source: Argonne National Laboratory, GREET Model 1.8d. 1.		

Fact #687: August 8, 2011
The Transportation Petroleum Gap

In 1989 the transportation sector petroleum consumption surpassed U.S. petroleum production for the first time, creating a gap that must be met with imports of petroleum. By the year 2035, transportation petroleum consumption is expected to grow to almost 17 million barrels per day; at that time, the gap between U.S. production and transportation consumption will be almost 4 million barrels per day (when including the non-petroleum sources).

U.S. Petroleum Production and Transportation Consumption, 1970-2035



Note: The U.S. Production has two lines after 2005. The solid line is conventional sources of petroleum, including crude oil, natural gas plant liquids, and refinery gains. The dashed line adds in other non-petroleum sources, including ethanol, biomass, liquids from coal, other blending components, other hydrocarbons, and ethers. The sharp increase in values between 2009 and 2010 is caused by the data change from historical to projected values. The sharp increase in the value for heavy trucks between 2006 and 2007 is the result of FHWA's methodology change.

Supporting Information

Historical and Future U.S. Petroleum Production and Transportation Petroleum Use (Million barrels per day)											
Year	Autos	Light Trucks	Medium & Heavy Trucks	Air	Water	Off-Highway	Rail	Pipeline	Total Trans-portation	U.S. Petroleum Production with Other Inputs 2007-on (dotted line)	U.S. Petroleum Production without Other Inputs 2007-on
1970	4.01	0.73	0.79	0.62	0.40	0.35	0.47	0.26	7.62	11.66	11.66
1971	4.22	0.80	0.82	0.62	0.37	0.34	0.48	0.26	7.90	11.54	11.54
1972	4.50	0.89	0.90	0.62	0.37	0.33	0.49	0.27	8.38	11.61	11.61
1973	4.63	0.99	0.99	0.65	0.42	0.34	0.47	0.28	8.78	11.40	11.40
1974	4.40	0.98	0.99	0.59	0.42	0.31	0.44	0.29	8.43	10.94	10.94
1975	4.40	1.13	1.00	0.60	0.44	0.32	0.40	0.26	8.55	10.47	10.47
1976	4.65	1.23	1.06	0.63	0.51	0.33	0.38	0.27	9.06	10.24	10.24
1977	4.70	1.32	1.17	0.64	0.56	0.32	0.37	0.28	9.36	10.39	10.39
1978	4.80	1.43	1.30	0.67	0.65	0.31	0.37	0.28	9.80	10.77	10.77
1979	4.56	1.44	1.34	0.70	0.54	0.32	0.41	0.29	9.60	10.66	10.66
1980	4.17	1.41	1.34	0.68	0.66	0.32	0.42	0.28	9.26	10.80	10.80
1981	4.12	1.40	1.36	0.69	0.60	0.31	0.43	0.27	9.16	10.69	10.69
1982	4.11	1.34	1.35	0.68	0.50	0.28	0.40	0.23	8.90	10.73	10.73
1983	4.17	1.41	1.38	0.68	0.46	0.28	0.35	0.23	8.95	10.73	10.73
1984	4.18	1.51	1.43	0.76	0.46	0.34	0.37	0.25	9.29	11.09	11.09
1985	4.23	1.61	1.43	0.79	0.41	0.35	0.36	0.24	9.42	11.14	11.14
1986	4.33	1.71	1.47	0.86	0.63	0.35	0.35	0.23	9.93	10.85	10.85
1987	4.34	1.80	1.52	0.90	0.65	0.36	0.37	0.24	10.17	10.58	10.58

Historical and Future U.S. Petroleum Production and Transportation Petroleum Use (Million barrels per day)											
Year	Autos	Light Trucks	Medium & Heavy Trucks	Air	Water	Off-Highway	Rail	Pipeline	Total Trans-portation	U.S. Petroleum Production with Other Inputs 2007-on (dotted line)	U.S. Petroleum Production without Other Inputs 2007-on
1988	4.34	1.93	1.55	0.93	0.67	0.36	0.41	0.24	10.43	10.45	10.45
1989	4.37	1.96	1.59	0.94	0.72	0.34	0.42	0.24	10.59	9.82	9.82
1990	4.12	2.10	1.65	0.98	0.68	0.36	0.44	0.24	10.57	9.60	9.60
1991	3.80	2.26	1.69	0.92	0.72	0.37	0.41	0.23	10.38	9.79	9.79
1992	3.87	2.42	1.73	0.93	0.76	0.35	0.40	0.23	10.67	9.67	9.67
1993	3.96	2.53	1.78	0.94	0.68	0.30	0.42	0.24	10.84	9.35	9.35
1994	4.01	2.61	1.87	0.98	0.66	0.31	0.45	0.25	11.14	9.16	9.16
1995	4.02	2.69	1.95	1.01	0.69	0.32	0.46	0.26	11.40	9.10	9.10
1996	4.09	2.79	2.00	1.04	0.67	0.32	0.46	0.27	11.65	9.16	9.16
1997	4.13	2.91	2.02	1.09	0.59	0.34	0.48	0.27	11.83	9.12	9.12
1998	4.23	2.98	2.08	1.12	0.58	0.34	0.42	0.27	12.03	8.90	8.90
1999	4.33	3.12	2.29	1.17	0.65	0.32	0.43	0.28	12.58	8.62	8.62
2000	4.31	3.12	2.37	1.20	0.69	0.33	0.43	0.28	12.73	8.70	8.70
2001	4.34	3.15	2.36	1.14	0.56	0.35	0.42	0.29	12.61	8.57	8.57
2002	4.45	3.25	2.46	1.05	0.59	0.36	0.44	0.29	12.88	8.58	8.58
2003	4.39	3.57	2.40	1.05	0.51	0.36	0.40	0.29	12.96	8.37	8.37
2004	4.43	3.71	2.23	1.11	0.61	0.37	0.39	0.31	13.16	8.30	8.30
2005	4.54	3.45	2.49	1.17	0.65	0.38	0.40	0.31	13.38	7.89	7.89
2006	4.43	3.57	2.54	1.19	0.69	0.38	0.40	0.32	13.49	7.84	7.84
2007	4.38	3.63	3.15	1.19	0.74	0.38	0.42	0.31	14.18	7.84	7.84

Historical and Future U.S. Petroleum Production and Transportation Petroleum Use (Million barrels per day)											
Year	**Autos**	**Light Trucks**	**Medium & Heavy Trucks**	**Air**	**Water**	**Off-Highway**	**Rail**	**Pipeline**	**Total Trans-portation**	**U.S. Petroleum Production with Other Inputs 2007-on (dotted line)**	**U.S. Petroleum Production without Other Inputs 2007-on**
2008	4.20	3.58	3.18	1.13	0.65	0.38	0.43	0.30	13.84	7.75	7.75
2009	4.19	3.59	2.97	1.01	0.61	0.38	0.41	0.26	13.41	8.18	8.18
2010	4.07	4.91	2.25	1.29	0.59	0.42	0.26	0.43	14.22	9.51	8.50
2011	4.05	4.96	2.36	1.25	0.59	0.43	0.27	0.42	14.32	9.64	8.41
2012	4.04	5.04	2.44	1.26	0.59	0.44	0.28	0.42	14.50	9.79	8.55
2013	4.05	5.08	2.55	1.26	0.59	0.45	0.28	0.42	14.67	10.05	8.77
2014	4.05	5.10	2.56	1.28	0.59	0.45	0.29	0.42	14.74	10.27	8.96
2015	4.06	5.11	2.60	1.30	0.59	0.45	0.30	0.42	14.83	10.47	9.05
2016	4.09	5.11	2.63	1.31	0.59	0.45	0.30	0.42	14.90	10.71	9.21
2017	4.11	5.11	2.66	1.32	0.60	0.46	0.31	0.42	14.99	10.97	9.35
2018	4.14	5.08	2.69	1.34	0.60	0.47	0.31	0.42	15.05	11.11	9.41
2019	4.18	5.04	2.72	1.35	0.60	0.48	0.31	0.42	15.10	11.22	9.45
2020	4.23	5.01	2.75	1.36	0.60	0.48	0.32	0.42	15.16	11.32	9.46
2021	4.28	4.95	2.78	1.38	0.60	0.48	0.32	0.42	15.20	11.33	9.49
2022	4.35	4.91	2.81	1.39	0.62	0.48	0.33	0.42	15.31	11.56	9.56
2023	4.42	4.89	2.84	1.40	0.62	0.49	0.33	0.40	15.40	11.73	9.59
2024	4.51	4.87	2.87	1.41	0.62	0.50	0.33	0.40	15.51	11.85	9.54
2025	4.60	4.84	2.90	1.42	0.62	0.50	0.34	0.40	15.62	11.88	9.48
2026	4.67	4.82	2.93	1.43	0.62	0.50	0.34	0.40	15.72	11.91	9.43
2027	4.75	4.79	2.95	1.44	0.62	0.51	0.34	0.40	15.80	11.99	9.41

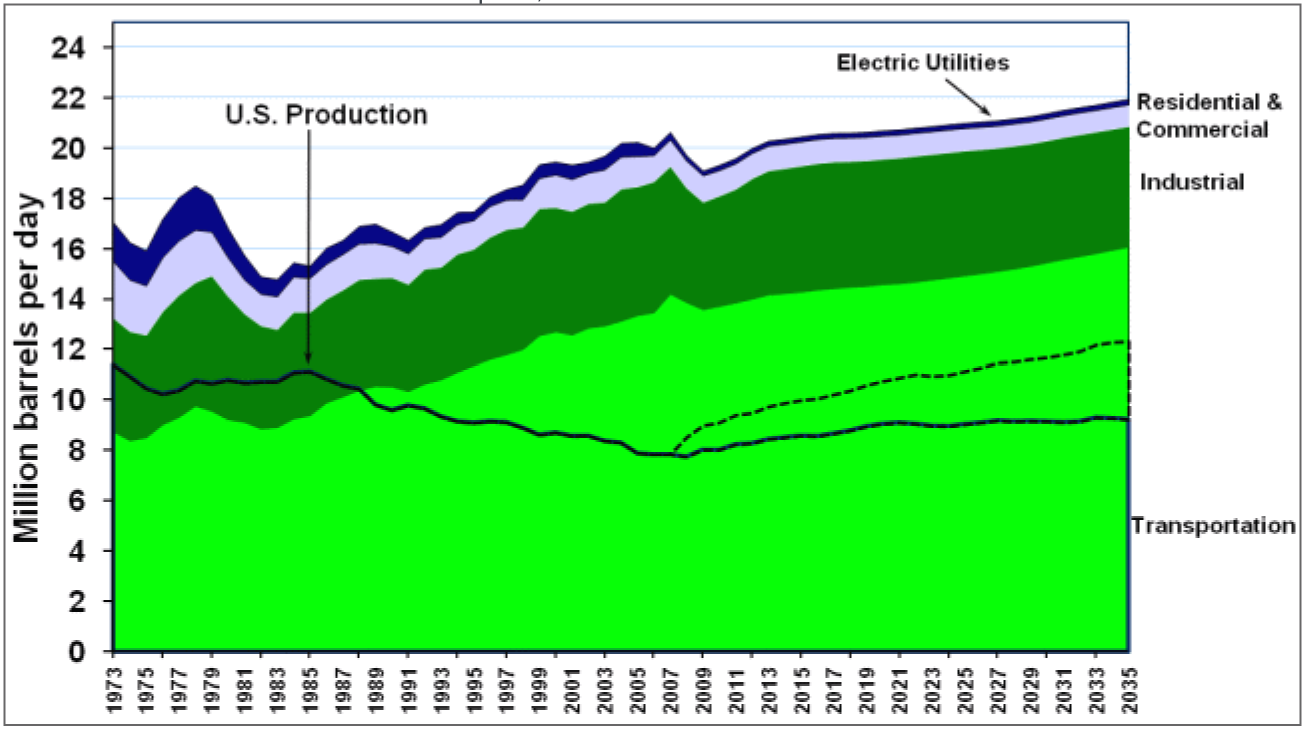
Historical and Future U.S. Petroleum Production and Transportation Petroleum Use (Million barrels per day)											
Year	**Autos**	**Light Trucks**	**Medium & Heavy Trucks**	**Air**	**Water**	**Off-Highway**	**Rail**	**Pipeline**	**Total Trans-portation**	**U.S. Petroleum Production with Other Inputs 2007-on (dotted line)**	**U.S. Petroleum Production without Other Inputs 2007-on**
2028	4.82	4.78	2.98	1.44	0.62	0.51	0.34	0.40	15.90	12.14	9.47
2029	4.92	4.77	3.01	1.45	0.62	0.52	0.35	0.42	16.06	12.28	9.46
2030	5.00	4.77	3.05	1.46	0.62	0.52	0.35	0.42	16.19	12.41	9.49
2031	5.09	4.77	3.08	1.47	0.62	0.52	0.35	0.42	16.32	12.61	9.58
2032	5.17	4.77	3.12	1.47	0.63	0.52	0.35	0.42	16.45	12.83	9.74
2033	5.25	4.78	3.15	1.47	0.63	0.52	0.36	0.42	16.58	12.96	9.80
2034	5.34	4.78	3.18	1.48	0.63	0.52	0.36	0.42	16.71	13.08	9.84
2035	5.42	4.78	3.21	1.48	0.63	0.52	0.36	0.43	16.83	13.05	9.77

Sources:
1973-2009 from Davis, S.C, Diegel, S.W., and Boundy, R.G., "Transportation Energy Data Book: Edition 30," Oak Ridge National Laboratory, Oak Ridge, TN, 2011.
2010-2035 from EIA, "Annual Energy Outlook 2011," Energy Information Administration, DOE/EIA-0383(2011), U.S. Department of Energy, Washington, DC, 2011.

Fact #688: August 15, 2011
All Sectors' Petroleum Gap

Before1989 the U.S. produced enough petroleum to meet the needs of the transportation sector, but was still short of meeting the petroleum needs of all the sectors, including industrial, residential and commercial, and electric utilities. In 1973 the gap between what the U.S. produced and what was consumed was 5.6 million barrels per day. By 2035, the gap is expected to be at least 9.6 million barrels per day if all sources of petroleum are included or 12.7 million barrels per day if only conventional petroleum sources are used.

U.S. Petroleum Production and Consumption, 1970-2035



Notes:

- The U.S. Production has two lines after 2005. The solid line is conventional sources of petroleum. The dashed line adds in other non-petroleum sources, including ethanol, biomass, liquids from coal, other blending components, other hydrocarbons, and ethers.
- Between 2009 and 2010 the data change from historical to projected values.
- The sharp increase in transportation value between 2006 and 2007 is due to the Federal Highway Administration methodology change in heavy truck fuel use.

