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ORNL/TM-2013/80

Vehicle Technologies' Fact of the Week 2012

February 2013

Prepared by

Stacy C. Davis
Susan W. Diegel
Sheila A. Moore
Oak Ridge National Laboratory

Robert G. Boundy
Roltek, Inc.

UT-BATTELLE
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FACT OF THE WEEK 2012

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Prepared for the
Vehicle Technologies Office
Office of Energy Efficiency and Renewable Energy
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ACKNOWLEDGEMENTS

The authors would like to thank the project sponsor, Jake Ward, for his 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 Office website each week.

INTRODUCTION

Each week the U.S. Department of Energy's Vehicle Technology Office (VTO) 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 week's Fact is available on the VTO homepage, but older Facts are archived and still available at: http://www1.eere.energy.gov/vehiclesandfuels/facts/.

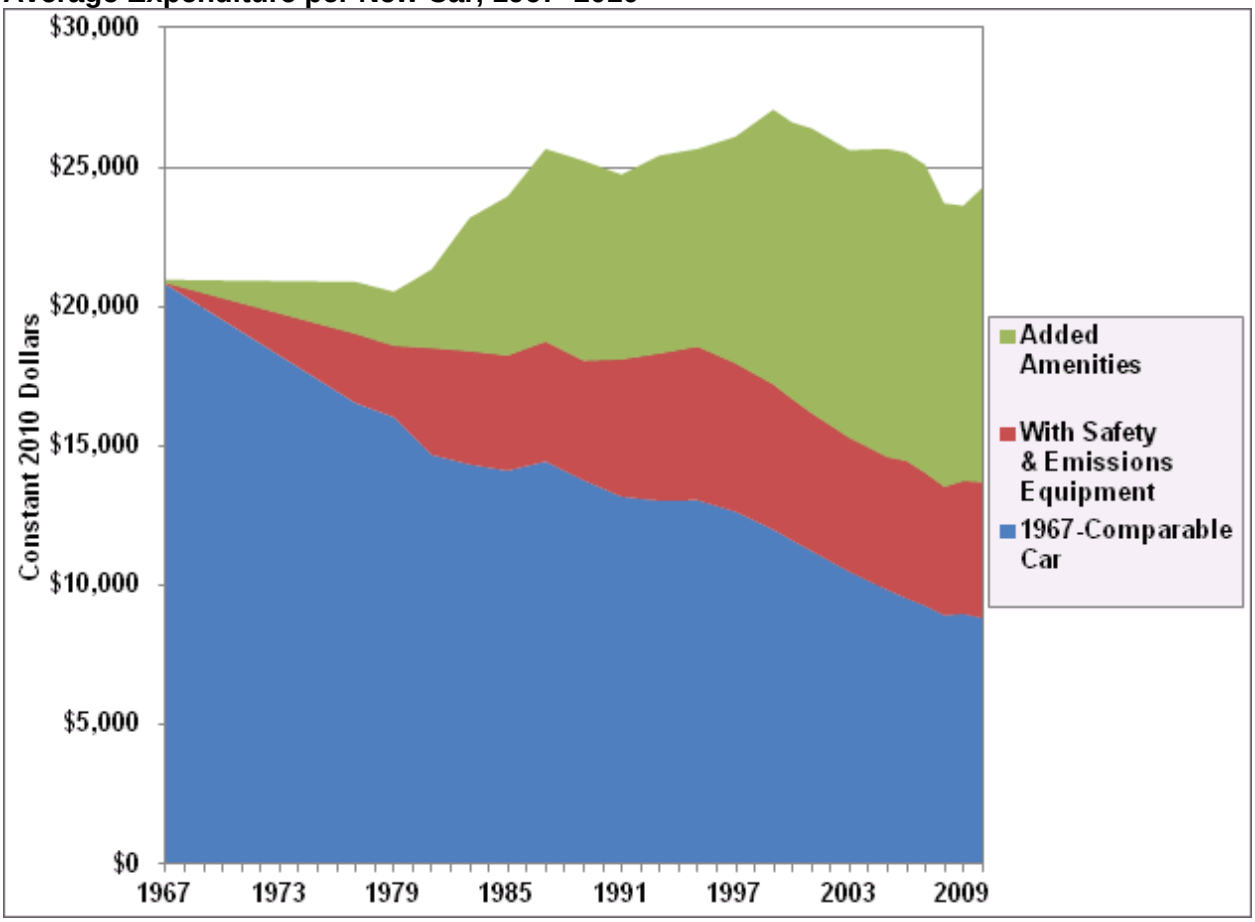
This report is a compilation of the Facts that were posted during calendar year 2012. The Facts were written and prepared by staff in Oak Ridge National Laboratory's Center for Transportation Analysis.

Fact #708: January 2, 2012

Amenities, Safety and Emissions Equipment Make Up an Increasing Share of the Cost of a Car

While the overall price of a new car has not increased greatly from 1967 to 2010 when adjusted for inflation, the costs associated with added amenities like navigation, telematics, power seats and windows have grown substantially. Costs related to safety and emissions equipment grew through the mid-1990s but have remained fairly steady since. These increased costs are largely off-set by the decreasing cost of a basic car comparable to a car produced in 1967 without all of the added equipment.

Average Expenditure per New Car, 1967–2010



Supporting Information

Average Expenditure per New Car, 1967-2010 (Constant 2010 Dollars)			
Year	1967-Comparable Car	With Safety & Emissions Equipment	Added Amenities
1967	20,794	72	131
1968	20,367	316	305
1969	19,940	560	480
1970	19,514	805	655
1971	19,087	1,049	830
1972	18,660	1,294	1,004
1973	18,234	1,538	1,179
1974	17,807	1,782	1,354
1975	17,380	2,027	1,529
1976	16,954	2,271	1,704
1977	16,527	2,515	1,878
1978	16,278	2,551	1,914
1979	16,030	2,586	1,949
1980	15,349	3,225	2,395
1981	14,669	3,865	2,840
1982	14,498	3,980	3,819
1983	14,327	4,096	4,797
1984	14,214	4,131	5,260
1985	14,101	4,167	5,723
1986	14,266	4,249	6,327
1987	14,431	4,332	6,931
1988	14,096	4,327	7,061
1989	13,760	4,321	7,191
1990	13,464	4,639	6,921
1991	13,167	4,958	6,651
1992	13,096	5,137	6,885
1993	13,025	5,315	7,120
1994	13,033	5,429	7,115

Average Expenditure per New Car, 1967-2010 (Constant 2010 Dollars)

Year	1967-Comparable Car	With Safety & Emissions Equipment	Added Amenities
1995	13,042	5,543	7,111
1996	12,836	5,450	7,629
1997	12,631	5,357	8,146
1998	12,308	5,301	9,011
1999	11,985	5,245	9,877
2000	11,595	5,103	9,945
2001	11,224	4,979	10,237
2002	10,849	4,910	10,287
2003	10,474	4,841	10,338
2004	10,149	4,818	10,708
2005	9,824	4,795	11,079
2006	9,518	4,964	11,081
2007	9,252	4,803	11,072
2008	8,905	4,644	10,192
2009	8,960	4,801	9,897
2010	8,807	4,915	10,574