Supporting Information

Historical and Future U.S. Petroleum Production and Petroleum Use (Million barrels per day)							
Year	Transportation	Industrial	Residential and Commercial	Electric Utilities	Total	U.S. Petroleum Production with Other Inputs 2007-on (dotted line)	U.S. Petroleum Production without Other Inputs 2007-on
1973	8.78	4.48	2.23	1.54	17.04	11.40	11.40
1973	8.78	4.48	2.23	1.54	17.03	11.40	11.40
1974	8.43	4.30	2.04	1.48	16.24	10.94	10.94
1975	8.55	4.04	1.95	1.39	15.92	10.47	10.47
1976	9.06	4.46	2.13	1.52	17.17	10.24	10.24
1977	9.36	4.82	2.14	1.71	18.03	10.39	10.39
1978	9.80	4.87	2.07	1.75	18.49	10.77	10.77
1979	9.60	5.34	1.73	1.44	18.11	10.66	10.66
1980	9.26	4.86	1.52	1.15	16.79	10.80	10.80
1981	9.16	4.27	1.33	0.96	15.73	10.69	10.69
1982	8.90	4.06	1.24	0.69	14.89	10.73	10.73
1983	8.95	3.85	1.29	0.68	14.78	10.73	10.73
1984	9.29	4.20	1.38	0.56	15.44	11.09	11.09
1985	9.42	4.07	1.34	0.48	15.31	11.14	11.14
1986	9.93	4.09	1.37	0.64	16.02	10.85	10.85
1987	10.17	4.21	1.40	0.55	16.33	10.58	10.58
1988	10.43	4.36	1.41	0.69	16.89	10.45	10.45
1989	10.59	4.25	1.39	0.75	16.97	9.82	9.82
1990	10.57	4.30	1.23	0.57	16.67	9.60	9.60
1991	10.38	4.22	1.21	0.53	16.33	9.79	9.79
1992	10.67	4.53	1.20	0.44	16.84	9.67	9.67
1993	10.84	4.44	1.18	0.49	16.96	9.35	9.35
1994	11.14	4.67	1.17	0.47	17.44	9.16	9.16
1995	11.40	4.59	1.13	0.33	17.46	9.10	9.10
1996	11.65	4.83	1.21	0.36	18.05	9.16	9.16
1997	11.83	4.95	1.16	0.41	18.35	9.12	9.12

Historical and Future U.S. Petroleum Production and Petroleum Use (Million barrels per day)							
Year	Transportation	Industrial	Residential and Commercial	Electric Utilities	Total	U.S. Petroleum Production with Other Inputs 2007-on (dotted line)	U.S. Petroleum Production without Other Inputs 2007-on
1998	12.03	4.84	1.08	0.58	18.53	8.90	8.90
1999	12.58	5.03	1.18	0.53	19.33	8.62	8.62
2000	12.73	4.92	1.28	0.51	19.44	8.70	8.70
2001	12.61	4.89	1.25	0.56	19.32	8.57	8.57
2002	12.88	4.93	1.19	0.43	19.43	8.58	8.58
2003	12.96	4.90	1.28	0.53	19.67	8.37	8.37
2004	13.16	5.23	1.26	0.54	20.18	8.30	8.30
2005	13.38	5.10	1.20	0.55	20.22	7.88	7.88
2006	13.49	5.19	1.03	0.29	19.99	7.83	7.83
2007	14.23	5.05	1.04	0.29	20.62	7.84	7.84
2008	13.89	4.53	1.06	0.21	19.69	8.52	7.74
2009	13.61	4.250	1.04	0.180	19.08	8.99	8.03
2010	13.74	4.370	1.00	0.200	19.31	9.11	8.02
2011	13.88	4.500	1.00	0.200	19.58	9.41	8.24
2012	14.03	4.770	0.99	0.190	19.98	9.49	8.28
2013	14.20	4.910	0.97	0.190	20.27	9.75	8.45
2014	14.25	4.950	0.96	0.190	20.35	9.89	8.52
2015	14.31	4.990	0.95	0.190	20.44	10.00	8.58
2016	14.39	5.010	0.94	0.190	20.53	10.07	8.57
2017	14.45	5.010	0.93	0.190	20.58	10.23	8.67
2018	14.50	4.980	0.92	0.190	20.59	10.39	8.79
2019	14.54	4.970	0.92	0.190	20.62	10.60	8.96
2020	14.61	4.960	0.91	0.200	20.68	10.77	9.06
2021	14.64	4.980	0.90	0.200	20.72	10.89	9.10
2022	14.71	4.980	0.90	0.200	20.79	11.02	9.05

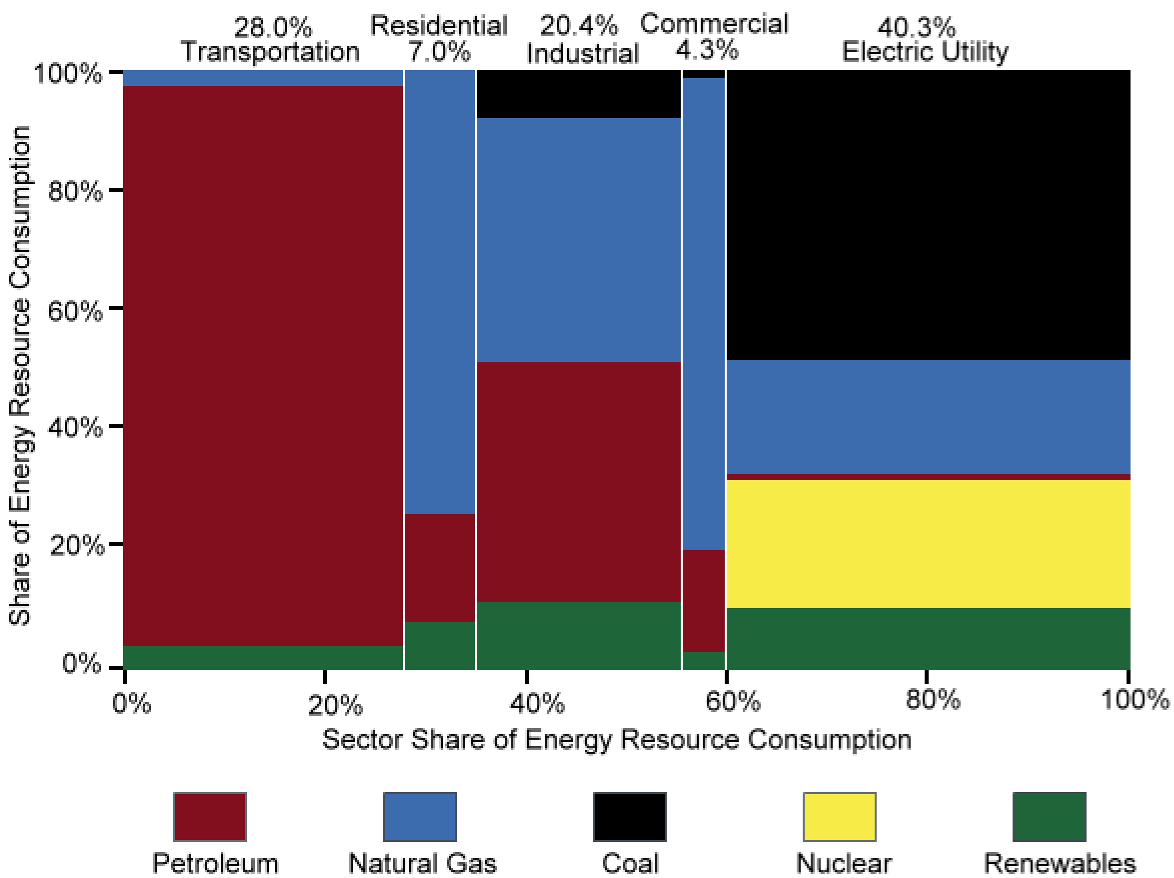
Historical and Future U.S. Petroleum Production and Petroleum Use (Million barrels per day)

Year	Transportation	Industrial	Residential and Commercial	Electric Utilities	Total	U.S. Petroleum Production with Other Inputs 2007-on (dotted line)	U.S. Petroleum Production without Other Inputs 2007-on
2023	14.79	4.970	0.89	0.200	20.85	10.96	8.98
2024	14.87	4.960	0.89	0.200	20.92	11.00	8.96
2025	14.96	4.940	0.88	0.200	20.98	11.15	9.04
2026	15.04	4.910	0.88	0.200	21.03	11.30	9.10
2027	15.13	4.880	0.87	0.200	21.08	11.48	9.18
2028	15.23	4.860	0.87	0.200	21.16	11.53	9.15
2029	15.34	4.840	0.86	0.200	21.24	11.63	9.17
2030	15.47	4.830	0.86	0.200	21.36	11.70	9.15
2031	15.60	4.830	0.86	0.200	21.49	11.81	9.12
2032	15.72	4.820	0.86	0.200	21.60	11.94	9.15
2033	15.84	4.810	0.85	0.200	21.70	12.20	9.30
2034	15.97	4.790	0.85	0.210	21.82	12.30	9.28
2035	16.10	4.770	0.85	0.210	21.93	12.34	9.23

Sources:
1973-2009 from Davis, S.C, Diegel, S. W., and Boundy, R.G., Transportation Energy Data Book: Edition 30, Oak Ridge National Laboratory, Oak Ridge, TN, 2011.
2010-2035 from EIA, Annual Energy Outlook 2011, Energy Information Administration, DOE/EIA-0383(2011), U.S. Department of Energy, Washington, DC, 2011.

Fact #689: August 22, 2011
Energy Use by Sector and Source

The transportation sector consumed 28% of U.S. energy in 2010, nearly all of it (93.5%) in petroleum use. The industrial sector used about 40% petroleum and 40% natural gas. The electric utility sector used little petroleum, but was dependent on coal for nearly half of the energy it consumed. Renewables, such as biofuels for transportation, were being used in every sector in 2010.



Supporting Information

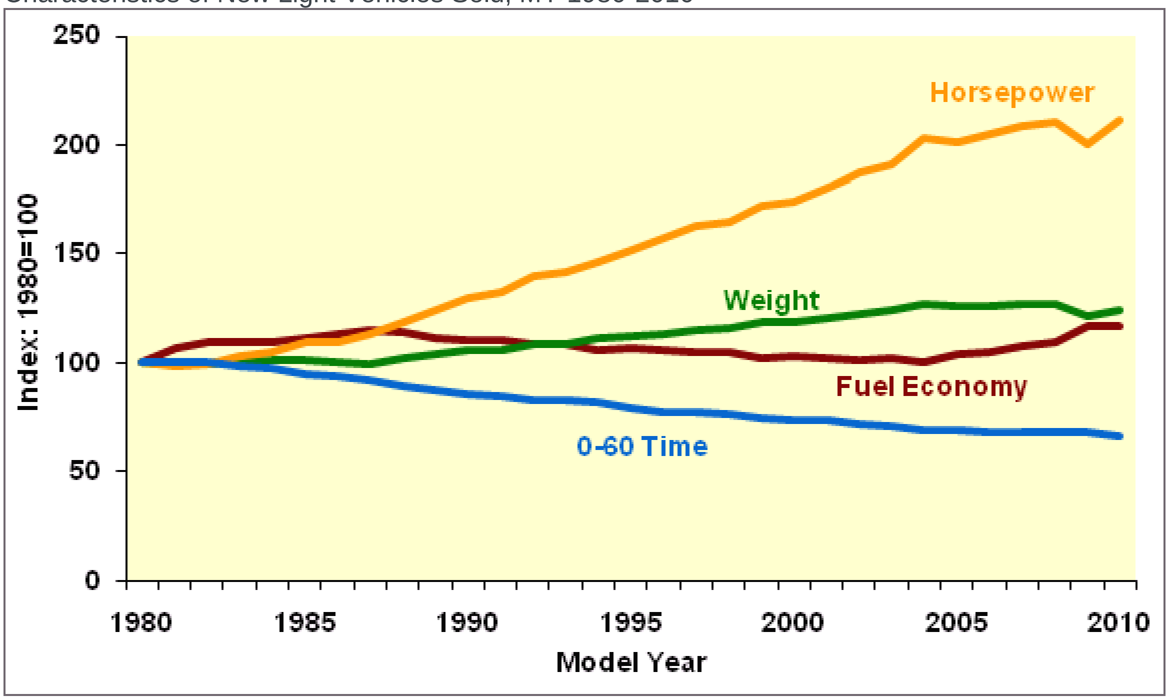
Energy Consumption by Sector and Source: 2010					
	Transportation	Residential	Commercial	Industrial	Electric Utility
	Total Energy Share				
	28.0%	7.0%	4.3%	20.4%	40.4%
	Energy Share by Source				
Coal	0.0%	0.1%	1.4%	8.1%	48.3%
Natural Gas	2.5%	74.0%	78.5%	40.6%	19.0%
Petroleum	93.5%	17.8%	17.1%	40.1%	1.0%
Renewables	4.0%	8.1%	3.0%	11.3%	10.2%
Nuclear	0.0%	0.0%	0.0%	0.0%	21.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
	Primary Energy Use in Quadrillion Btu				
	27.4	6.8	4.2	20.0	39.6

Source:
Source: U.S. Department of Energy, 2010 Vehicle Technologies Market Report
[Original source: Energy Information Administration, Monthly Energy Review.]

Fact #690: August 29, 2011
Characteristics of New Light Vehicles over Time

From model year (MY) 1980 to 2010, there have been significant gains made in automotive technology. For new light vehicles, horsepower has more than doubled and "0-to-60" times have dropped from 14.3 to 9.5 seconds. The average weight grew to a high of 4,111 pounds in 2004 and has dropped slightly since then (4,009 pounds in 2010). The average fuel economy of new light vehicles has gradually fluctuated higher and lower over the years, with fuel economy in 2010 being just above the 1987 average.

Characteristics of New Light Vehicles Sold, MY 1980-2010



Supporting Information

Characteristics of New Light Vehicles Sold, MY 1980-2010				
Model Year	**MPG**	**Weight**	**Horsepower**	**0-60 Time**
1980	19.2	3,228	104	14.3
1981	20.5	3,202	102	14.4
1982	21.1	3,202	103	14.4
1983	21.0	3,257	107	14.1
1984	21.0	3,262	109	14.0
1985	21.3	3,271	114	13.5
1986	21.8	3,238	114	13.4
1987	22.0	3,221	118	13.1
1988	21.9	3,283	123	12.8
1989	21.4	3,351	129	12.5
1990	21.2	3,426	135	12.2
1991	21.2	3,410	138	12.1
1992	20.8	3,512	145	11.8
1993	20.9	3,519	147	11.8
1994	20.4	3,603	152	11.7
1995	20.5	3,613	158	11.3
1996	20.4	3,659	164	11.1
1997	20.1	3,727	169	11.0
1998	20.1	3,744	171	10.9
1999	19.7	3,835	179	10.7
2000	19.8	3,821	181	10.6
2001	19.6	3,879	187	10.5
2002	19.4	3,951	195	10.3
2003	19.6	3,999	199	10.2
2004	19.3	4,111	211	9.9
2005	19.9	4,059	209	9.9

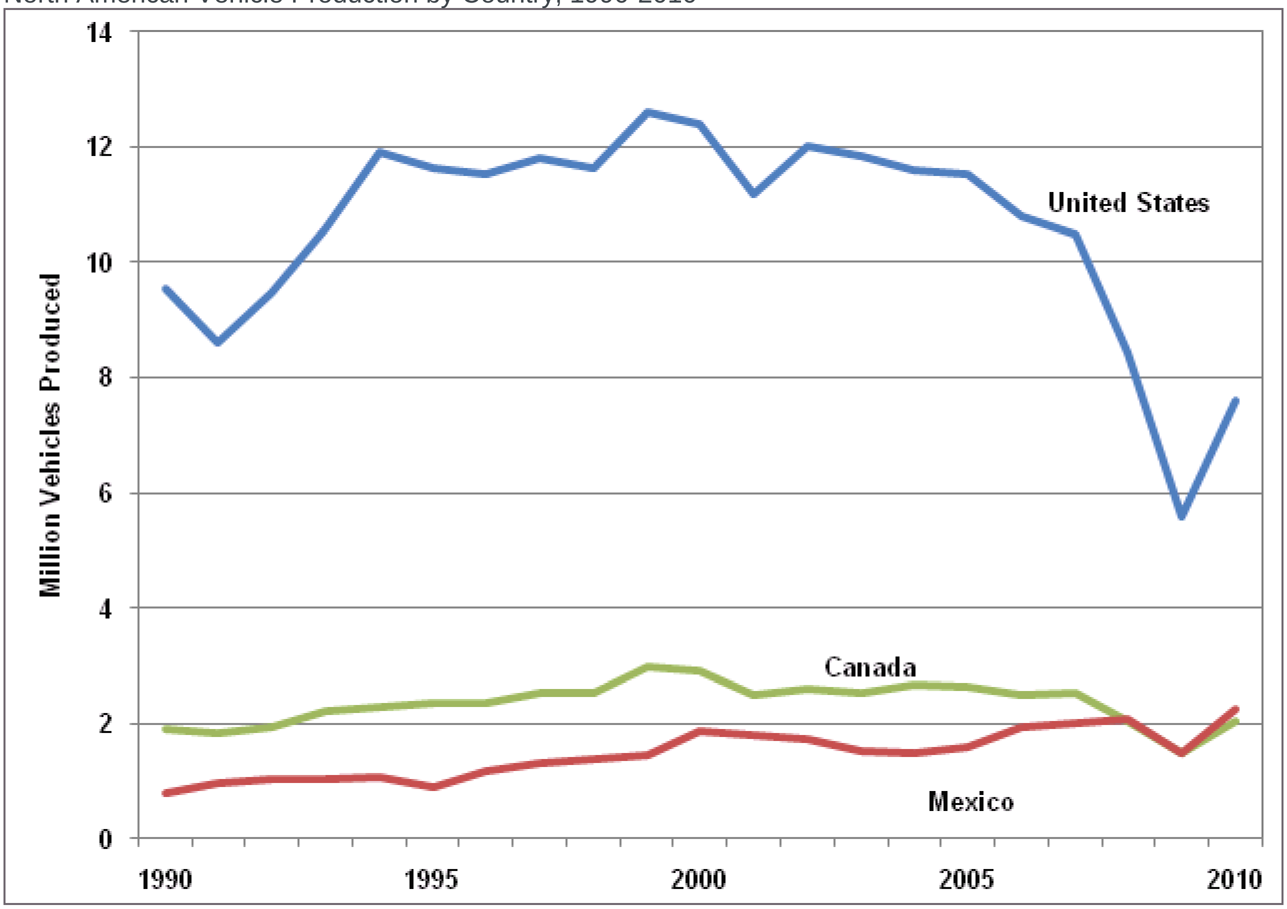
Characteristics of New Light Vehicles Sold, MY 1980-2010				
Model Year	**MPG**	**Weight**	**Horsepower**	**0-60 Time**
2006	20.1	4,067	213	9.8
2007	20.6	4,093	217	9.7
2008	21.0	4,085	219	9.7
2009	22.4	3,917	208	9.7
2010	22.5	4,009	220	9.5

Source:
U.S. Department of Energy, *2010 Vehicle Technologies Market Report*. [Original source: U.S. Environmental Protection Agency, Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2010]

Fact #691: September 5, 2011
Mexico Surpassed Canada in Vehicle Production

In 2008, Mexico produced more vehicles than Canada for the first time. In 2010, the gap widened. Seven automakers operate 12 assembly plants in Mexico. As a result, some major automotive suppliers are locating facilities in Mexico as well. U.S. production of vehicles fell to a low of 5.6 million vehicles in 2009, but rose in 2010.