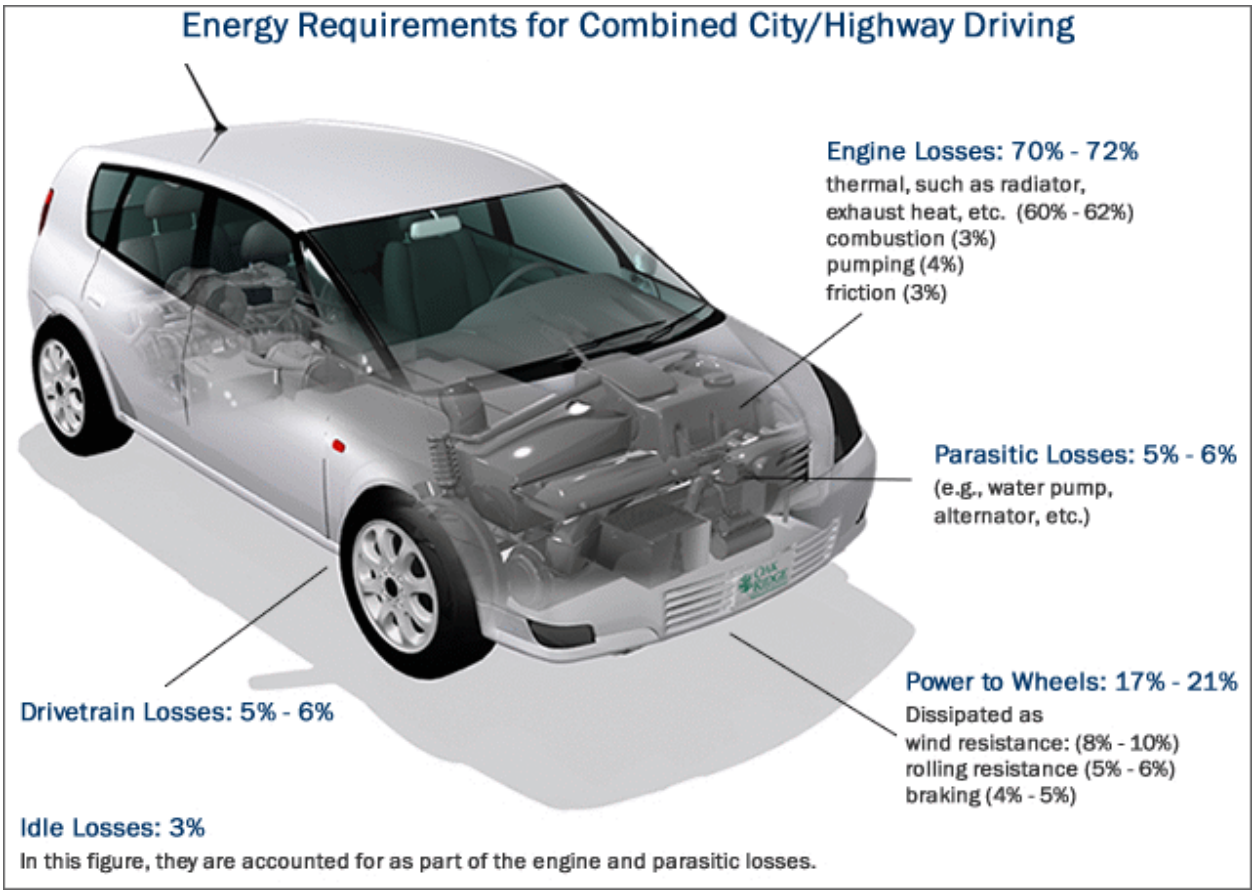
Source: Ward's Automotive, *Ward's Motor Vehicles Facts and Figures 2011*.

Original Source: U.S. Department of Labor, Bureau of Labor Statistics. Adjusted by the Consumer Price Inflation index.

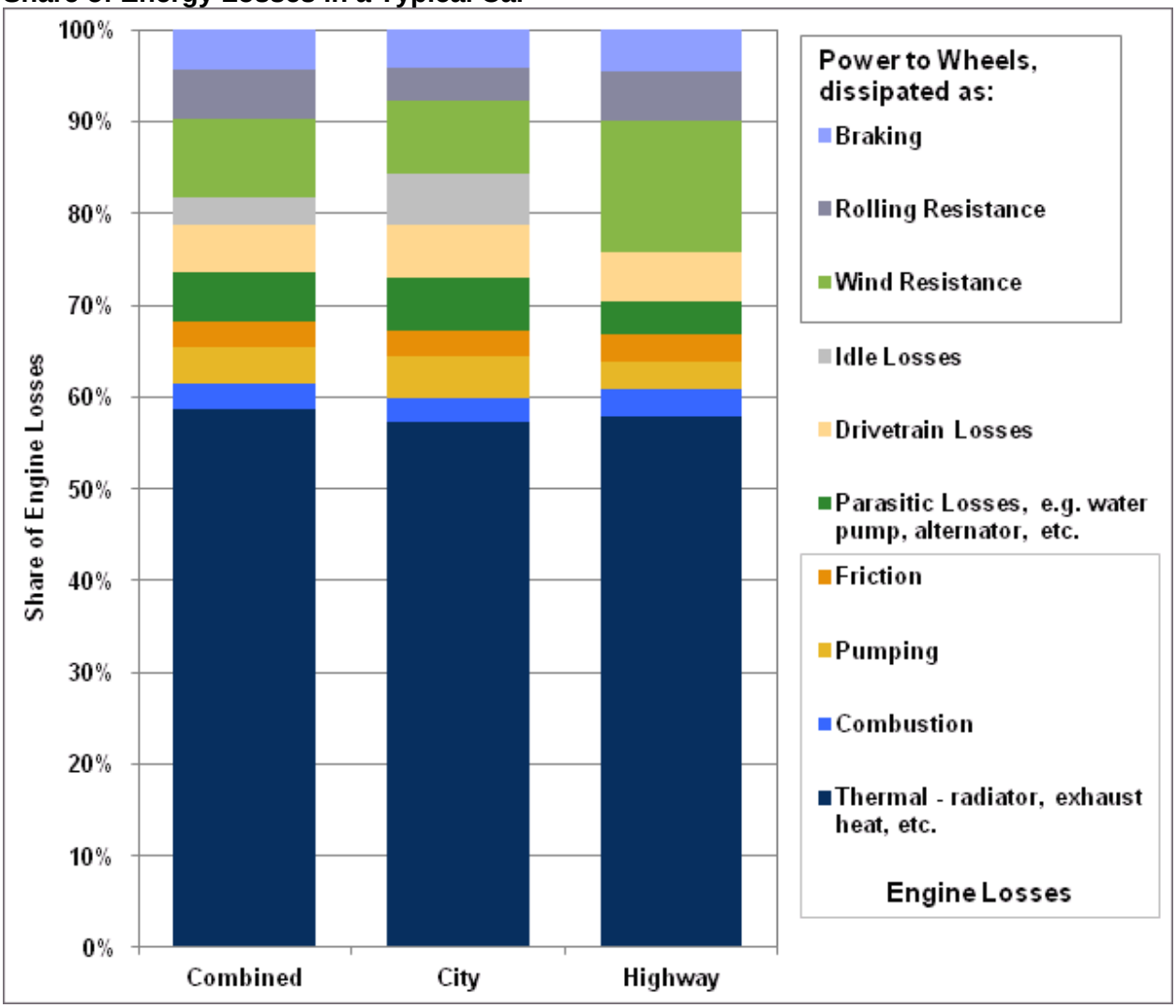
Fact #709: January 9, 2012

Engine Energy Use: Where Does the Energy Go?

Not all of the fuel that is put into a car's fuel tank is used to move the car down the road. In fact, only 14-16% of the energy is used for that purpose. The rest of the energy is lost to engine inefficiencies or used to power accessories. The amount of energy losses is different depending on the type of driving – city, highway, or combined city and highway. The engine losses, such as exhaust heat and pumping, are higher for city driving than for highway driving. There are no idle losses in highway driving, but losses due to wind resistance and rolling resistance are higher for highway driving than city driving. All in all, there is great potential to improve vehicle fuel efficiencies with advanced technologies that address these losses.



Share of Energy Losses in a Typical Car



Supporting Information

Share of Energy Losses in a Typical Car			
Loss Type	**Combined**	**City**	**Highway**
Engine Losses	70-72%	74-75%	65-69%
Thermal - radiator, exhaust heat, etc.	60-62%	63-64%	56-60%
Combustion	3%	3%	3%
Pumping	4%	5%	3%
Friction	3%	3%	3%
Parasitic Losses, e.g. water pump, alternator, etc.	5-6%	6-7%	3-4%
Power to Wheels, dissipated as:	17-21%	14-16%	20-26%
Wind Resistance	8-10%	8-10%	13-16%
Rolling Resistance	5-6%	4%	5-6%
Braking	4-5%	4-5%	4-5%
Drivetrain Losses	5-6%	6-7%	5-6%
Idle Losses	3%	6%	0%

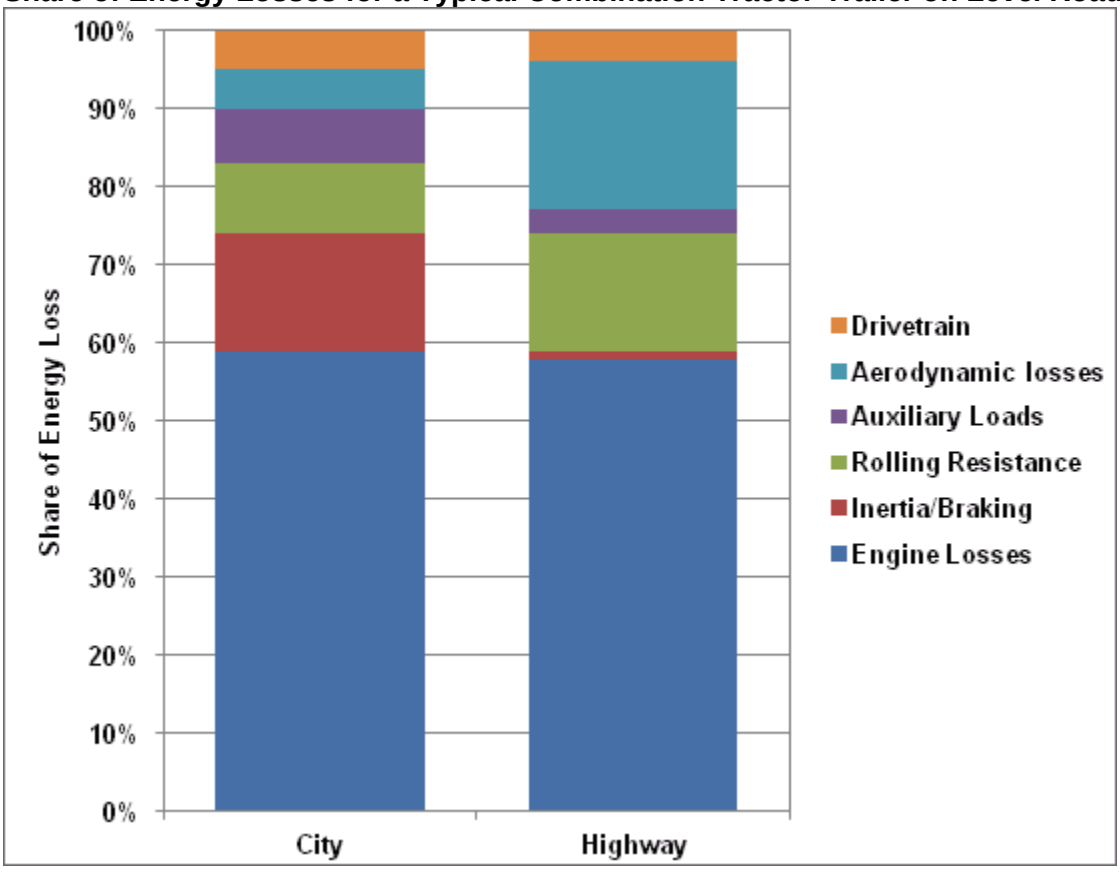
Source: U.S. Department of Energy and U.S. Environmental Protection Agency, Fuel Economy Guide website.

Fact #710: January 16, 2012

Engine Energy Use for Heavy Trucks: Where Does the Energy Go?

As with light vehicles, heavy trucks also have significant energy losses. The losses shown below are for a typical combination tractor-trailer, but these losses will vary depending on the weight, shape, and size of the truck, and the type of driving (the truck's duty cycle). On the Interstate highway, aerodynamics plays a much larger role in truck energy losses than in city driving. Loss of inertia due to braking and energy losses due to auxiliary loads are greater in city driving than on the highway. There is great potential to improve heavy truck fuel efficiencies with advanced technologies that address these losses.

Share of Energy Losses for a Typical Combination Tractor-Trailer on Level Road



Supporting Information

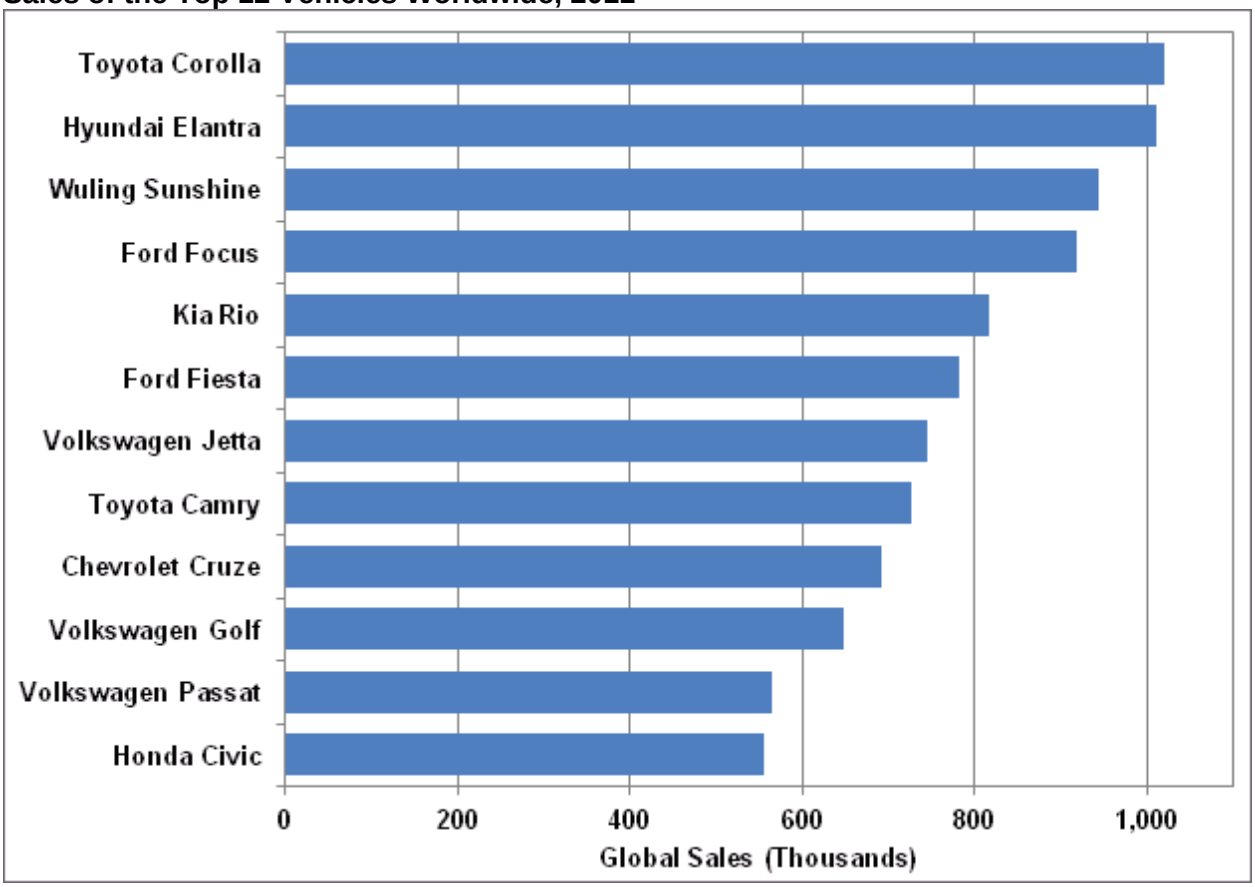
Share of Energy Losses for a Typical Combination Tractor-Trailer on Level Road		
Loss Type	**City**	**Highway**
Drivetrain	5-6%	2-4%
Aerodynamic Losses	4-10%	15-22%
Auxiliary Loads	7-8%	1-4%
Rolling Resistance	8-12%	13-16%
Inertia/Braking	15-20%	0-2%
Engine Losses	58-60%	58-59%
Source: National Research Council and Transportation Research Board, *Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles*, 2010.		

Fact #711: January 23, 2012

Top Vehicles around the Globe, 2011

The vehicles making the list are mostly compact and midsized vehicles that are sold in multiple markets around the globe with minimal changes. In some instances, the vehicles listed below are marketed under different names like the Hyundai Elantra which is sold as the Avante in South Korea. The Wuling Sunshine, while not familiar to those in the US, is a small van produced by a joint venture with General Motors. It is used extensively throughout China for hauling people and cargo and sold close to 1 million units in 2011. Together, these models accounted for 9,418,000 units or about 13% of global light duty vehicle sales for 2011.

Sales of the Top 12 Vehicles Worldwide, 2011



Supporting Information

Top 12 Global Models Sold in 2011

Sales Ranking	Model	Global Sales
1	Toyota Corolla	1,020,000
2	Hyundai Elantra*	1,010,000
3	Wuling Sunshine**	943,000
4	Ford Focus	919,000
5	Kia Rio	815,000
6	Ford Fiesta	781,000
7	Volkswagen Jetta	745,000
8	Toyota Camry	726,000
9	Chevrolet Cruze	691,000
10	Volkswagen Golf	648,000
11	Volkswagen Passat	565,000
12	Honda Civic	555,000

* Known as the Avante in Korea.
** Sold in China as a General Motors joint venture.