North American Vehicle Production by Country, 1990-2010



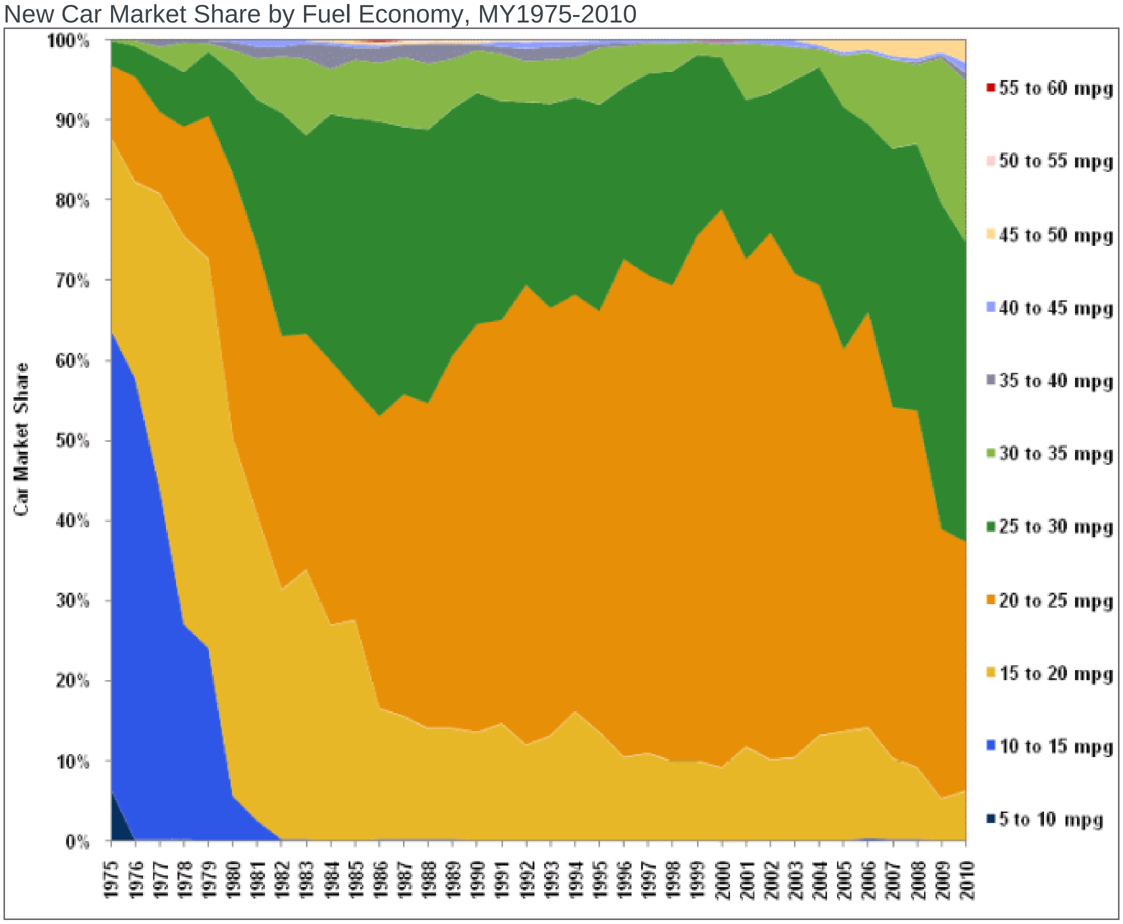
Supporting Information

North American Vehicle Production by Country, 1990-2010			
Calendar Year	**United States**	**Canada**	**Mexico**
1990	9.5	1.9	0.8
1991	8.6	1.9	1.0
1992	9.5	1.9	1.0
1993	10.6	2.2	1.0
1994	11.9	2.3	1.1
1995	11.6	2.4	0.9
1996	11.5	2.4	1.2
1997	11.8	2.5	1.3
1998	11.6	2.5	1.4
1999	12.6	3.0	1.4
2000	12.4	2.9	1.9
2001	11.2	2.5	1.8
2002	12.0	2.6	1.8
2003	11.8	2.5	1.5
2004	11.6	2.7	1.5
2005	11.5	2.6	1.6
2006	10.8	2.5	2.0
2007	10.5	2.5	2.0
2008	8.4	2.0	2.1
2009	5.6	1.5	1.5
2010	7.6	2.1	2.3
Sources: Crain Communication, *Automotive News*, June 27, 2011, and Ward's Automotive.			

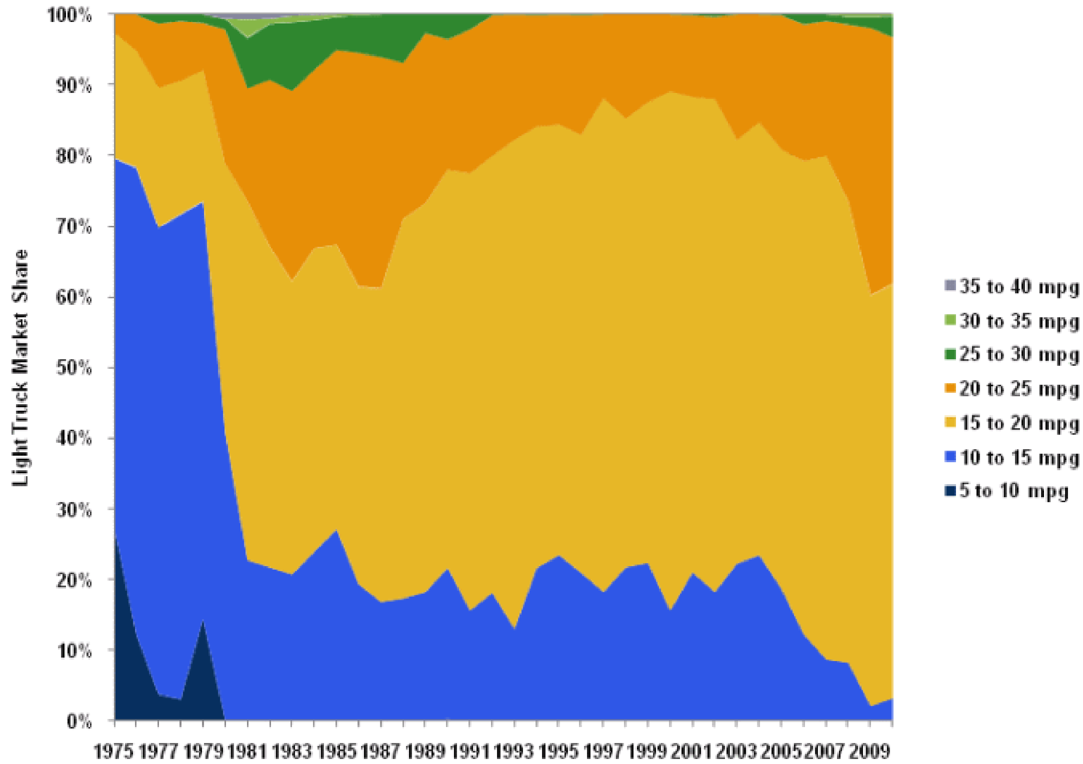
Fact #692: September 12, 2011
Fuel Economy Distribution for New Cars and Light Trucks

Nearly 64% of new cars sold in model year (MY) 1975 had combined highway/city fuel economy of 15 miles per gallon (mpg) or less [blue shading]. By 2010, 63% of cars had fuel economy of 25 mpg or higher [green shading and up]. Light trucks, which typically have lower fuel economy than cars, show a drastic change in the market in the early 1980's – moving towards new light trucks with 15-20 mpg. While the majority of light trucks sold are still in the 15-20 mpg range, more than 37% in 2009 and 2010 were 20 mpg or higher.

New Car Market Share by Fuel Economy, MY1975-2010



New Light Truck Market Share by Fuel Economy, MY1975-2010



Supporting Information

Car Market Share											
Model Year	5-10 mpg	10-15 mpg	15-20 mpg	20-25 mpg	25-30 mpg	30-35 mpg	35-40 mpg	40-45 mpg	45-50 mpg	50-55 mpg	55-60 mpg
1975	6.6%	57.3%	23.9%	9.0%	3.1%						
1976	0.2%	57.6%	24.4%	13.2%	3.8%	0.7%					
1977	0.2%	44.0%	36.7%	10.2%	6.6%	1.5%	0.8%				
1978	0.3%	26.8%	48.4%	13.7%	6.9%	3.6%	0.3%				
1979	0.0%	24.2%	48.5%	17.9%	8.0%	1.0%	0.4%				
1980	0.0%	5.7%	44.7%	33.0%	12.7%	2.7%	1.0%	0.2%			
1981	0.0%	2.6%	38.1%	33.6%	18.4%	5.1%	1.5%	0.8%			
1982	0.0%	0.3%	31.1%	31.7%	27.9%	7.0%	1.2%	0.8%			
1983	0.0%	0.3%	33.6%	29.5%	24.8%	9.5%	1.9%	0.4%	0.0%		
1984	0.0%	0.1%	26.9%	33.1%	30.8%	5.6%	3.0%	0.4%	0.2%		
1985	0.0%	0.1%	27.5%	28.9%	33.8%	7.3%	1.5%	0.4%	0.5%		

Car Market Share

Model Year	5-10 mpg	10-15 mpg	15-20 mpg	20-25 mpg	25-30 mpg	30-35 mpg	35-40 mpg	40-45 mpg	45-50 mpg	50-55 mpg	55-60 mpg
1986	0.0%	0.3%	16.3%	36.5%	36.8%	7.3%	1.9%	0.3%	0.3%	0.1%	0.2%
1987	0.0%	0.3%	15.3%	40.3%	33.4%	8.7%	1.6%	0.0%	0.3%	0.2%	
1988	0.0%	0.3%	13.8%	40.6%	34.2%	8.2%	2.5%	0.0%	0.2%	0.2%	
1989	0.0%	0.3%	13.8%	46.6%	30.8%	6.2%	1.9%	0.0%	0.3%	0.1%	
1990	0.0%	0.2%	13.4%	51.1%	28.9%	5.3%	0.7%	0.1%	0.3%	0.1%	
1991	0.0%	0.2%	14.5%	50.4%	27.3%	5.9%	0.9%	0.7%	0.1%	0.0%	
1992	0.0%	0.2%	11.8%	57.5%	22.8%	5.1%	1.6%	0.8%	0.1%	0.1%	
1993	0.0%	0.1%	13.1%	53.4%	25.5%	5.5%	1.6%	0.7%	0.0%	0.1%	
1994		0.1%	16.1%	52.1%	24.6%	4.9%	1.5%	0.6%	0.0%	0.1%	
1995	0.0%	0.1%	13.5%	52.6%	25.8%	7.1%	0.5%	0.4%	0.0%		
1996		0.1%	10.4%	62.2%	21.5%	5.1%	0.4%	0.3%			
1997		0.1%	10.9%	59.7%	25.2%	3.7%	0.2%	0.2%			
1998		0.1%	9.9%	59.4%	26.8%	3.4%	0.1%	0.3%			
1999		0.1%	9.9%	65.6%	22.6%	1.6%	0.1%	0.1%			
2000	0.0%	0.0%	9.2%	69.8%	19.0%	1.6%	0.2%	0.2%			0.1%
2001	0.0%	0.0%	11.8%	60.7%	19.9%	7.0%	0.1%	0.3%	0.0%		0.0%
2002		0.1%	10.1%	65.8%	17.5%	5.9%	0.2%	0.4%	0.0%		0.0%
2003	0.0%	0.1%	10.4%	60.3%	24.2%	4.1%	0.0%	0.8%	0.0%	0.0%	
2004		0.1%	13.1%	56.3%	27.2%	2.2%	0.2%	0.3%	0.6%	0.0%	
2005		0.2%	13.5%	47.7%	30.3%	6.4%	0.1%	0.3%	1.5%	0.0%	
2006		0.4%	13.8%	51.9%	23.5%	8.9%	0.0%	0.4%	1.1%	0.0%	
2007		0.3%	10.1%	43.9%	32.3%	11.1%		0.4%	2.0%		
2008		0.3%	8.9%	44.6%	33.3%	9.9%	0.3%	0.4%	2.3%		
2009		0.2%	5.1%	33.7%	40.7%	18.1%	0.4%	0.3%	1.5%		
2010		0.2%	6.1%	31.1%	37.4%	20.2%	1.0%	1.2%	2.8%		

Source: U.S. Environmental Protection Agency, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2010*, Appendix C.

Light Truck Market Share

Model Year	5-10 mpg	10-15 mpg	15-20 mpg	20-25 mpg	25-30 mpg	30-35 mpg	35-40 mpg	40-45 mpg	45-50 mpg	50-55 mpg	55-60 mpg
1975	27.6%	52.1%	17.9%	2.5%							
1976	12.3%	66.0%	16.6%	5.1%							
1977	3.8%	66.0%	19.8%	9.1%	1.3%						
1978	3.1%	68.6%	18.9%	8.5%	0.9%						
1979	14.4%	59.1%	18.6%	6.7%	1.2%						
1980	0.2%	40.7%	37.9%	19.1%	1.5%		0.6%				
1981	0.0%	22.8%	50.7%	16.1%	7.1%	2.6%	0.7%				
1982		21.8%	45.3%	23.7%	7.9%	0.7%	0.6%				
1983		20.8%	41.4%	27.1%	9.7%	0.9%	0.2%				
1984	0.1%	23.9%	42.8%	25.4%	7.0%	0.7%	0.1%				
1985	0.0%	27.2%	40.2%	27.7%	4.7%	0.3%	0.0%				
1986		19.4%	42.0%	33.2%	5.3%	0.1%	0.0%				
1987		16.9%	44.2%	32.9%	6.0%	0.0%	0.0%				
1988	0.0%	17.4%	53.6%	22.2%	6.8%						
1989		18.3%	54.9%	24.2%	2.6%						
1990	0.3%	21.4%	56.2%	18.5%	3.5%						
1991		15.7%	61.8%	20.5%	2.1%						
1992		18.2%	61.7%	20.0%	0.1%						
1993		13.1%	69.1%	17.8%	0.0%						
1994		21.7%	62.3%	15.8%	0.1%						
1995		23.5%	60.8%	15.6%	0.0%						
1996		21.0%	61.9%	17.0%	0.1%						
1997		18.3%	69.8%	11.9%	0.0%						
1998		21.8%	63.4%	14.8%	0.0%						
1999		22.4%	65.1%	12.4%							
2000		15.7%	73.4%	10.9%							

Light Truck Market Share

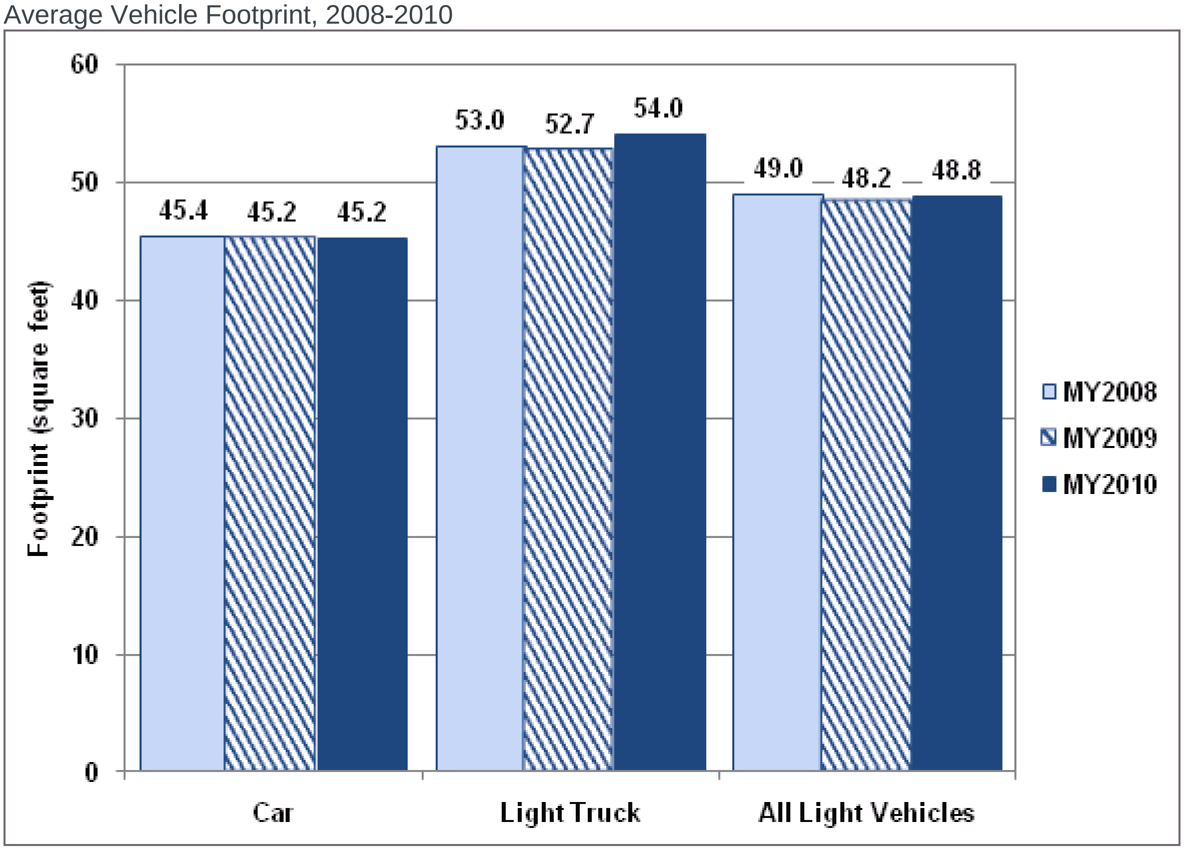
Model Year	5-10 mpg	10-15 mpg	15-20 mpg	20-25 mpg	25-30 mpg	30-35 mpg	35-40 mpg	40-45 mpg	45-50 mpg	50-55 mpg	55-60 mpg
2001		21.1%	67.3%	11.6%	0.1%						
2002		18.3%	69.6%	11.7%	0.3%						
2003		22.3%	59.8%	17.8%	0.0%						
2004		23.5%	61.2%	15.3%							
2005	0.0%	18.7%	62.0%	19.1%	0.1%						
2006	0.0%	12.3%	66.8%	19.4%	1.4%						
2007		8.8%	71.1%	19.2%	0.9%						
2008		8.3%	65.1%	25.1%	1.1%	0.3%					
2009		2.2%	57.9%	37.9%	1.6%	0.3%					
2010		3.3%	58.5%	35.0%	3.0%	0.2%					

Source: U.S. Environmental Protection Agency, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2010*, Appendix C.