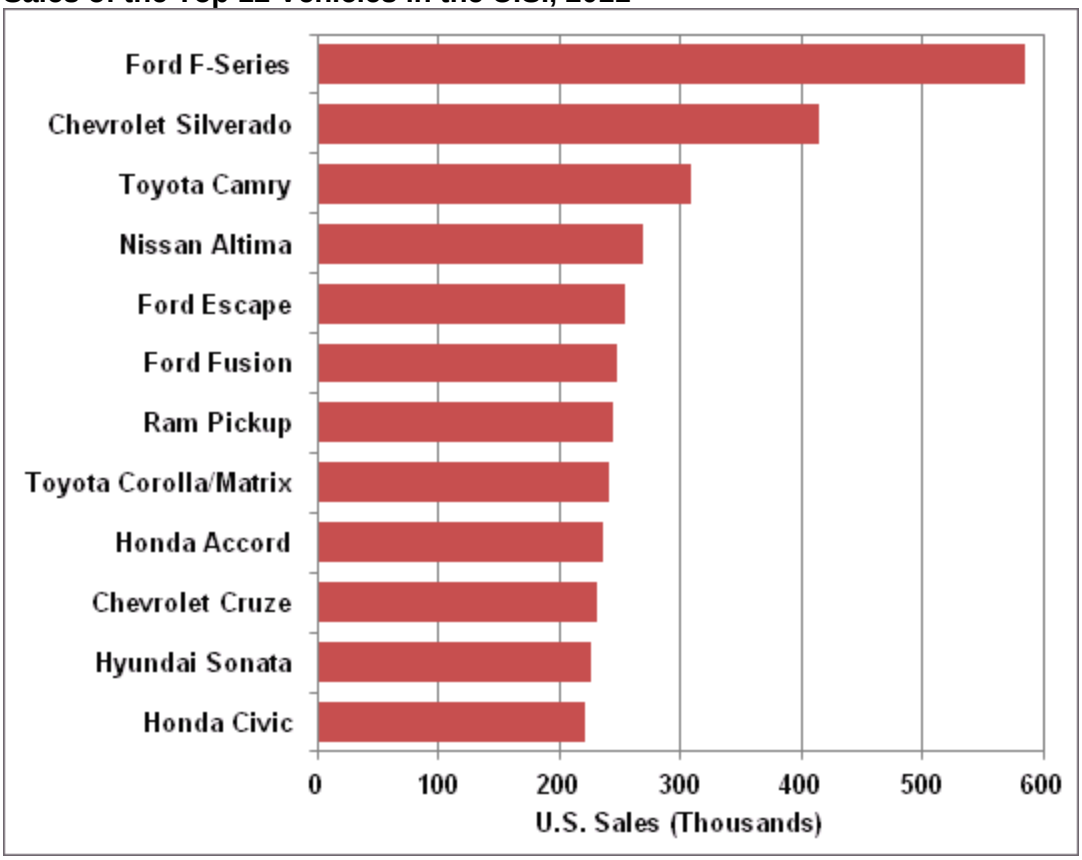
Source: Forbes.com on msnbc.com "The worlds' most popular cars: Some new faces"

Fact #712: January 30, 2012

Top Vehicles in the U.S., 2011

Full-size pickup trucks remain at the top of the list for best-selling models in 2011. The Ford F-Series was the top-selling model followed by the Chevrolet Silverado in second place and the Dodge Ram in seventh. Including sales from the top 12 models, about 36% were full-size pickup trucks. Interestingly, the Ford Escape was the only SUV to make the list; the remaining models are cars. The top 12 models represent 27% of all light vehicles sold in 2011.

Sales of the Top 12 Vehicles in the U.S., 2011



Supporting Information

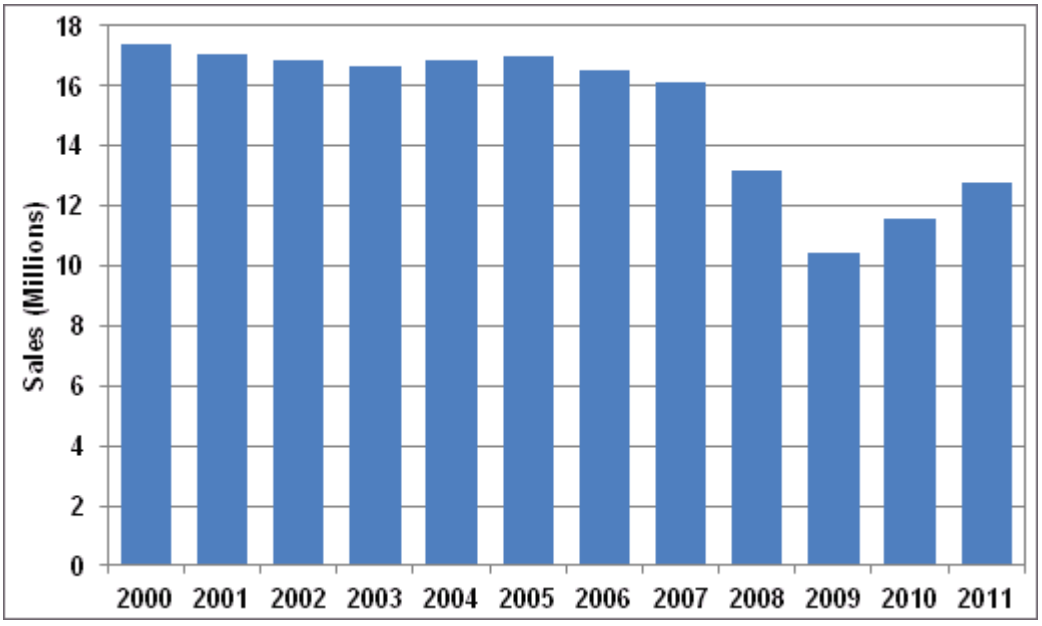
Top Selling Models for 2011		
Rank	**Model**	**Sales (Thousands)**
1	Ford F-Series	585
2	Chevrolet Silverado	415
3	Toyota Camry	309
4	Nissan Altima	269
5	Ford Escape	254
6	Ford Fusion	248
7	Ram Pickup	245
8	Toyota Corolla/Matrix	240
9	Honda Accord	236
10	Chevrolet Cruze	232
11	Hyundai Sonata	226
12	Honda Civic	221
Source: Ward's AutoInfoBank.		

Fact #713: February 6, 2012

Light Vehicle Sales Continue to Recover

In 2000, light vehicle sales reached a peak of more than 17 million. Sales remained above 16 million units until 2007. Due to economic conditions, sales dropped off sharply in 2008 and reached a low in 2009 of 10.4 million units for a decline of about 40% compared to sales levels in 2000. Since 2009, light vehicle sales have begun to recover with sales reaching 12.7 million units in 2011.

U.S. Light Vehicle Sales, 2000–2011



Supporting Information

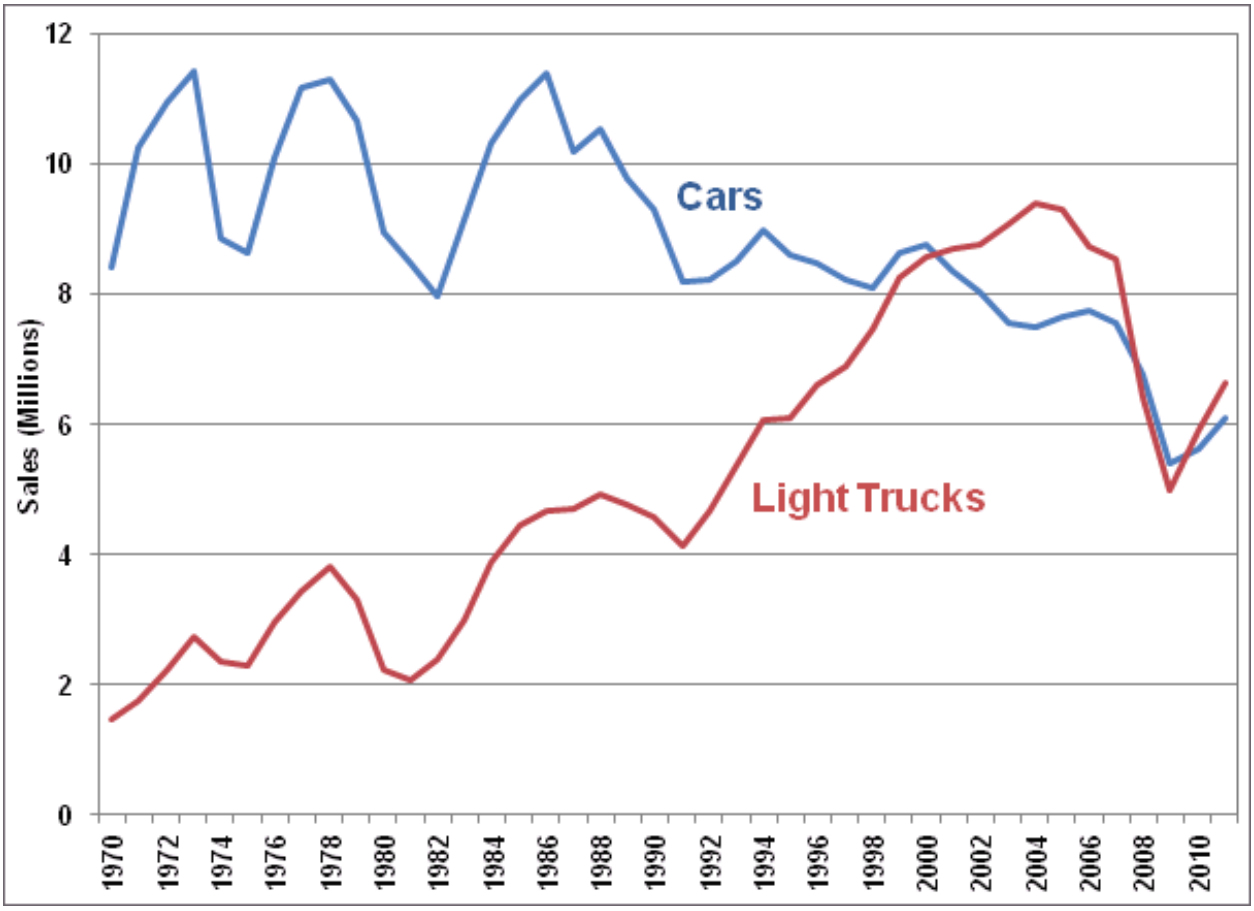
U.S. Light Vehicle Sales, 2000-2011	
Year	**Sales (Millions)**
2000	17.4
2001	17.1
2002	16.8
2003	16.6
2004	16.9
2005	16.9
2006	16.5
2007	16.1
2008	13.2
2009	10.4
2010	11.6
2011	12.7
Source: Ward's Communications	

Fact #714: February 13, 2012

Light Truck Sales on the Rise

Light trucks sales have gained market share in relation to car sales from 1970. In 2001, light trucks outsold cars for the first time. Light truck sales reached a peak in 2004. By 2008, truck sales had declined and once again and neared parity with car sales. Beginning in 2009, truck sales have been on the rise and have exceeded car sales in 2010 and 2011.

U.S. Car and Light Truck Sales, 1970–2011



Supporting Information

Car and Light Truck Sales in the U.S., 1970-2011 (Millions)			
Calendar Year	**Cars**	**Light Trucks**	**Total Light Vehicles**
1970	8.4	1.5	9.9
1971	10.2	1.8	12.0
1972	10.9	2.2	13.2
1973	11.4	2.7	14.2
1974	8.9	2.3	11.2
1975	8.6	2.3	10.9
1976	10.1	3.0	13.1
1977	11.2	3.4	14.6
1978	11.3	3.8	15.1
1979	10.7	3.3	14.0
1980	8.9	2.2	11.2
1981	8.5	2.1	10.5
1982	8.0	2.4	10.4
1983	9.1	3.0	12.1
1984	10.3	3.9	14.2
1985	11.0	4.5	15.4
1986	11.4	4.7	16.1
1987	10.2	4.7	14.9
1988	10.5	4.9	15.5
1989	9.8	4.8	14.5
1990	9.3	4.6	13.9
1991	8.2	4.1	12.3
1992	8.2	4.7	12.9
1993	8.5	5.4	13.9
1994	9.0	6.1	15.1
1995	8.6	6.1	14.7
1996	8.5	6.7	15.1
1997	8.2	6.9	15.1
1998	8.1	7.5	15.5

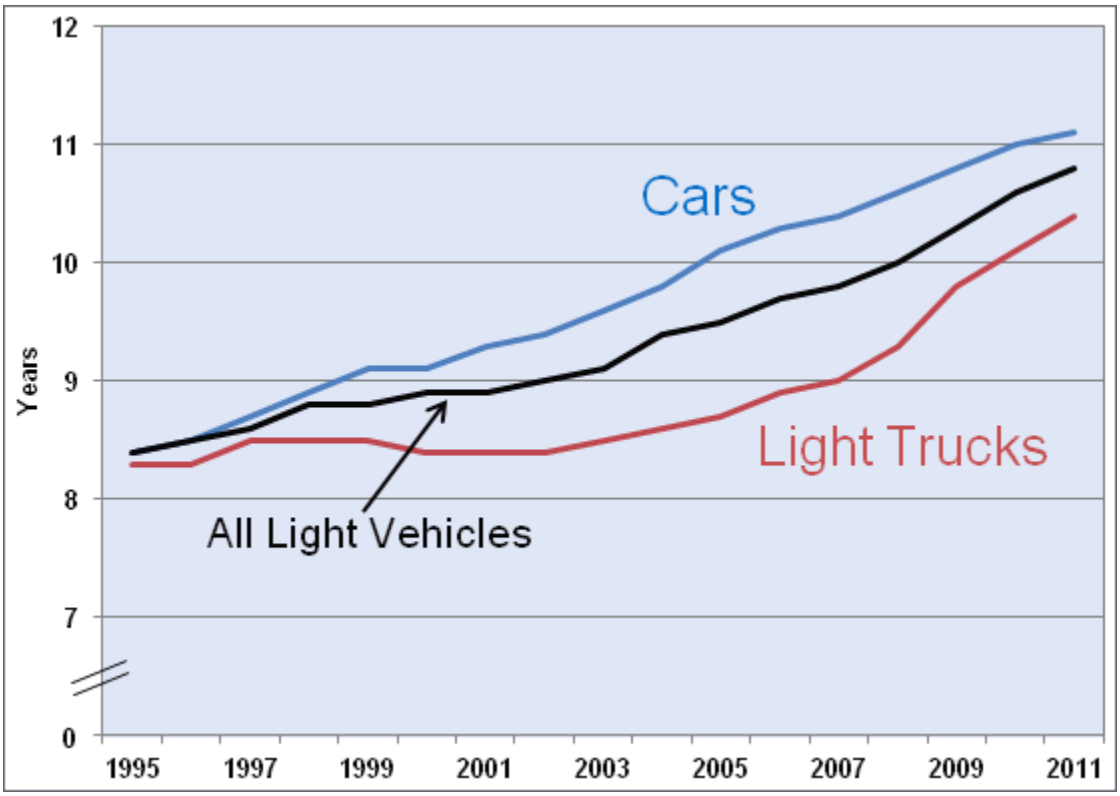
Car and Light Truck Sales in the U.S., 1970-2011 (Millions)			
Calendar Year	**Cars**	**Light Trucks**	**Total Light Vehicles**
1999	8.6	8.3	16.9
2000	8.8	8.6	17.4
2001	8.4	8.7	17.1
2002	8.0	8.8	16.8
2003	7.6	9.1	16.6
2004	7.5	9.4	16.9
2005	7.7	9.3	17.0
2006	7.8	8.7	16.5
2007	7.6	8.5	16.1
2008	6.8	6.4	13.2
2009	5.4	5.0	10.4
2010	5.6	5.9	11.6
2011	6.1	6.6	12.7
Source: Ward's Communications			

Fact #715: February 20, 2012

The Average Age of Light Vehicles Continues to Rise

The average age for cars and light trucks continues to rise as consumers hold onto their vehicles longer. Between 1995 and 2011, the average age for cars increased by 32% from 8.4 years to 11.1 years. For light trucks, the average age increased by 25% during that same period from 8.3 years to 10.4 years. The popularity of SUVs and minivans through the 1990s resulted in more new truck sales, bringing down the average age for all light trucks as shown in the figure below.

Average Age of Cars and Light Trucks, 1995–2011



Supporting Information

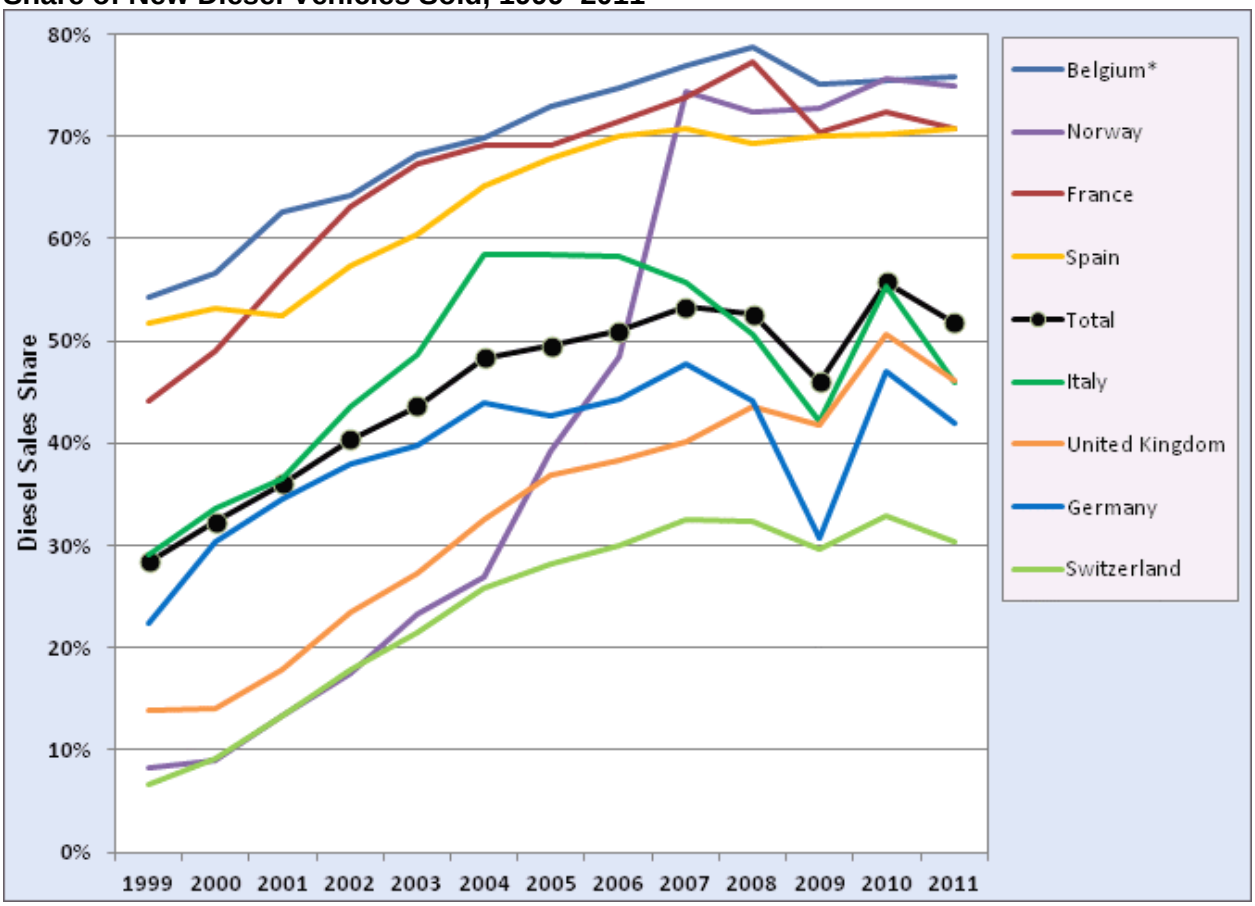
Average Age of Passenger Cars and Light Trucks (Years)			
Year	**Passenger Cars**	**Light Trucks**	**Total Light Vehicles**
1995	8.4	8.3	8.4
1996	8.5	8.3	8.5
1997	8.7	8.5	8.6
1998	8.9	8.5	8.8
1999	9.1	8.5	8.8
2000	9.1	8.4	8.9
2001	9.3	8.4	8.9
2002	9.4	8.4	9.0
2003	9.6	8.5	9.1
2004	9.8	8.6	9.4
2005	10.1	8.7	9.5
2006	10.3	8.9	9.7
2007	10.4	9.0	9.8
2008	10.6	9.3	10.0
2009	10.8	9.8	10.3
2010	11.0	10.1	10.6
2011	11.1	10.4	10.8