Fact #693: September 19, 2011
Average Vehicle Footprint for Cars and Light Trucks

A vehicle footprint is the area defined by the four points where the tires touch the ground. It is calculated as the product of the wheelbase and the average track width of the vehicle. The upcoming Corporate Average Fuel Economy (CAFE) Standards have fuel economy targets based on the vehicle footprint. The average footprint for all cars sold in model year (MY) 2010 was 45.2 square feet (sq ft), down just 0.2 sq ft from 2008. The average footprint for light trucks was higher – 54.0 in 2010.

Average Vehicle Footprint, 2008-2010



Supporting Information

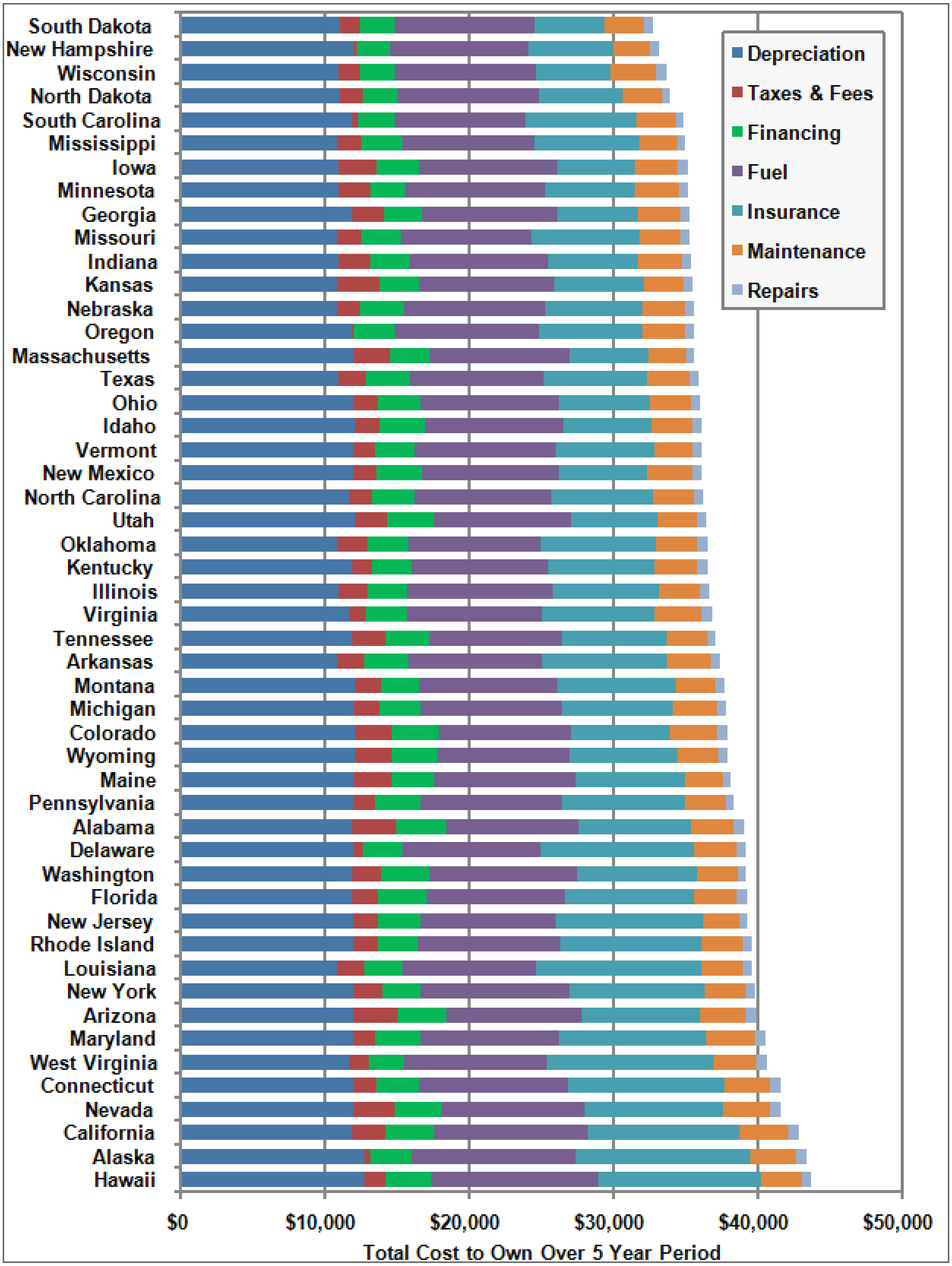
Average Vehicle Footprint, 2008-2010			
Model Year	**Car**	**Light Truck**	**All Light Vehicles**
2008	45.4	53.0	49.0
2009	45.2	52.7	48.2
2010	45.2	54.0	48.8

Source: U.S. Environmental Protection Agency, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2010*, Table 2.

Fact #694: September 26, 2011
Costs of Owning a Vehicle by State

There are many costs involved in owning a vehicle, such as depreciation, interest on financing, taxes and fees, insurance premiums, fuel, maintenance, and repairs. Research has been done to calculate the difference in those costs over a five-year period on a State by State basis. The difference can be as much as $10,000. South Dakota, New Hampshire, and Wisconsin are the least expensive States in terms of vehicle ownership, while Hawaii, Alaska, and California are the most expensive.

Total Cost to Own a Vehicle over a Five-Year Period*



* Based on a 2011 Toyota Camry 4-door sedan on August 3, 2011. Different vehicle models will have different costs.

Supporting Information

Total Cost to Own a Vehicle over a Five-Year Period*								
State	Depreciation	Taxes & Fees	Financing	Fuel	Insurance	Maintenance	Repairs	True Cost to Own
Alabama	$11,860	$3,082	$3,403	$9,252	$7,754	$2,977	$665	$38,993
Alaska	$12,666	$489	$2,856	$11,365	$12,135	$3,137	$744	$43,392
Arizona	$11,922	$3,150	$3,325	$9,405	$8,167	$3,198	$732	$39,899
Arkansas	$10,853	$1,821	$3,107	$9,222	$8,687	$3,035	$683	$37,408
California	$11,842	$2,355	$3,371	$10,660	$10,500	$3,324	$773	$42,825
Colorado	$12,072	$2,560	$3,217	$9,222	$6,843	$3,204	$744	$37,862
Connecticut	$11,927	$1,629	$2,989	$10,263	$10,833	$3,151	$726	$41,518
Delaware	$11,927	$708	$2,731	$9,557	$10,693	$2,889	$671	$39,176
Florida	$11,860	$1,753	$3,366	$9,650	$8,977	$2,960	$665	$39,231
Georgia	$11,860	$2,251	$2,651	$9,344	$5,610	$2,850	$631	$35,197
Hawaii	$12,666	$1,468	$3,172	$11,579	$11,299	$2,868	$648	$43,700
Idaho	$12,072	$1,723	$3,096	$9,650	$6,055	$2,836	$631	$36,063
Illinois	$10,969	$1,973	$2,739	$10,109	$7,326	$2,868	$637	$36,621
Indiana	$10,969	$2,196	$2,655	$9,679	$6,187	$2,985	$671	$35,342
Iowa	$10,969	$2,626	$2,903	$9,557	$5,363	$3,002	$677	$35,097
Kansas	$10,853	$2,882	$2,758	$9,405	$6,182	$2,763	$601	$35,444
Kentucky	$11,853	$1,370	$2,753	$9,527	$7,352	$2,970	$671	$36,496
Louisiana	$10,860	$1,835	$2,622	$9,252	$11,561	$2,847	$625	$39,602
Maine	$11,927	$2,649	$2,991	$9,834	$7,497	$2,645	$577	$38,120
Maryland	$11,927	$1,544	$3,097	$9,588	$10,231	$3,375	$797	$40,559
Massachusetts	$11,927	$2,565	$2,735	$9,650	$5,551	$2,604	$560	$35,592
Michigan	$11,969	$1,825	$2,785	$9,864	$7,674	$3,009	$683	$37,809
Minnesota	$10,969	$2,202	$2,399	$9,650	$6,248	$3,024	$683	$35,175
Mississippi	$10,860	$1,665	$2,770	$9,190	$7,260	$2,636	$565	$34,946
Missouri	$10,853	$1,650	$2,699	$9,099	$7,449	$2,864	$637	$35,251
Montana	$12,072	$1,841	$2,626	$9,557	$8,221	$2,695	$612	$37,624
Nebraska	$10,853	$1,498	$3,127	$9,803	$6,688	$2,928	$659	$35,556
Nevada	$11,922	$2,873	$3,244	$9,925	$9,610	$3,223	$744	$41,541
New Hampshire	$11,927	$220	$2,369	$9,527	$5,921	$2,559	$571	$33,094
New Jersey	$11,927	$1,746	$2,947	$9,313	$10,248	$2,557	$543	$39,281

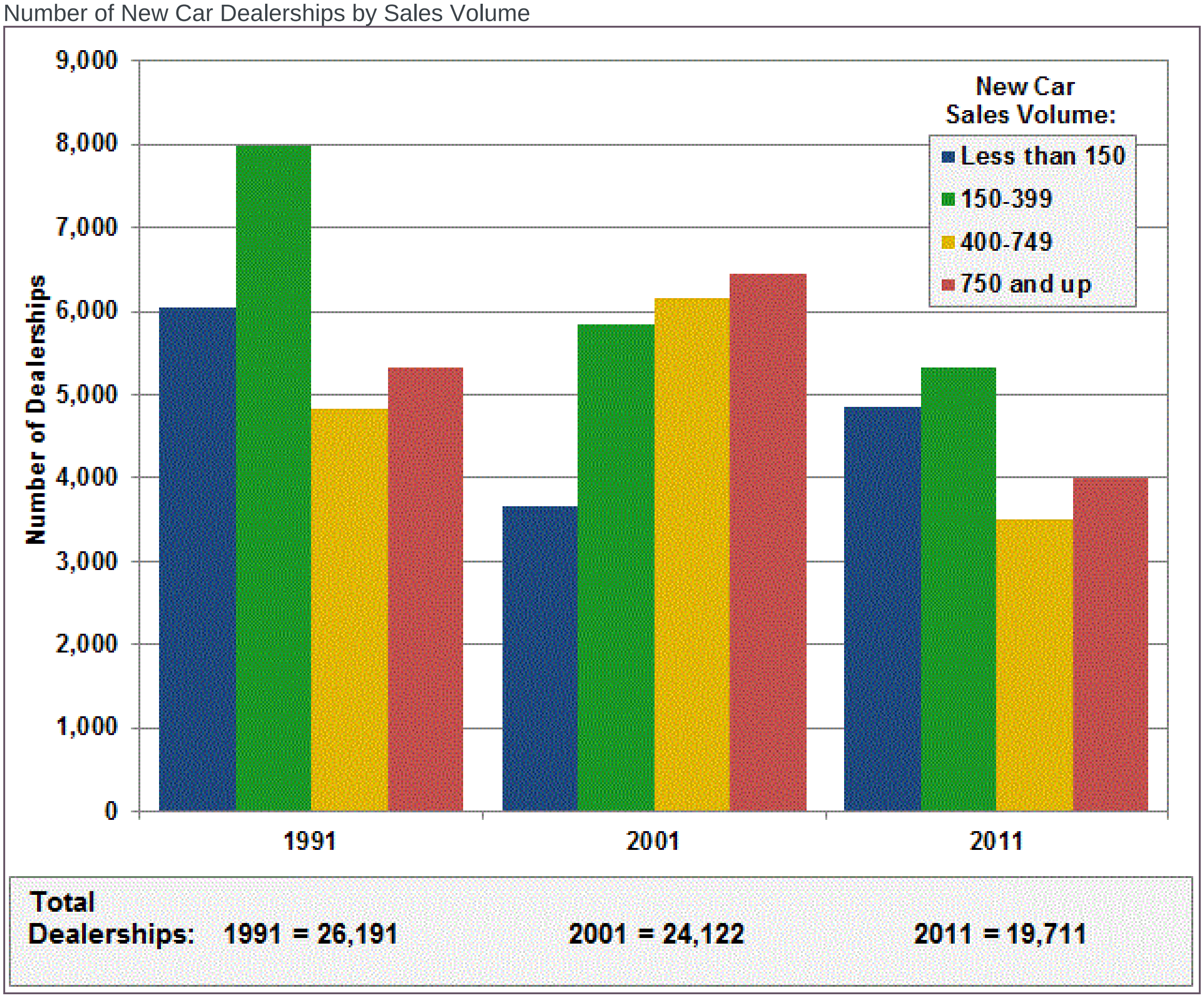
Total Cost to Own a Vehicle over a Five-Year Period*								
State	Depreciation	Taxes & Fees	Financing	Fuel	Insurance	Maintenance	Repairs	True Cost to Own
New Mexico	$11,922	$1,673	$3,145	$9,466	$6,086	$3,122	$715	$36,129
New York	$11,942	$1,992	$2,672	$10,293	$9,443	$2,826	$618	$39,786
North Carolina	$11,639	$1,588	$2,949	$9,466	$7,042	$2,905	$648	$36,237
North Dakota	$11,072	$1,576	$2,373	$9,834	$5,732	$2,730	$601	$33,918
Ohio	$11,969	$1,684	$2,952	$9,619	$6,317	$2,848	$631	$36,020
Oklahoma	$10,853	$2,049	$2,811	$9,252	$7,921	$2,937	$654	$36,477
Oregon	$11,842	$129	$2,854	$10,048	$7,121	$2,908	$677	$35,579
Pennsylvania	$11,927	$1,516	$3,170	$9,742	$8,580	$2,797	$618	$38,350
Rhode Island	$11,927	$1,714	$2,777	$9,864	$9,776	$2,850	$631	$39,539
South Carolina	$11,860	$377	$2,534	$9,099	$7,700	$2,715	$589	$34,874
South Dakota	$11,072	$1,325	$2,426	$9,679	$4,815	$2,823	$631	$32,771
Tennessee	$11,853	$2,348	$3,002	$9,190	$7,244	$2,825	$612	$37,074
Texas	$10,922	$1,854	$3,092	$9,222	$7,159	$2,991	$671	$35,911
Utah	$12,072	$2,243	$3,247	$9,466	$5,978	$2,784	$612	$36,402
Vermont	$11,927	$1,525	$2,775	$9,803	$6,816	$2,660	$577	$36,083
Virginia	$11,639	$1,208	$2,838	$9,313	$7,873	$3,186	$744	$36,801
Washington	$11,842	$2,059	$3,313	$10,263	$8,344	$2,771	$601	$39,193
West Virginia	$11,639	$1,426	$2,365	$9,896	$11,615	$2,970	$671	$40,582
Wisconsin	$10,969	$1,427	$2,424	$9,742	$5,249	$3,156	$732	$33,699
Wyoming	$12,072	$2,540	$3,138	$9,222	$7,444	$2,826	$631	$37,873

* Based on a 2011 Toyota Camry 4-door sedan on August 3, 2011. Different vehicle models will have different costs.
Source: Edmund's True Cost to Own Pricing System

Fact #695: October 3, 2011
New Car Dealerships

The number of new car dealerships has declined by nearly 25% from 1991 to 2011. The largest decline in this period was for dealerships that sold 150-399 new cars annually. The smallest dealerships, selling less than 150 new cars annually, declined from 1991 to 2011, but grew in number from 2001 to 2011. The number of large dealers (750 new car sales and up) was the highest in 2001.