Fact #716: February 27, 2012

Diesels Are More than Half of New Cars Sold in Western Europe

In 2011, nearly 52% of all new cars sold in Western Europe were diesel. In Belgium, Norway, France and Spain more than 70% of the new car market in 2011 were diesels. The market penetration of diesels was very quick in Norway from 2004 to 2007. In 2009, Germany, Italy, and France each had significant declines in the share of diesels purchased, possibly due to emission standards and/or vehicle incentive programs in those countries.

Share of New Diesel Vehicles Sold, 1999–2011



Supporting Information

Western Europe Diesel Car Sales Shares, 1999-2011

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Belgium*	54.3%	56.7%	62.6%	64.2%	68.3%	69.9%	72.9%	74.7%	76.9%	78.7%	75.1%	75.4%	75.9%
France	44.1%	49.0%	56.2%	63.2%	67.4%	69.2%	69.1%	71.4%	73.9%	77.3%	70.4%	72.4%	70.8%
Germany	22.4%	30.4%	34.6%	38.0%	39.8%	44.0%	42.7%	44.3%	47.7%	44.1%	30.7%	47.1%	41.9%
Italy	29.1%	33.7%	36.6%	43.6%	48.7%	58.4%	58.5%	58.2%	55.7%	50.6%	42.2%	55.4%	45.9%
Norway	8.2%	9.0%	13.3%	17.5%	23.2%	27.0%	39.2%	48.4%	74.4%	72.4%	72.7%	75.7%	74.9%
Spain	51.7%	53.1%	52.5%	57.3%	60.4%	65.1%	67.8%	70.0%	70.8%	69.3%	70.1%	70.3%	70.7%
Switzerland	6.6%	9.2%	13.3%	17.8%	21.5%	25.9%	28.1%	30.0%	32.5%	32.4%	29.6%	32.9%	30.4%
United Kingdom	13.8%	14.1%	17.8%	23.5%	27.3%	32.5%	36.8%	38.3%	40.2%	43.6%	41.7%	50.6%	46.1%
Total	28.4%	32.3%	36.0%	40.4%	43.6%	48.3%	49.5%	51.0%	53.3%	52.6%	46.0%	55.8%	51.8%

* Beginning in 2005, Belgium data also include Luxembourg.

Note: Total includes Austria, Belgium, Denmark, Eire, Finland, France, Germany, Greece, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

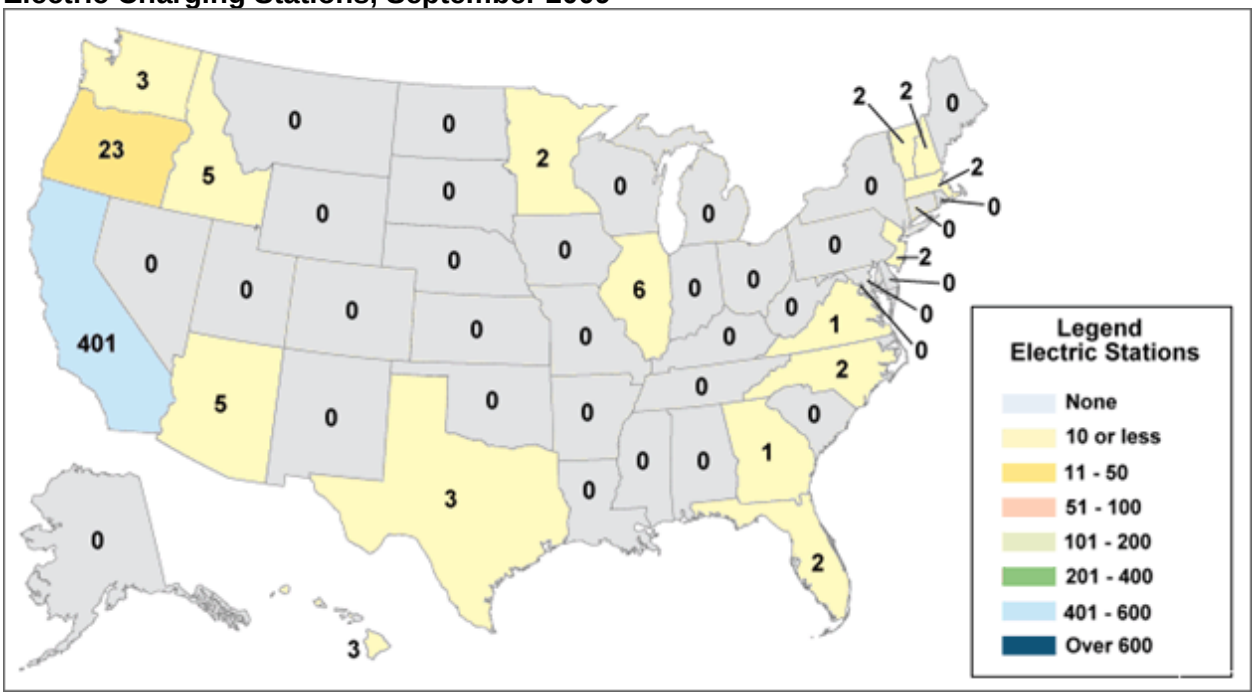
Source: Automotive Industry Data Newsletter, Nos. 0102, 0302, 0501, 0602, 0702, 0714, 0904, 1202.

Fact #717: March 5, 2012

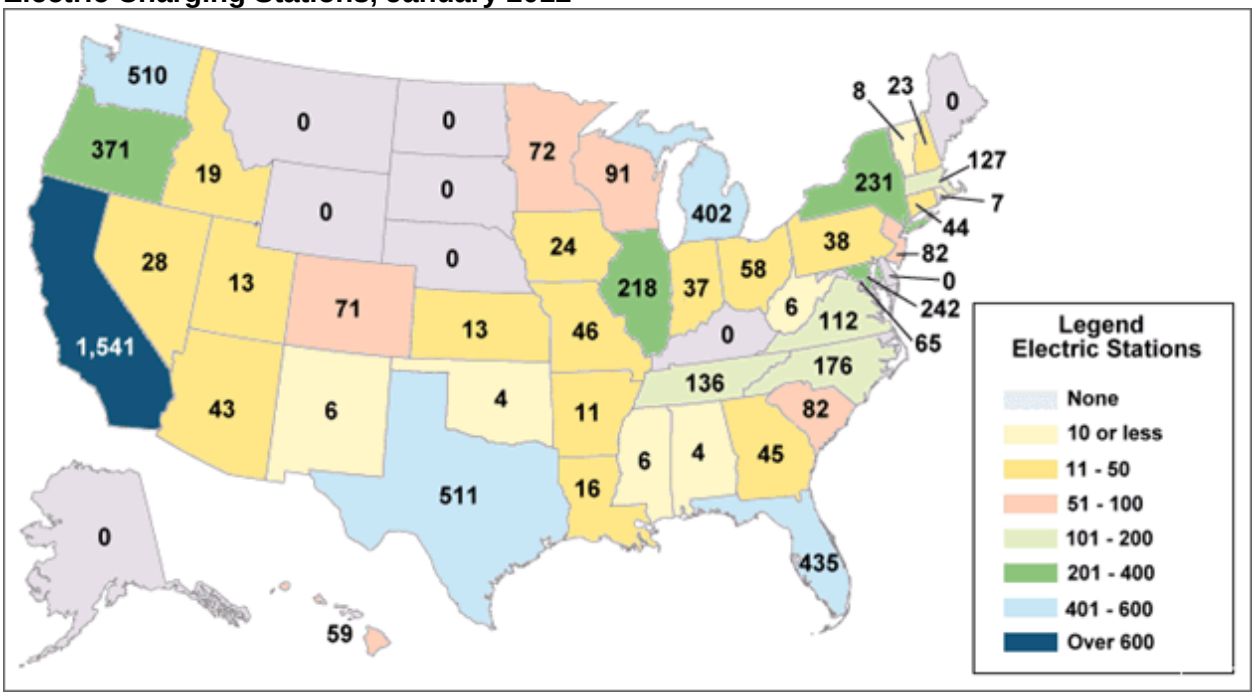
Availability of Electric Charging Stations Has Increased Dramatically in Recent Years