Number of New Car Dealerships by Sales Volume



Supporting Information

Number of New Car Dealerships by Sales Volume					
New Car Sales Volume	**1991**	**2001**	**2011**	**Percent change from 2011 to 1991**	**Percent change from 2011 to 2001**
Less than 150	6,050	3,669	4,864	-19.6%	32.6%
150-399	7,986	5,848	5,337	-33.2%	-8.7%
400-749	4,840	6,158	3,512	-27.4%	-43.0%
750 and up	5,324	6,446	3,987	-25.1%	-38.1%
Total	26,191	24,122	19,711	-24.7%	-18.3%
Source: NADA DATA 2011.					

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Vehicle Technologies Program

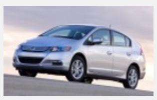
Fact #696: October 10, 2011
Top Ten "Real World" Fuel Economy Leaders

The Environmental Protection Agency (EPA) fuel economy ratings on the window stickers of new cars are based on strict test cycles conducted in a controlled laboratory setting. These official EPA estimates do not reflect all the varied conditions encountered in real world driving such as congestion, terrain, weather, driving style, fuel blends and other factors. On the website www.fueleconomy.gov, drivers are encouraged to enter their real world fuel economy to compare their results with EPA ratings and with other car owners across the nation. The model year (MY) 2004 – 2006 Honda Insight is currently the vehicle in the database with the best real world fuel economy, followed by the MY 1990 – 1994 Geo Metro. Both vehicles have real world average fuel economies higher than the EPA ratings. The table also shows the number of users who have entered data for that particular vehicle type – the MY 2010-2011 Toyota Prius (#4 on the list) has 158 people who entered their fuel economy information.

If you would like to enter fuel economy information for your vehicle, go to Your MPG page on the www.fueleconomy.gov website.

Top Ten "Real World" Fuel Economy Leaders

1.		Honda Insight Model Years 2004-2006	**User Average 71.2** (based on 12 Your MPG users)
		3 cyl, 1.0L, Manual 5-spd, Regular	EPA Combined 52
2.		Geo Metro XFI Model Years 1990-1994	**User Average 50.4** (based on 15 Your MPG users)
		3 cyl, 1.0L, Manual 5-spd, Regular	EPA Combined 47
3.		Honda Civic CRX HF Model Years 1990-1991	**User Average 50.2** (based on 11 Your MPG users)
		4 cyl, 1.5L, Manual 5-spd, Regular	EPA Combined 43

Top Ten "Real World" Fuel Economy Leaders			
4.		Toyota Prius Model Years 2010-2011	**User Average 49.1** (based on 158 Your MPG users)
		4 cyl, 1.8L, Automatic (variable gear ratios), Regular	EPA Combined 50
5.		Honda Insight Model Years 2010-2011	**User Average 48.6** (based on 18 Your MPG users)
		4 cyl, 1.3L, Auto(AV-S7), Regular	EPA Combined 41
6.		Volkswagen Jetta Wagon Model Years 2002-2003	**User Average 48.1** (based on 23 Your MPG users)
		4 cyl, 1.9L, Manual 5-spd, Diesel	EPA Combined 39
7.		Honda Civic Hybrid Model Years 2003-2005	**User Average 47.9** (based on 20 Your MPG users)
		4 cyl, 1.3L, Manual 5-spd, Regular	EPA Combined 41
8.		Volkswagen Golf Model Years 2000-2003	**User Average 47.1** (based on 52 Your MPG users)
		4 cyl, 1.9L, Manual 5-spd, Diesel	EPA Combined 38
9.		Honda Civic HB VX Model Years 1992-1995	**User Average 47.1** (based on 14 Your MPG users)
		4 cyl, 1.5L, Manual 5-spd, Regular	EPA Combined 43
10.		Volkswagen Jetta Model Years 1985-1991	**User Average 46.4** (based on 13 Your MPG users)
		4 cyl, 1.6L, Manual 5-spd, Diesel	EPA Combined 34
Source: U.S. Department of Energy and U.S. Environmental Protection Agency, FuelEconomy.Gov website: Fueleconomy Top Ten.			

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

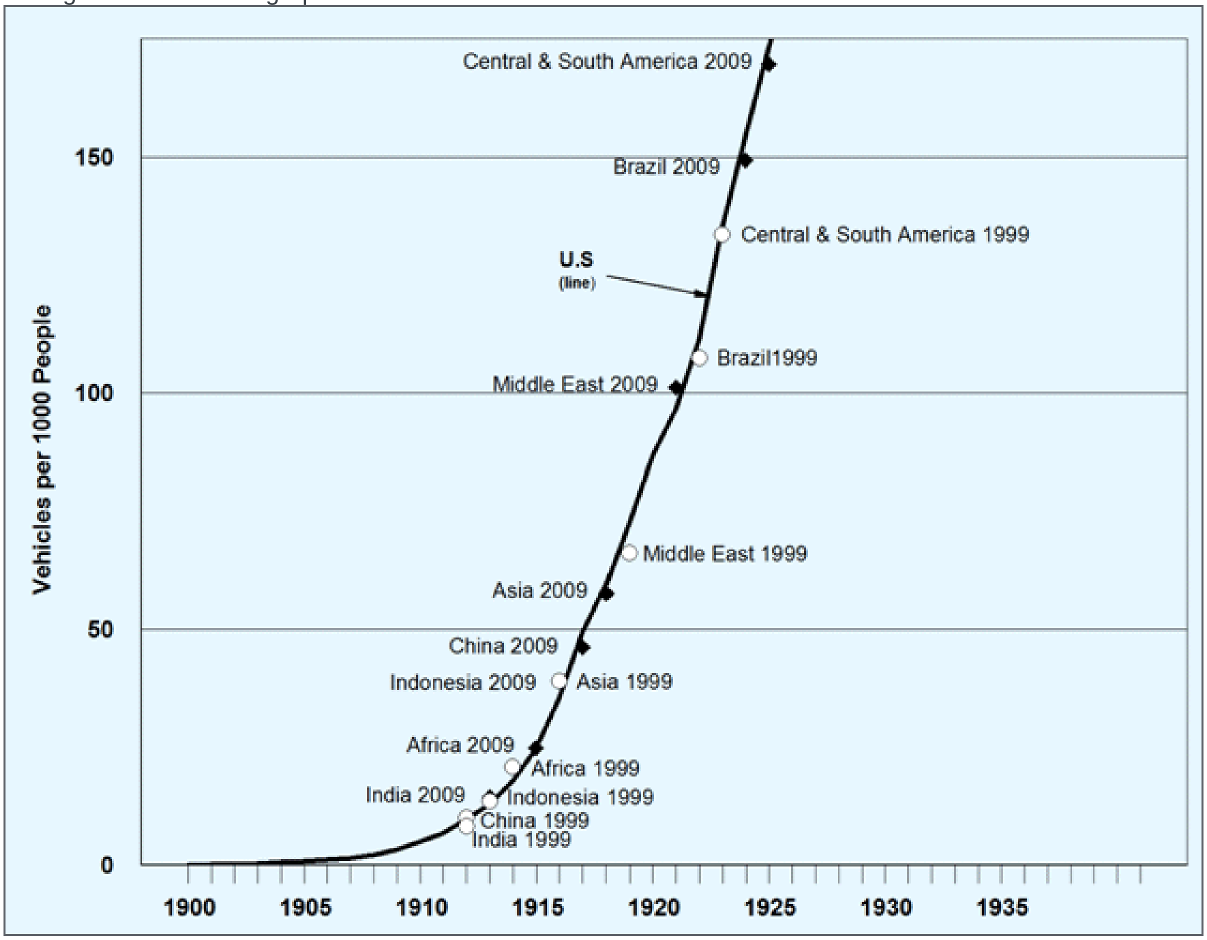
Vehicle Technologies Program

Fact #697: October 17, 2011
Comparison of Vehicles per Thousand People in Selected Countries/Regions

The U S. data for vehicles per thousand people are displayed in the line which goes from 1900 to 2009. The points labeled on that line show data for other countries/regions around the world and how their vehicles per thousand people compare to the U.S. at two different points in time, 1999 and 2009. For instance, the graph shows that in 1999 Western Europe's vehicles per thousand people was about where the U.S. was in 1969, but by 2009 it was about where the U.S. was in 1972. The lower part of the graph is enlarged below, showing that China moved from where the U.S. was in 1912 to where the U.S. was in 1917.

Vehicles per Thousand People: US (Over Time) Compared to Other Countries/Regions

Enlarged bottom left of graph



Supporting Information

Vehicles per Thousand People in Other Countries, 1999 and 2009		
	Vehicles per 1,000 people	
Country/Region	**1999**	**2009**
Africa	20.9	24.9
Asia, Far East	39.1	157.7
Asia, Middle East	66.2	101.2
Brazil	107.5	149.2
Canada	560	620.9
Central & South America	133.6	169.7
China	10.2	46.2
Europe, East	370	363.9
Europe, West	528.8	583.3
India	8.3	14.4
Indonesia	13.7	35.9
Pacific	513.9	560.9
Source: Oak Ridge National Laboratory, Transportation Energy Data Book: Edition 30, ORNL-6986, June 2011.		

Vehicles per Thousand People in the United States, 1990 and 2009									
Year	**U.S. vehicles per 1,000 people**	**Year**	**U.S. vehicles per 1,000 people**	**Year**	**U.S. vehicles per 1,000 people**	**Year**	**U.S. vehicles per 1,000 people**	**Year**	**U.S. vehicles per 1,000 people**
1900	0.11	1922	111.53	1944	220.23	1966	489.34	1988	772.92
1901	0.19	1923	134.90	1945	221.80	1967	500.66	1989	776.99
1902	0.29	1924	154.35	1946	243.11	1968	516.49	1990	773.40
1903	0.41	1925	173.26	1947	262.56	1969	533.37	1991	760.19
1904	0.67	1926	189.10	1948	280.20	1970	545.35	1992	757.96
1905	0.94	1927	195.77	1949	299.56	1971	562.45	1993	761.94
1906	1.27	1928	204.87	1950	323.71	1972	585.60	1994	766.94
1907	1.65	1929	219.31	1951	337.14	1973	615.19	1995	770.99
1908	2.24	1930	217.34	1952	340.57	1974	632.32	1996	781.16
1909	3.45	1931	210.37	1953	353.67	1975	640.07	1997	776.02
1910	5.07	1932	195.38	1954	361.40	1976	659.47	1998	781.20
1911	6.81	1933	192.38	1955	379.77	1977	669.03	1999	790.07
1912	9.90	1934	199.90	1956	387.58	1978	690.17	2000	800.30
1913	12.94	1935	208.61	1957	392.11	1979	700.42	2001	825.49
1914	17.79	1936	222.62	1958	392.17	1980	710.71	2002	815.22
1915	24.77	1937	233.33	1959	402.83	1981	715.22	2003	815.50
1916	35.48	1938	229.65	1960	410.37	1982	713.95	2004	829.26
1917	49.57	1939	236.93	1961	415.11	1983	724.30	2005	836.58
1918	59.69	1940	245.63	1962	426.06	1984	728.20	2006	840.09
1919	72.50	1941	261.57	1963	438.75	1985	744.50	2007	843.57
1920	86.78	1942	244.73	1964	451.57	1986	753.33	2008	840.80
1921	96.68	1943	225.89	1965	466.90	1987	758.58	2009	828.04

Source: Oak Ridge National Laboratory, Transportation Energy Data Book: Edition 30, ORNL-6986, June 2011.

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Vehicle Technologies Program

Fact #698: October 24, 2011
Changes in the Federal Highway Administration Vehicle Travel Data

With the April release of Table VM-1 from Highway Statistics 2009 came several changes to the availability of data on vehicle miles of travel (VMT). From 1966 to 2008, the Federal Highway Administration (FHWA) published the VMT, fuel use, and average fuel economy of 2-axle, 4-tire trucks separately from cars on Table VM-1. The 2-axle, 4-tire truck category included pickups, vans, sport utility vehicles, and other 4-tire trucks. For 2009 data and thereafter, car and 2-axle, 4-tire truck data are aggregated together and reported by the length of the vehicle's wheelbase (short and long). In addition, significant methodology changes were made to the single-unit truck and the combination truck data on VM-1, such that the data are not comparable with the previous years' data. Knowing that comparability would be an issue, the FHWA released revised versions of Table VM-1 going back to the year 2007. You can find the revised data in the Highway Statistics on the U.S. Department of Transportation Federal Highway Administration web site.

The 2008 VM-1 Original Table

Annual Vehicle Distance Traveled in Miles and Related Data – 2008 1/
by Highway Category and Vehicle Type
December 2009
Table VM-1

								SUBTOTALS		
YEAR	ITEM	PASSENGER CARS	MOTOR-CYCLES	BUSES	OTHER 2-AXLE 4-TIRE VEHICLES 3/	SINGLE-UNIT 2-AXLE 6-TIRE OR MORE TRUCKS 4/	COMBINATION TRUCKS	PASSENGER CARS AND OTHER 2-AXLE 4-TIRE VEHICLES	SINGE-UNIT 2-AXLE 6-TIRE OR MORE AND COMBINATION TRUCKS	ALL MOTOR VEHICLES 2/
	Motor-Vehicle Travel: (millions of vehicle-miles)									
2008	Interstate Rural	115,532	1,348	1,027	77,842	7,299	40,242	193,373	47,542	243,290
2007		122,183	1,420	986	82,030	7,188	42,632	204,212	49,819	256,438
2008	Other Arterial Rural	191,897	2,418	1,020	139,867	13,646	25,426	331,764	39,071	374,273
2007		204,123	2,305	1,015	145,985	13,877	26,160	350,108	40,037	393,465
2008	Other Rural	195,684	1,929	1,772	144,171	15,478	13,820	339,855	29,298	372,855
2007		203,485	1,820	1,722	148,612	15,659	14,101	352,097	29,760	385,400
2008	All Rural	503,112	5,695	3,819	361,880	36,423	79,488	864,993	115,911	990,418
2007		529,791	5,546	3,723	376,627	36,723	82,893	906,418	119,616	1,035,303
2008	Interstate Urban	262,321	2,738	1,077	169,605	10,127	30,223	431,926	40,350	476,091
2007		267,559	2,631	1,052	170,669	10,143	31,262	438,228	41,405	483,315
2008	Other Urban	850,417	6,051	2,218	577,117	37,400	33,797	1,427,534	71,197	1,507,000
2007		875,118	5,444	2,205	564,975	35,147	30,892	1,440,093	66,039	1,513,781

Annual Vehicle Distance Traveled in Miles and Related Data – 2008 1/
by Highway Category and Vehicle Type
December 2009
Table VM-1

								SUBTOTALS		
YEAR	**ITEM**	**PASSENGER CARS**	**MOTOR-CYCLES**	**BUSES**	**OTHER 2-AXLE 4-TIRE VEHICLES 3/**	**SINGLE-UNIT 2-AXLE 6-TIRE OR MORE TRUCKS 4/**	**COMBINATION TRUCKS**	**PASSENGER CARS AND OTHER 2-AXLE 4-TIRE VEHICLES**	**SINGE-UNIT 2-AXLE 6-TIRE OR MORE AND COMBINATION TRUCKS**	**ALL MOTOR VEHICLES 2/**
	Motor-Vehicle Travel: (millions of vehicle-miles)									
2008	All Urban	1,112,738	8,789	3,295	746,722	47,527	64,019	1,859,460	111,547	1,983,091
2007		1,142,677	8,075	3,257	735,644	45,290	62,153	1,878,320	107,444	1,997,096
2008	Total Rural and Urban	1,615,850	14,484	7,114	1,108,603	83,951	143,507	2,724,453	227,458	2,973,509
2007		1,672,467	13,621	6,980	1,112,271	82,014	145,046	2,784,738	227,060	3,032,399
2008	Number of motor vehicles registered 5/	137,079,843	7,752,926	843,308	101,234,849	6,790,882	2,215,856	238,314,692	9,006,738	255,917,664
2007		135,932,930	7,138,476	834,436	101,469,615	6,806,630	2,220,995	237,402,545	9,027,624	254,403,081
2008	Average miles traveled per vehicle	11,788	1,868	8,436	10,951	12,362	64,764	11,432	25,254	11,619
2007		12,304	1,908	8,365	10,962	12,049	65,307	11,730	25,152	11,920
2008	Person-miles of travel 6/ (millions)	2,553,043	18,395	150,827	1,921,960	83,951	143,507	4,475,004	227,458	4,871,683
2007		2,642,498	17,298	147,985	1,928,319	82,014	145,046	4,570,818	227,060	4,963,161
2008	Fuel consumed 7/ (thousand gallons)	71,497,204	256,358	1,109,636	61,198,934	9,888,729	26,814,441	132,696,139	36,703,170	170,765,303
2007		74,377,197	242,241	1,144,861	61,836,216	10,043,778	28,545,442	136,213,413	38,589,220	176,189,735
2008	Average fuel consumption per vehicle (gallons) 7/	522	33	1,316	605	1,456	12,101	557	4,075	667
2007		547	34	1,372	609	1,476	12,853	574	4,275	693
2008	Average miles traveled per gallon of fuel consumed 7/	22.6	56.5	6.4	18.1	8.5	5.4	20.5	6.2	17.4
2007		22.5	56.2	6.1	18.0	8.2	5.1	20.4	5.9	17.2

1/ The 50 states and the District of Columbia report travel by highway category, number of motor vehicles registered, and total fuel consumed. The travel and fuel data by vehicle type and stratification of trucks are estimated by the Federal Highway Administration (FHWA). Estimation procedures include use of State supplied data, the 2002 Census of Transportation Vehicle Inventory and Use Survey (VIUS), and other sources.
2/ Totals by highway category are from table VM-2. Some changes between rural and urban roadways can be attributed to 2002 census boundary changes.
3/ Other 2-Axle 4-Tire Vehicles which are not passenger cars. These include vans, pickup trucks, and sport/utility vehicles.
4/ Single-Unit 2-Axle 6-Tire or More Trucks on a single frame with at least two axles and six tires.
5/ Truck registration figures are from tables MV-1 and MV-9 with truck distribution estimated by the FHWA.
6/ Vehicle occupancy is estimated by the FHWA from the 2001 National Household Travel Survey (NHTS); For heavy trucks, 1 motor vehicle miles traveled = 1 person-miles traveled.
7/ Total fuel consumption figures are from tables MF-21 and MF-27. Distribution by vehicle type is estimated by the FHWA based on miles per gallon for both diesel and gasoline powered vehicles using State-supplied data, the 2002 VIUS, and other sources with nominal inputs for motorcycles and buses.

The 2009 VM-1 Revised Methodology Table

Annual Vehicle Distance Traveled in Miles and Related Data – 2009 1/
by Highway Category and Vehicle Type
Published: April 2011
Table VM-1

								SUBTOTALS		
YEAR	ITEM	LIGHT DUTY VEHICLES SHORT WB 2/	MOTOR-CYCLES	BUSES	LIGHT DUTY VEHICLES LONG WB 2/	SINGLE-UNIT TRUCKS 3/	COMBINATION TRUCKS	ALL LIGHT DUTY VEHICLES 2/	SINGE-UNIT 2-AXLE 6-TIRE OR MORE AND COMBINATION TRUCKS	ALL MOTOR VEHICLES
	Motor-Vehicle Travel: (millions of vehicle-miles)									
2009	Interstate Rural	139,621	1,480	1,601	42,002	10,991	46,178	181,622	57,169	241,873
2009	Other Arterial Rural	229,367	3,295	2,063	89,194	19,364	29,185	318,561	48,549	372,468
2009	Other Rural	226,498	3,502	2,506	97,887	19,173	16,322	324,384	35,494	365,886
2009	All Rural	595,485	8,277	6,170	229,082	49,528	91,684	824,567	141,212	980,227
2009	Interstate Urban	334,765	2,323	2,170	87,116	15,649	32,940	421,881	48,589	474,963
2009	Other Urban	1,083,185	10,201	6,017	300,705	54,986	43,218	1,383,890	98,204	1,498,311
2009	All Urban	1,417,950	12,523	8,187	387,821	70,635	76,158	1,805,771	146,793	1,973,274
2009	Total Rural and Urban 5/	2,013,436	20,800	14,358	616,903	120,163	167,842	2,630,338	288,005	2,953,501
2009	Number of motor vehicles registered 2/	193,979,654	7,929,724	841,993	40,488,025	8,356,097	2,617,118	234,467,679	10,973,214	254,212,610
2009	Average miles traveled per vehicle	10,380	2,623	17,052	15,237	14,380	64,132	11,218	26,246	11,618
2009	Person-miles of travel 4/ (millions)	2,797,438	22,404	304,386	824,151	120,163	167,842	3,621,589	288,005	4,236,384
2009	Fuel consumed (thousand gallons)	85,560,236	474,909	1,868,792	35,763,797	16,342,208	2,8130,088	121,324,034	44,472,296	168,140,031
2009	Average fuel consumption per vehicle (gallons)	441	60	2,219	883	1,956	10,748	517	4,053	661
2009	Average miles traveled per gallon of fuel consumed	23.8	43.2	7.2	17.4	7.4	6.0	21.7	6.5	17.6

1/ The FHWA estimates national trends by using State reported Highway Performance and Monitoring System (HPMS) data, fuel consumption data (MF-21 and MF-27), vehicle registration data (MV-1, MV-9, and MV-10), other data such as R.L. Polk vehicle data, and a host of modeling techniques. Starting with the 2009 VM-1, an enhanced methodology is used to provide timely indicators on both travel and travel behavior changes.
2/ Light Duty Vehicles Short WB – passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. Light Duty Vehicles Long WB – large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. All Light Duty Vehicles – passenger cars, light trucks, vans and sport utility vehicles regardless of wheelbase.
3/ Single-Unit – single frame trucks that have 2-Axles and at least 6 tires or a gross vehicle weight rating exceeding 10,000 lbs.
4/ Vehicle occupancy is estimated by the FHWA from the 2009 National Household Travel Survey (NHTS); For single unit truck and heavy trucks, 1 motor vehicle miles traveled = 1 person-miles traveled.
5/ VMT data are based on the latest HPMS data available; it may not match previous published results.

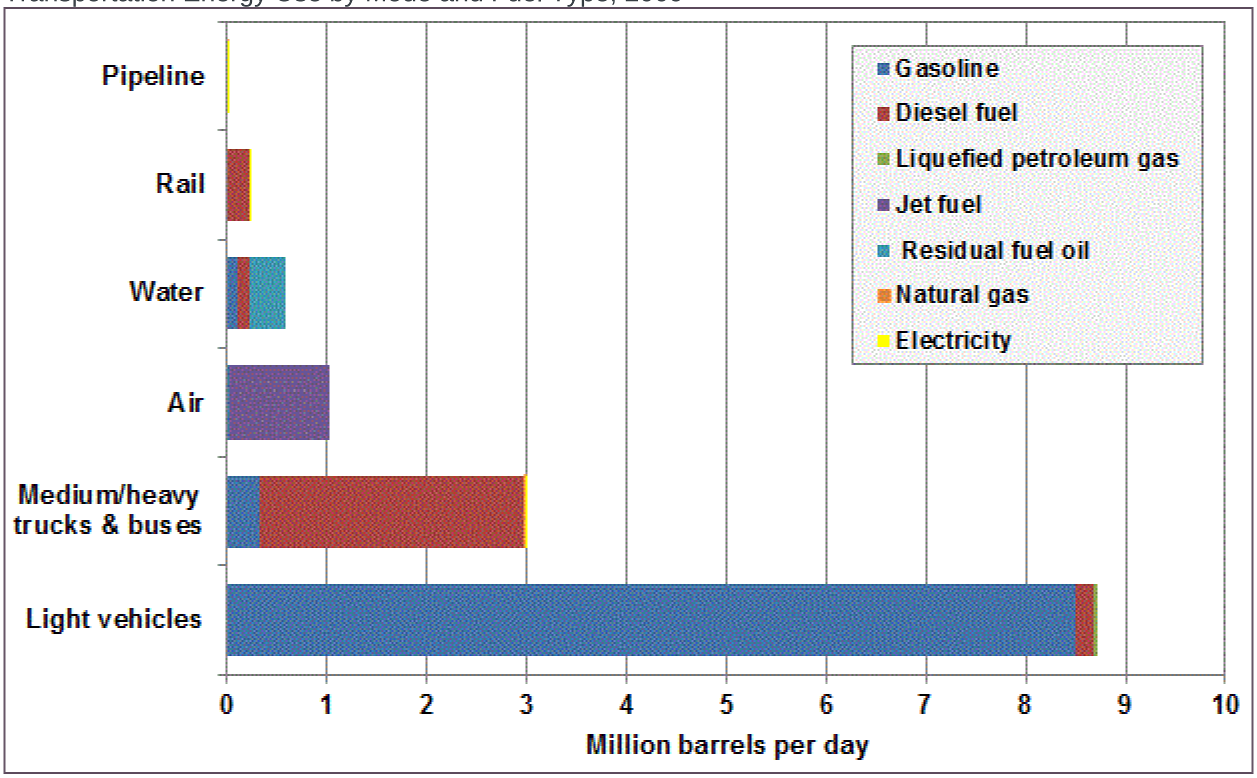
Supporting Information

U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2009*.

Fact #699: October 31, 2011
Transportation Energy Use by Mode and Fuel Type, 2009

Highway vehicles are responsible for most of the energy consumed by the transportation sector. Most of the fuel used in light vehicles is gasoline, while most of the fuel used in med/heavy trucks and buses is diesel.

Transportation Energy Use by Mode and Fuel Type, 2009



Supporting Information

Transportation Energy Use by Mode and Fuel Type, 2009								
	Gasoline	**Diesel fuel**	**Liquefied petroleum gas**	**Jet fuel**	**Residual fuel oil**	**Natural gas**	**Electricity**	**Total**
Light vehicles	8.5	0.2	0.0	0.0	0.0	0.0	0.0	8.7
Medium/heavy trucks & buses	0.3	2.6	0.0	0.0	0.0	0.0	0.0	3.0
Air	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0
Water	0.1	0.1	0.4	0.0	0.0	0.0	0.0	0.6
Rail	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
Pipelines	0.0	0.0	0.0	0.0	0.0	0.007	0.003	0.0
TOTAL Highway & Nonhighway	8.9	3.2	0.4	1.0	0.0	0.0	0.0	13.6

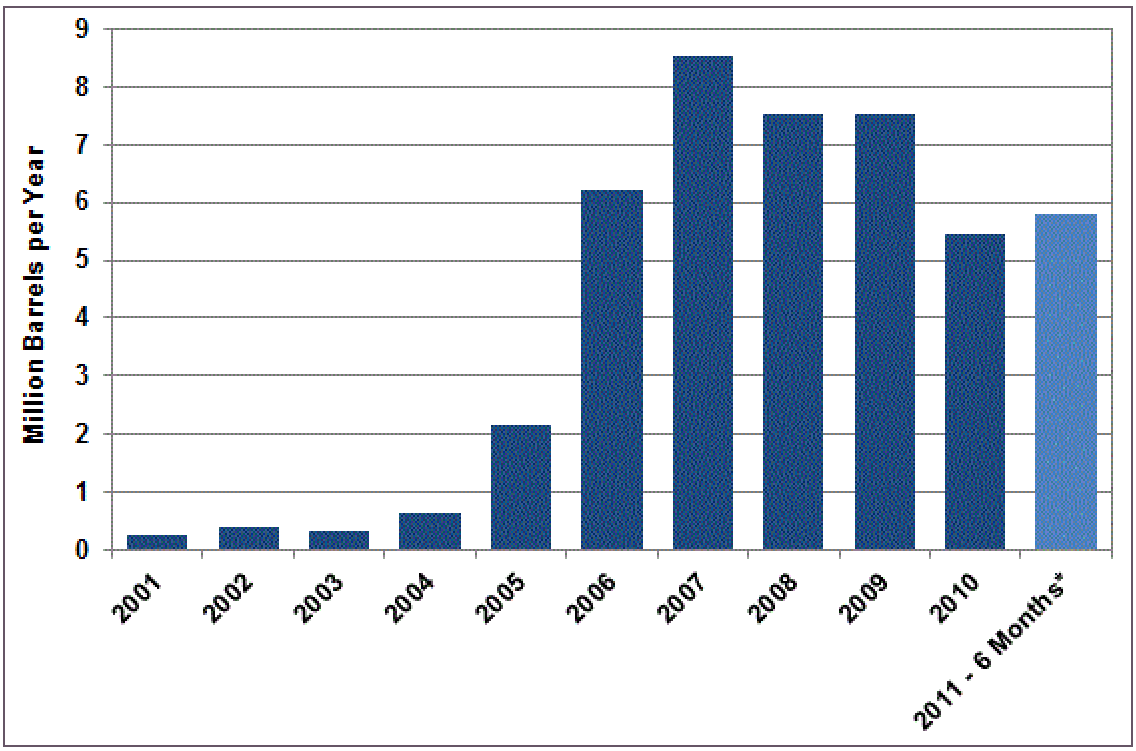
Notes: Civilian consumption only. Air includes fuel use for half of all international flights. Total may not include all sources of transportation, e.g. snowmobiles.

Source: Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 30*, ORNL-6986, June 2011.

Fact #700: November 7, 2011
Biodiesel Consumption is on the Rise for 2011

The U.S. Energy Information Administration began tracking biodiesel consumption in 2001. For the first few years biodiesel consumption remained relatively low – well under one thousand barrels per year. Beginning with 2005 the consumption of biodiesel began to increase dramatically and peaked at a high of 8.5 million barrels per year in 2007. The consumption of biodiesel slowed in 2010 due to U.S. economic conditions and the discontinuation of a Federal biodiesel producer tax credit. The credit, which expired in December 2009, was reinstated in December 2010. With the recovering economy and the tax credit returned, biodiesel consumption has rallied, exceeding 2010 levels in just the first six months of 2011.

Biodiesel Consumption, 2001-2011*



* 2011 figure is for the first 6 months.

Supporting Information

Biodiesel Consumption 2001-2011*	
Year	**Biodiesel Consumption (Million Barrels)**
2001	0.243
2002	0.385
2003	0.322
2004	0.640
2005	2.163
2006	6.204
2007	8.528
2008	7.519
2009	7.537
2010	5.447
2011 6 Months*	5.807

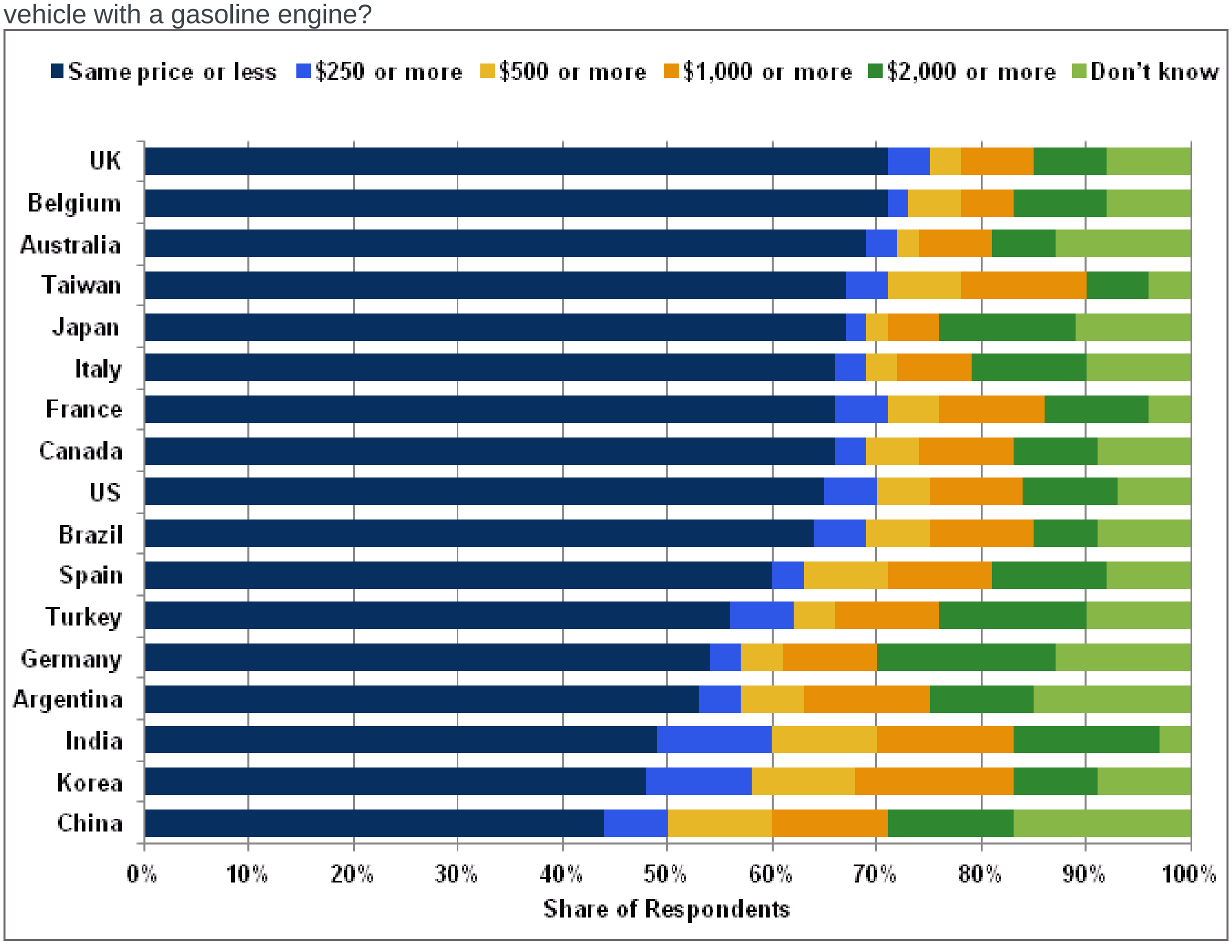
* 2011 figure is for the first 6 months.