At the end of September 2009, there were just 465 electric vehicle charging stations nationwide. By the end of January 2012, the number of charging stations had grown to 6,033. California has continued to be the leader in electric charging stations; other states like Texas, Florida, Michigan, Washington, Oregon and many states along the East Coast and in the Midwest have also shown remarkable growth. By January 2012, there were just 9 states without any electric charging stations, primarily in the northern regions of the country.

Electric Charging Stations, September 2009



Electric Charging Stations, January 2012



Supporting Information

Electric Charging Stations by State, September 2009 and January 2012		
State	**September 2009**	**January 2012**
Alaska	0	0
Alabama	0	4
Arkansas	0	11
Arizona	5	43
California	401	1,541
Colorado	0	71
Connecticut	0	44
Dist. of Columbia	0	65
Delaware	0	0
Florida	2	435
Georgia	1	45
Hawaii	3	59
Iowa	0	24

Electric Charging Stations by State, September 2009 and January 2012		
State	**September 2009**	**January 2012**
Idaho	5	19
Illinois	6	218
Indiana	0	37
Kansas	0	13
Kentucky	0	0
Louisiana	0	16
Massachusetts	2	127
Maryland	0	242
Maine	0	0
Michigan	0	402
Minnesota	2	72
Missouri	0	46
Mississippi	0	6
Montana	0	0
North Carolina	2	176
North Dakota	0	0
Nebraska	0	0
New Hampshire	2	23
New Jersey	2	82
New Mexico	0	6
Nevada	0	28
New York	0	231
Ohio	0	58
Oklahoma	0	4
Oregon	23	371
Pennsylvania	0	38
Rhode Island	0	7
South Carolina	0	82
South Dakota	0	0
Tennessee	0	136

Electric Charging Stations by State, September 2009 and January 2012

State	September 2009	January 2012
Texas	3	511
Utah	0	13
Virginia	1	112
Vermont	2	8
Washington	3	510
Wisconsin	0	91
West Virginia	0	6
Wyoming	0	0
Total	**465**	**6,033**

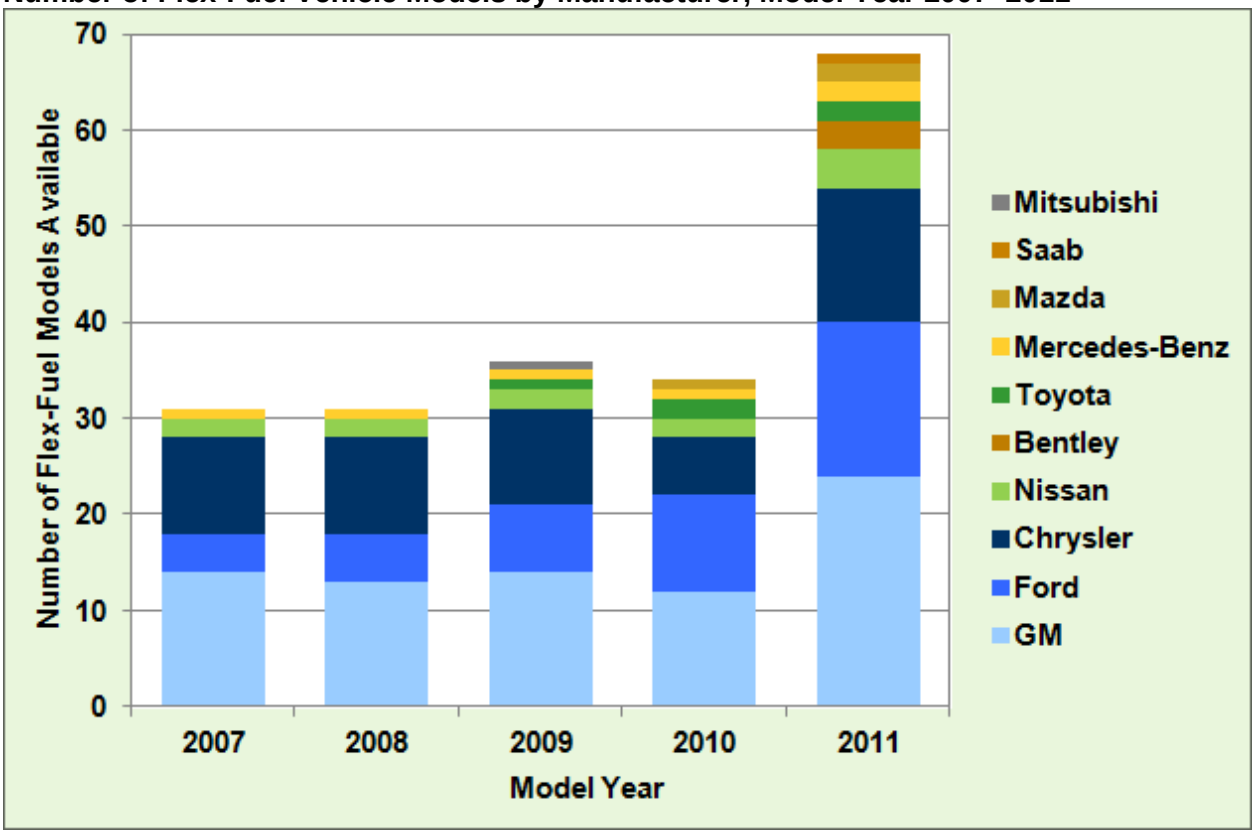
Source: U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center.

Fact #718: March 12, 2012

Number of Flex-Fuel Models Offered Increased in 2011

General Motors (GM), Ford, and Chrysler have produced many different models of flex-fuel vehicles (cars and light trucks) over the last five years. In 2011, the number of models offered by those three manufacturers grew and other manufacturers joined them in producing flex-fuel vehicles. The number of flex-fuel models offered to the public doubled from 2010 to 2011. The manufacturers receive credits in the Federal Corporate Average Fuel Economy program for producing flex-fuel vehicles, which run on E-85, a blend of 85% ethanol and 15% gasoline, and/or gasoline.

Number of Flex-Fuel Vehicle Models by Manufacturer, Model Year 2007–2011



Supporting Information

Number of Flex-Fuel Models Available by Model Year					
	2007	**2008**	**2009**	**2010**	**2011**
GM	14	13	14	12	24
Ford	4	5	7	10	16
Chrysler	10	10	10	6	14
Nissan	2	2	2	2	4
Bentley	0	0	0	0	3
Toyota			1	2	2
Mercedes-Benz	1	1	1	1	2
Mazda	0	0	0	1	2
Saab	0	0	0	0	1
Mitsubishi	0	0	1	0	0
Total	31	31	36	34	68