Source: U.S. Energy Information Administration, *Monthly Energy Review*, September 2011, Table 10.4.
Additional resources: National Biodiesel Board, Letter at Biodiesel Conference website and The Spokesman Review, Business section, January 2010

Fact #701: November 14, 2011
How Much More Would You Pay for an Electric Vehicle?

A survey conducted worldwide between November 2010 and May 2011 asked respondents from 17 different countries questions about their willingness to purchase electric vehicles. More than half of the respondents in 14 of those countries said they would buy an electric vehicle only if the vehicle price were the same or less than a similar gasoline vehicle. In the US, only 28% of respondents were willing to pay an extra amount for an electric vehicle; 65% indicated they would only buy an EV if it were the same price or less (another 7% responded "Don't know"). India, Korea and China had the highest shares of respondents willing to pay extra.

Question: How much more would you be willing to pay for an electric vehicle compared to a similar vehicle with a gasoline engine?



Note: All currency amounts are in U.S. dollars.

Supporting Information

Question: How much more would you be willing to pay for an electric vehicle compared to a similar vehicle with a gasoline engine? (Share of Respondents)							
Country	**Same price or less**	**$250 or more**	**$500 or more**	**$1,000 or more**	**$2,000 or more**	**Don't know**	**Total**
UK	71%	4%	3%	7%	7%	8%	100%
Belgium	71%	2%	5%	5%	9%	8%	100%
Australia	69%	3%	2%	7%	6%	13%	100%
Taiwan	67%	4%	7%	12%	6%	4%	100%
Japan	67%	2%	2%	5%	13%	11%	100%
Canada	66%	3%	5%	9%	8%	9%	100%
France	66%	5%	5%	10%	10%	4%	100%
Italy	66%	3%	3%	7%	11%	10%	100%
US	65%	5%	5%	9%	9%	7%	100%
Brazil	64%	5%	6%	10%	6%	9%	100%
Spain	60%	3%	8%	10%	11%	8%	100%
Turkey	56%	6%	4%	10%	14%	10%	100%
Germany	54%	3%	4%	9%	17%	13%	100%
Argentina	53%	4%	6%	12%	10%	15%	100%
India	49%	11%	10%	13%	14%	3%	100%
Korea	48%	10%	10%	15%	8%	9%	100%
China	44%	6%	10%	11%	12%	17%	100%

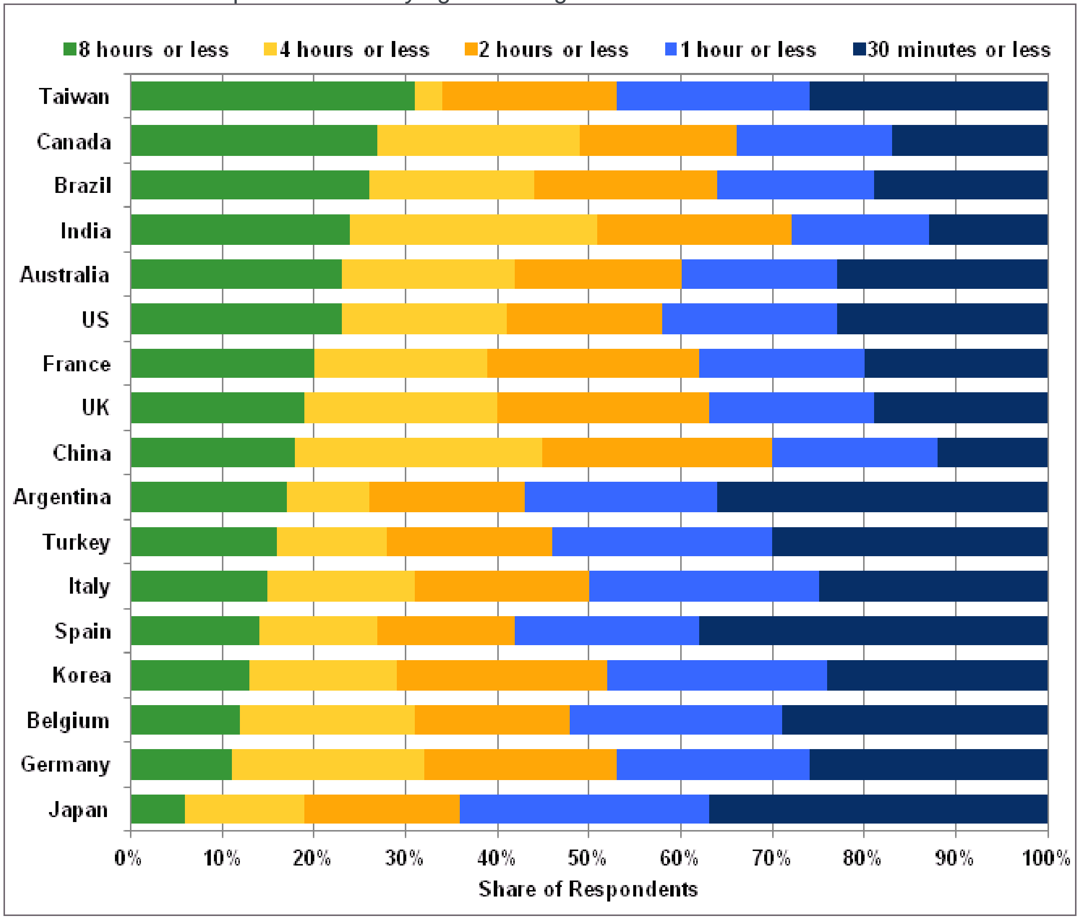
Note: All currency amounts are in U.S. dollars.

Source: Deloitte World EV Survey, N=over 13,000 respondents in 17 countries, conducted November 2010 – May 2011.

Fact #702: November 21, 2011
Consumer Preferences on Electric Vehicle Charging

Data from a survey conducted between November 2010 and May 2011 show consumer preferences on electric vehicle (EV) charging times. Respondents from 17 different countries were asked for their longest acceptable charge time for an EV. In Taiwan, the country with the greatest number of respondents accepting longer charge times, nearly a third of the respondents said an 8-hour charge time was acceptable, while in Japan, the country with the least number of respondents accepting longer charge times, a third of the respondents answered 30 minutes or less. Currently, most EV batteries can charge within three to eight hours. Rapid charge systems can charge an EV within 30 minutes, but these systems are expensive, shorten the battery life, and put additional stress on the electricity grid.

Question: Considering your expected vehicle use, what is the longest time to fully recharge the battery that you would consider acceptable when buying or leasing an electric vehicle?



Supporting Information

Question: Considering your expected vehicle use, what is the longest time to fully recharge the battery that you would consider acceptable when buying or leasing an electric vehicle?

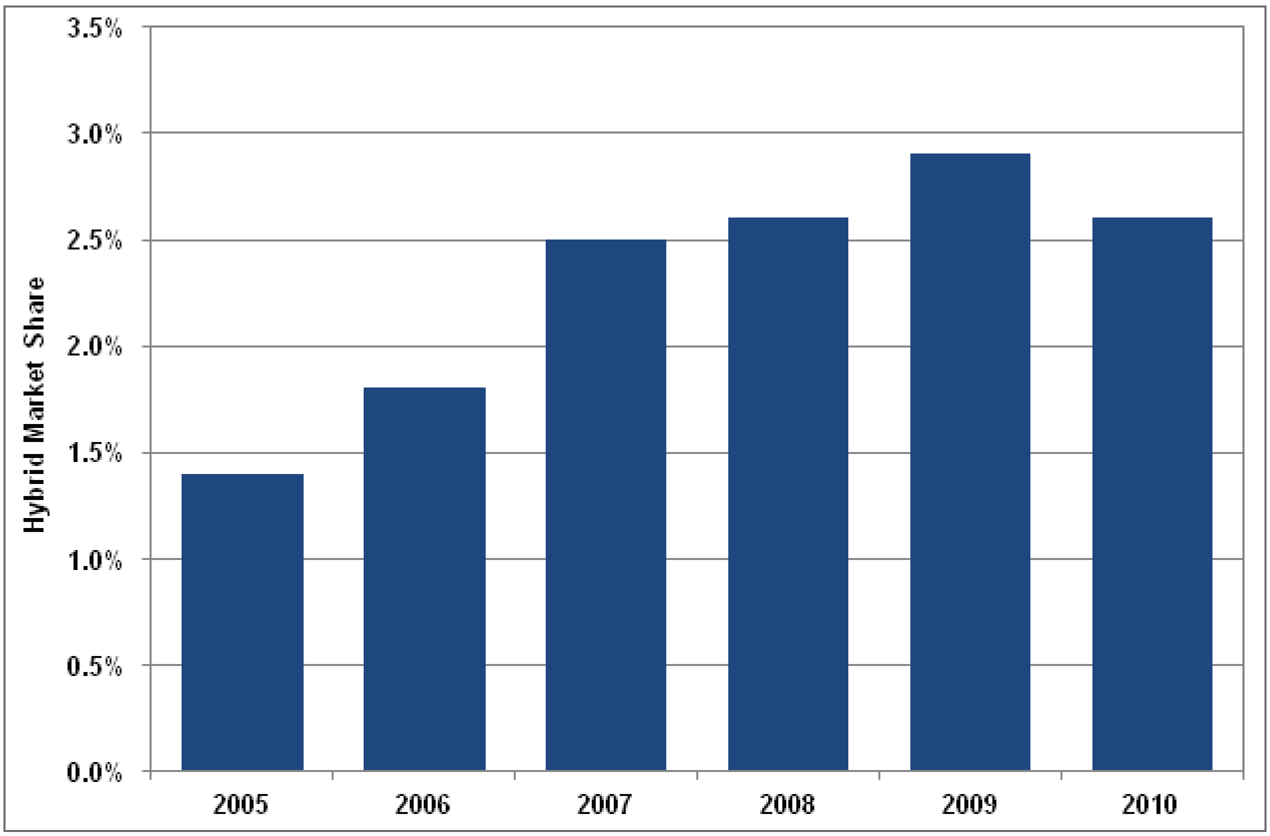
Country	8 hours or less	4 hours or less	2 hours or less	1 hour or less	30 minutes or less	Total
Taiwan	31%	3%	19%	21%	26%	100%
Canada	27%	22%	17%	17%	17%	100%
Brazil	26%	18%	20%	17%	19%	100%
India	24%	27%	21%	15%	13%	100%
US	23%	18%	17%	19%	23%	100%
Australia	23%	19%	18%	17%	23%	100%
France	20%	19%	23%	18%	20%	100%
UK	19%	21%	23%	18%	19%	100%
China	18%	27%	25%	18%	12%	100%
Argentina	17%	9%	17%	21%	36%	100%
Turkey	16%	12%	18%	24%	30%	100%
Italy	15%	16%	19%	25%	25%	100%
Spain	14%	13%	15%	20%	38%	100%
Korea	13%	16%	23%	24%	24%	100%
Belgium	12%	19%	17%	23%	29%	100%
Germany	11%	21%	21%	21%	26%	100%
Japan	6%	13%	17%	27%	37%	100%

Source: Deloitte, *Unplugged: Electric vehicle realities versus consumer expectations*, 2011.

Fact #703: November 28, 2011
Hybrid Vehicles Lose Market Share in 2010

For the first time since hybrid vehicles entered the market, the share of hybrid registrations declined in 2010 – from 2.9% in 2009 to 2.6% in 2010. Reasons for this include the relatively lower price of gasoline and the availability of several non-hybrid vehicles that get 40 miles per gallon or more.

Share of Hybrid Registrations, 2005-2010



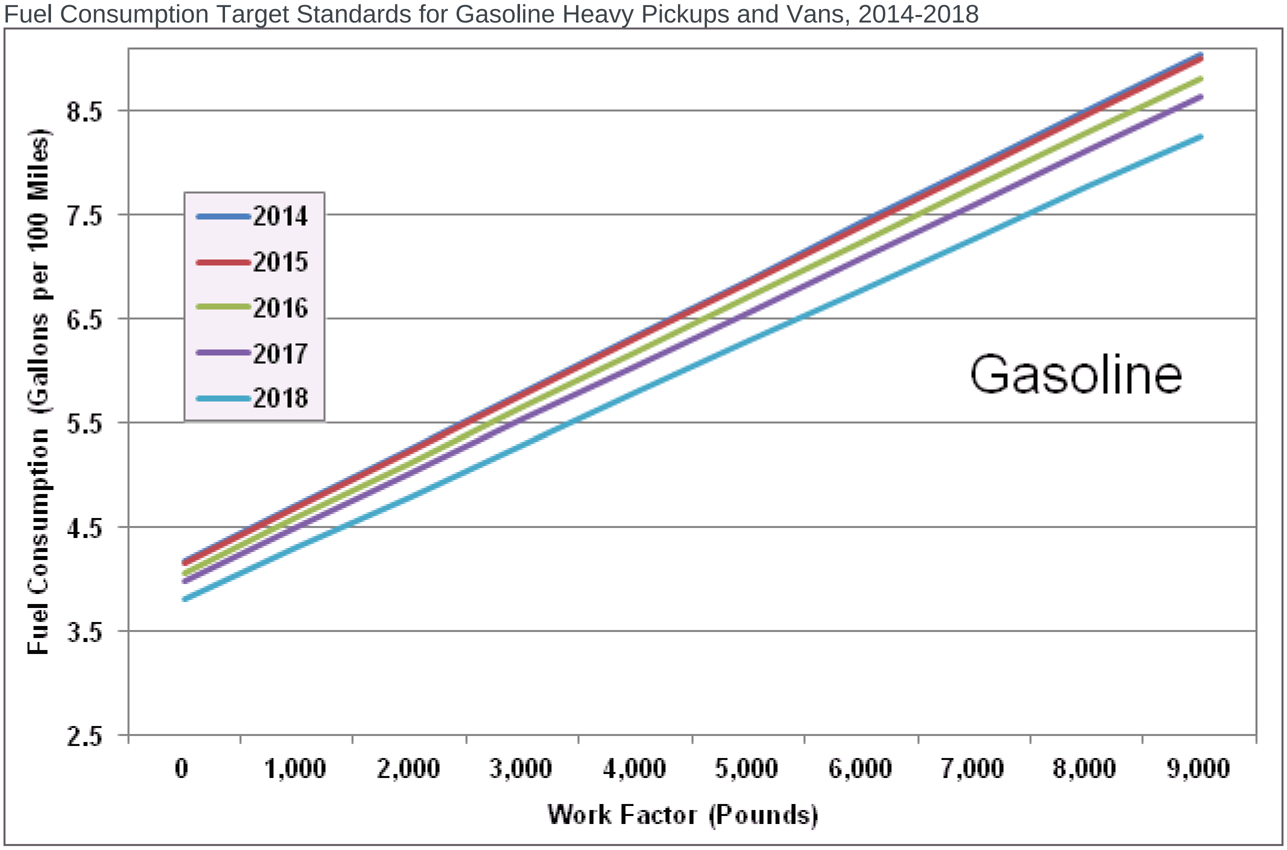
Supporting Information

Share of Hybrid Registrations, 2005-2010	
Calendar Year	**Market Share**
2005	1.4%
2006	1.8%
2007	2.5%
2008	2.6%
2009	2.9%
2010	2.6%
Source: R. L. Polk and Company, "U.S. Hybrid Market Share Suffers, Expected to Rebound," April 2011.	

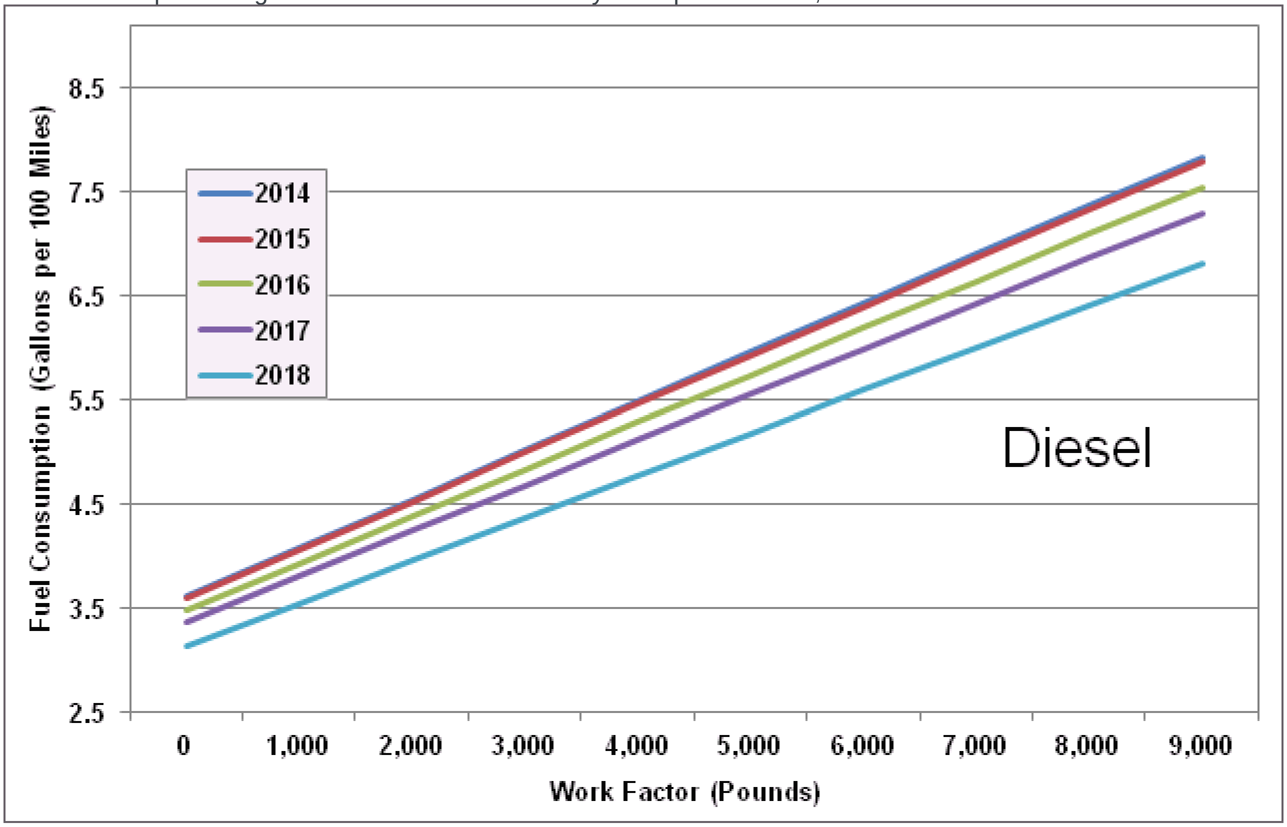
Fact #704: December 5, 2011
Fuel Consumption Standards for New Heavy Pickups and Vans

In September 2011 the National Highway Traffic Safety Administration issued the final rule to set standards regulating the fuel use of new vehicles heavier than 8,500 lbs. gross vehicle weight. Included in the new standards are pickup trucks over 8,500 lbs., cargo trucks over 8,500 lbs., and passenger vans over 10,000 lbs. Standards were set separately for gasoline and diesel vehicles, on a scale that depends on a "work factor." The work factor, which is expressed in pounds, takes into account the vehicle's payload capacity, towing capacity, and whether or not the vehicle is four-wheel drive (see note below for work factor details). Standards for the years 2014 and 2015 are voluntary, but standards are mandatory thereafter.

Fuel Consumption Target Standards for Gasoline Heavy Pickups and Vans, 2014-2018



Fuel Consumption Target Standards for Diesel Heavy Pickups and Vans, 2014-2018



Note: Work factor is a weighted average of 25% towing capacity and 75% payload capacity. An additional 500 lbs. is added to payload capacity when the vehicle is four-wheel drive.

Supporting Information

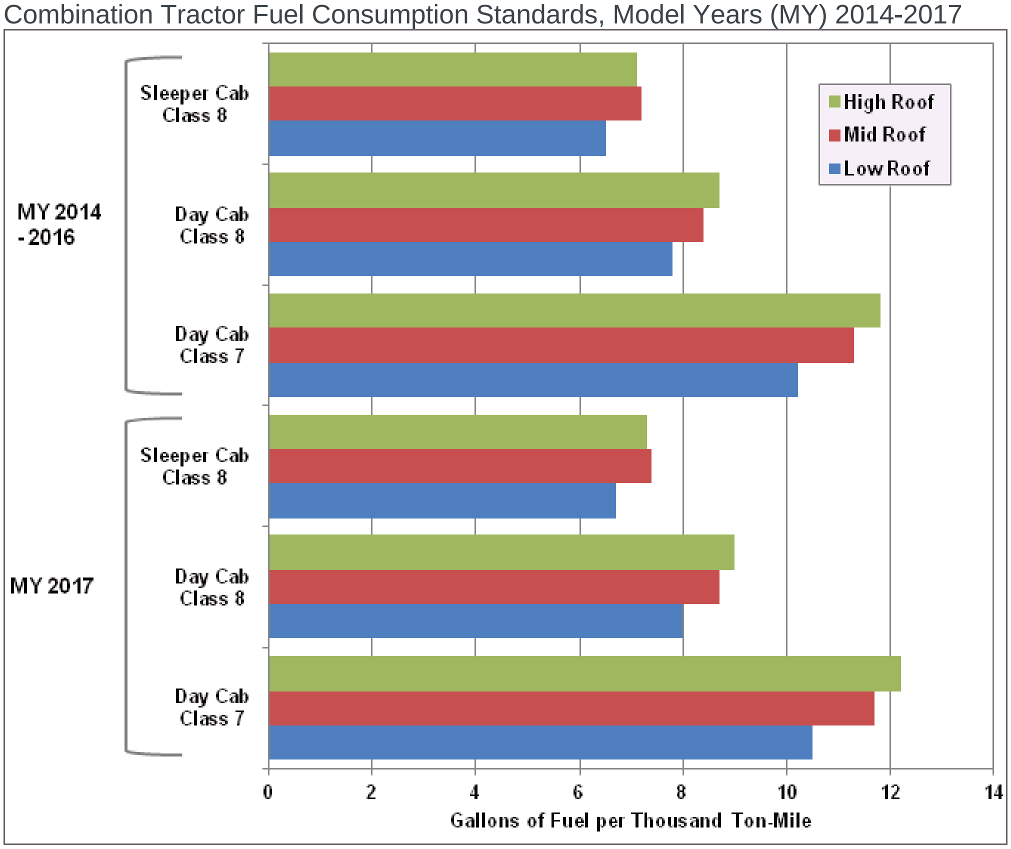
NHTSA Fuel Consumption Target Standards for Heavy Pickups and Vans, 2014-2018 (Fuel Consumption Gallons per 100 Miles)					
Work Factor (pounds)	**2014**	**2015**	**2016**	**2017**	**2018**
Gasoline Vehicles					
0	4.17	4.15	4.07	3.98	3.81
1,000	4.71	4.69	4.60	4.50	4.31
2,000	5.25	5.23	5.13	5.02	4.80
3,000	5.80	5.77	5.65	5.53	5.30
4,000	6.34	6.31	6.18	6.05	5.79
5,000	6.88	6.85	6.71	6.57	6.29
6,000	7.42	7.38	7.24	7.09	6.78
7,000	7.96	7.92	7.77	7.61	7.28
8,000	8.51	8.46	8.29	8.12	7.77
9,000	9.05	9.00	8.82	8.64	8.27
Diesel Vehicles					
0	3.61	3.60	3.48	3.37	3.14
1,000	4.08	4.07	3.93	3.81	3.55
2,000	4.55	4.53	4.38	4.24	3.96
3,000	5.02	5.00	4.84	4.68	4.37
4,000	5.49	5.46	5.29	5.12	4.78
5,000	5.96	5.93	5.74	5.56	5.19
6,000	6.43	6.40	6.19	5.99	5.59
7,000	6.9	6.86	6.64	6.43	6.00
8,000	7.37	7.33	7.10	6.87	6.41
9,000	7.84	7.79	7.55	7.30	6.82

Note: This table shows targets by 1,000-lb work factor increments. Actual standards move on a sliding scale as shown in the graph.
Source: Federal Register, Vol. 76, No. 179, September 15, 2011, pp. 25324 - 25728.

Fact #705: December 12, 2011
Fuel Consumption Standards for Combination Tractors

The National Highway Traffic Safety Administration published a final rule setting fuel consumption standards for heavy trucks in September 2011. For tractor-trailers, the standards focus on the gallons of fuel per thousand ton-miles. Ton-miles are equal to the weight of a shipment transported multiplied by the distance hauled. Because differences in the tractors create differences in the fuel used, standards were set for varying roof height (low, mid, and high), gross vehicle weight rating (class 7 and 8), and types of tractor (day cab, sleeper cab).

Combination Tractor Fuel Consumption Standards, Model Years (MY) 2014-2017



Note: The standards for 2014 and 2015 are voluntary.
Class 7 trucks have a gross vehicle weight rating between 26,000 and 33,000 lbs.
Class 8 trucks have a gross vehicle weight rating over 33,000 lbs.

Supporting Information

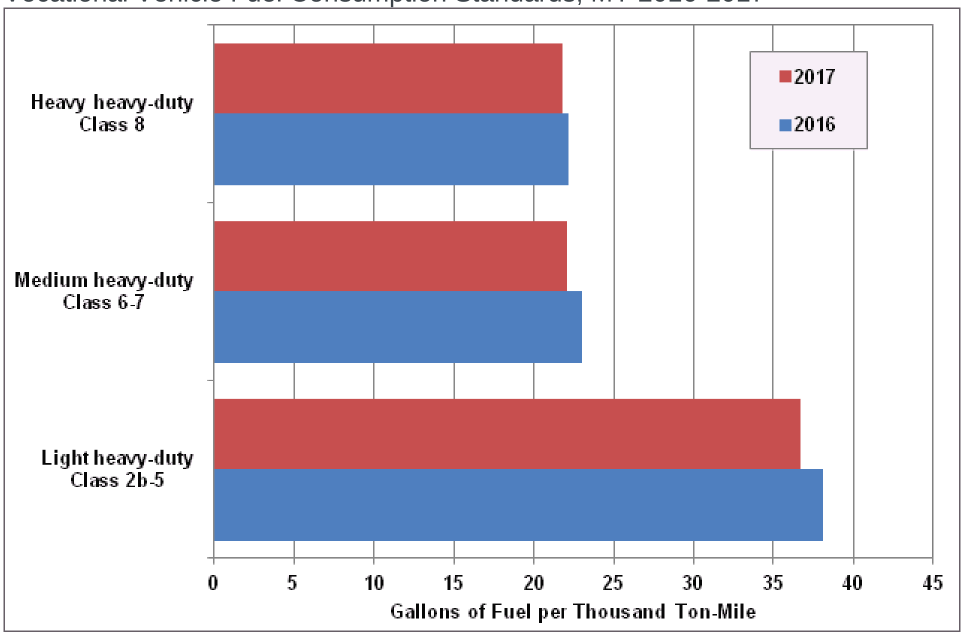
Combination Tractor Fuel Consumption Standards, 2014-2017 (Gallons of Fuel per Thousand Ton-Miles)				
		Low Roof	**Mid Roof**	**High Roof**
	MY 2014-2016			
Day Cab	Class 7	10.5	11.7	12.2
	Class 8	8.0	8.7	0.9
Sleeper Cab	Class 8	6.7	7.4	7.3
	MY 2017			
Day Cab	Class 7	10.2	11.3	11.8
	Class 8	7.8	8.4	8.7
Sleeper Cab	Class 8	6.5	7.2	7.1

Note: In addition to these standards, there were also standards set for the engines installed in tractors.
Source: Federal Register, Vol. 76, No. 179, September 15, 2011, pp. 25324 - 25728.

Fact #706: December 19, 2011
Vocational Vehicle Fuel Consumption Standards

The National Highway Traffic Safety Administration recently published final fuel consumption standards for heavy vehicles called "vocational" vehicles. A vocational vehicle is generally a single-unit work vehicle over 8,500 lbs. gross vehicle weight rating (GVWR) or a passenger vehicle over 10,000 lbs. GVWR that is not a combination tractor. These vehicles vary in size, and include smaller and larger van trucks, utility "bucket" trucks, tank trucks, refuse trucks, urban and over-the-road buses, fire trucks, flat-bed trucks, and dump trucks, among others. Often, these trucks are built as a chassis with an installed engine purchased from one manufacturer and an installed transmission purchased from another manufacturer. The chassis is typically then sent to a body manufacturer, which completes the vehicle by installing the appropriate feature—such as dump bed, delivery box, or utility bucket—onto the chassis. Because of the complexities associated with the wide variety of body styles, NHTSA decided to finalize a set of standards beginning in 2016 for the chassis manufacturers of vocational vehicles (but not the body builders).

Vocational Vehicle Fuel Consumption Standards, MY 2016-2017



Note: Vehicles in classes 2b – 5 are between 8,500 and 19,500 lbs. GVWR.
Vehicles in class 6-7 are between 19,500 and 33,000 lbs. GVWR.
Vehicles in class 8 are above 33,000 lbs. GVWR.

Supporting Information

Vocational Vehicle Fuel Consumption Standards, 2016-17 (Gallons per Thousand Ton-Mile)			
Size Category	**Truck Weight Class**	**Year**	
		2016	**2017**
Light heavy-duty	Class 2b-5	38.1	36.7
Medium heavy-duty	Class 6-7	23.0	22.1
Heavy heavy-duty	Class 8	22.2	21.8

Note: In addition to these standards, there were also standards set for the engines installed in vocational vehicles.
A ton-mile is a measure of shipment weight x distance traveled.

Source: Federal Register, Vol. 76, No. 179, September 15, 2011, pp. 25324 - 25728.

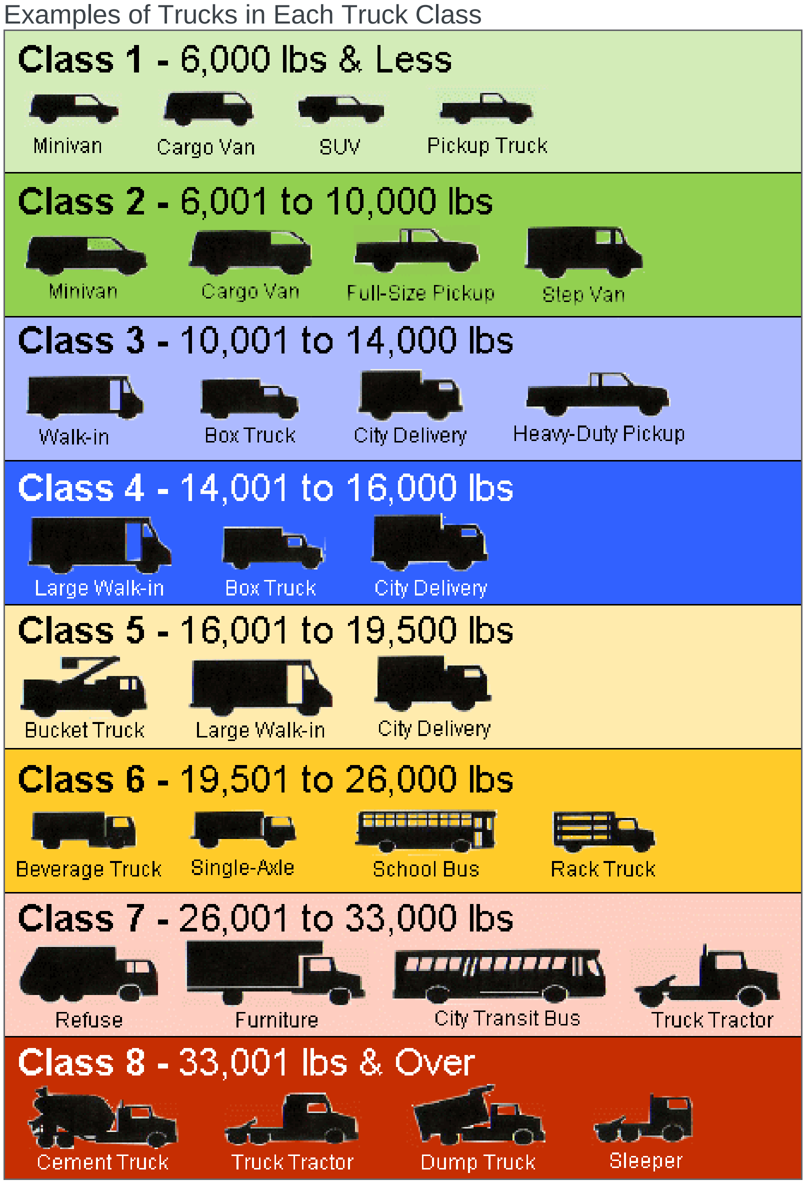
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Vehicle Technologies Program

Fact #707: December 26, 2011
Illustration of Truck Classes

There are eight truck classes, categorized by the gross vehicle weight rating (GVWR) that the vehicle is assigned when it is manufactured. These categories are used by the trucking industry and many government agencies to classify trucks. The pictures below show examples of some of the different types of trucks that would be included in each class.

Examples of Trucks in Each Truck Class



Supporting Information

Examples of Trucks in Each Truck Class			
Class 1 – 6,000 lbs & Less			
Minivan	Cargo Van	SUV	Pickup Truck
Class 2 – 6,001 to 10,000 lbs			
Minivan	Cargo Van	Full-Size Pickup	Step Van
Class 3 – 10,001 to 14,000 lbs			
Walk-in	Box Truck	City Delivery	Heavy-Duty Pickup
Class 4 – 14,001 to 16,000 lbs			
Large Walk-in	Box Truck	City Delivery	
Class 5 – 16,001 to 19,500 lbs			
Bucket Truck	Large Walk-in	City Delivery	
Class 6 – 19,501 to 16,000 lbs			
Beverage Truck	Single-Axle	School Bus	Rack Truck
Class 7 – 26,001 to 33,000 lbs			
Refuse	Furniture	City Transit Bus	Truck Tractor
Class 8 – 33,001 lbs & Over			
Cement Truck	Truck Tractor	Dump Truck	Sleeper
Source: Oak Ridge National Laboratory, Center for Transportation Analysis, Oak Ridge, TN.			