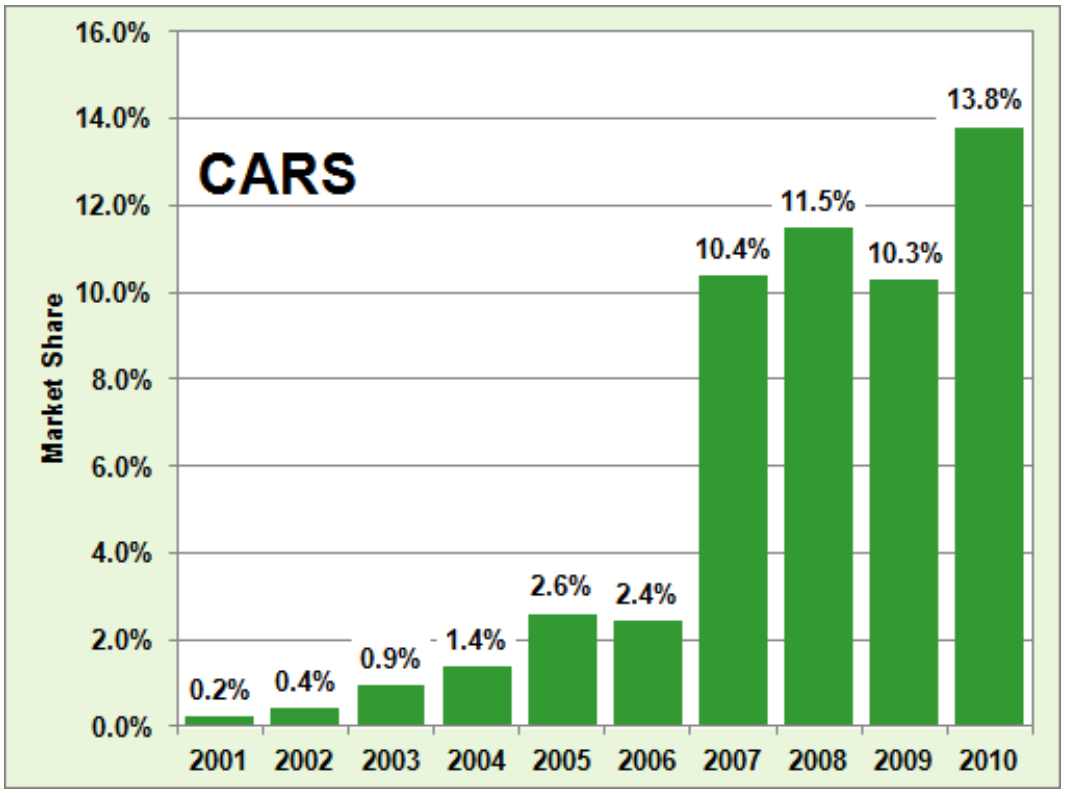
Source: Oak Ridge National Laboratory, *2011 Vehicle Technologies Market Report*, Oak Ridge, TN, ORNL-TM-2011/016, February 2012.

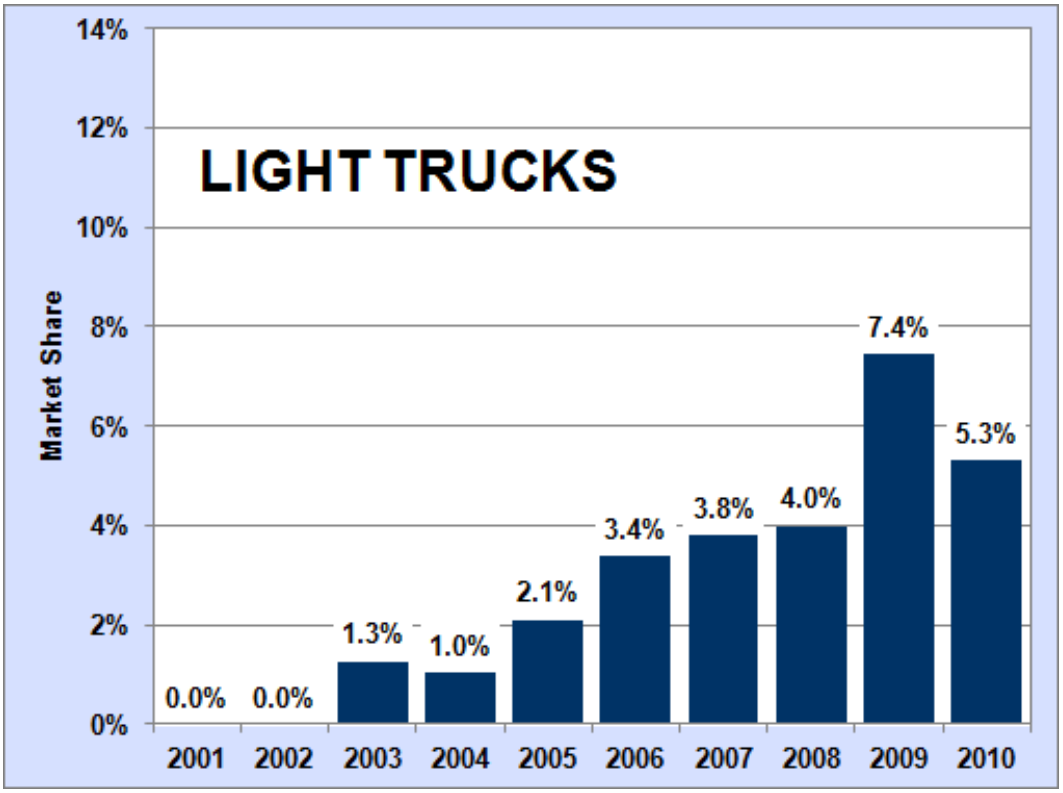
Fact #719: March 19, 2012

Nearly 14% of New Car Sales Have Continuously Variable Transmissions

Continuously variable transmissions (CVT) offer an infinite number of gear ratios that allow the engine to operate near peak efficiency throughout a wide range of vehicle speeds which improves fuel efficiency. The sales of vehicles with CVTs began slowly and have climbed to 13.8% of car and 5.3% of light truck market share. With CVT making up a relatively small percentage of all transmissions, changes to model offerings with CVTs can have a pronounced effect on the year to year percentages shown in the graphs below.

Market Share of New Cars and Light Trucks with CVT, Model Year 2001–2010





Supporting Information

Market Share of CVTs, Model Year 2001-2010

Model Year	Cars	Light Trucks
2001	0.2%	0.0%
2002	0.4%	0.0%
2003	0.9%	1.3%
2004	1.4%	1.0%
2005	2.6%	2.1%
2006	2.4%	3.4%
2007	10.4%	3.8%
2008	11.5%	4.0%
2009	10.3%	7.4%
2010	13.8%	5.3%

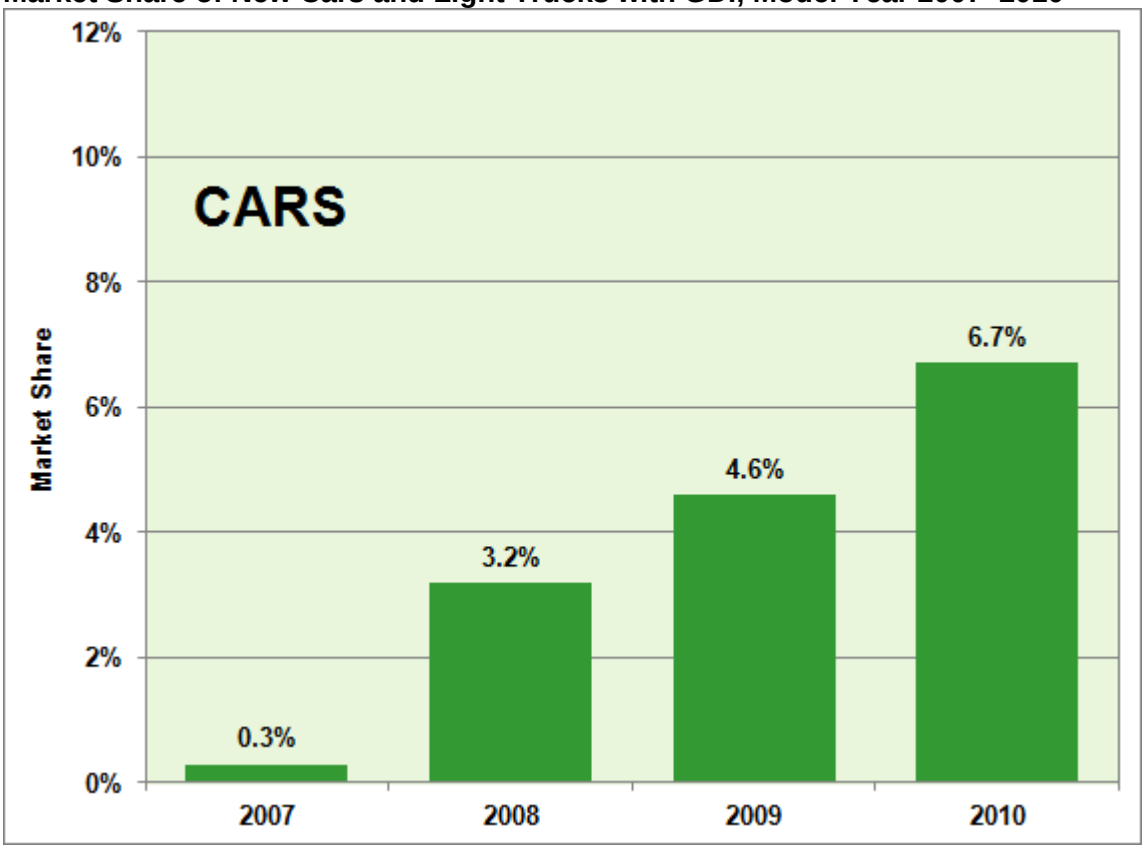
Source: Oak Ridge National Laboratory, *2011 Vehicle Technologies Market Report*, Oak Ridge, TN, ORNL-TM-2011/016, February 2012.

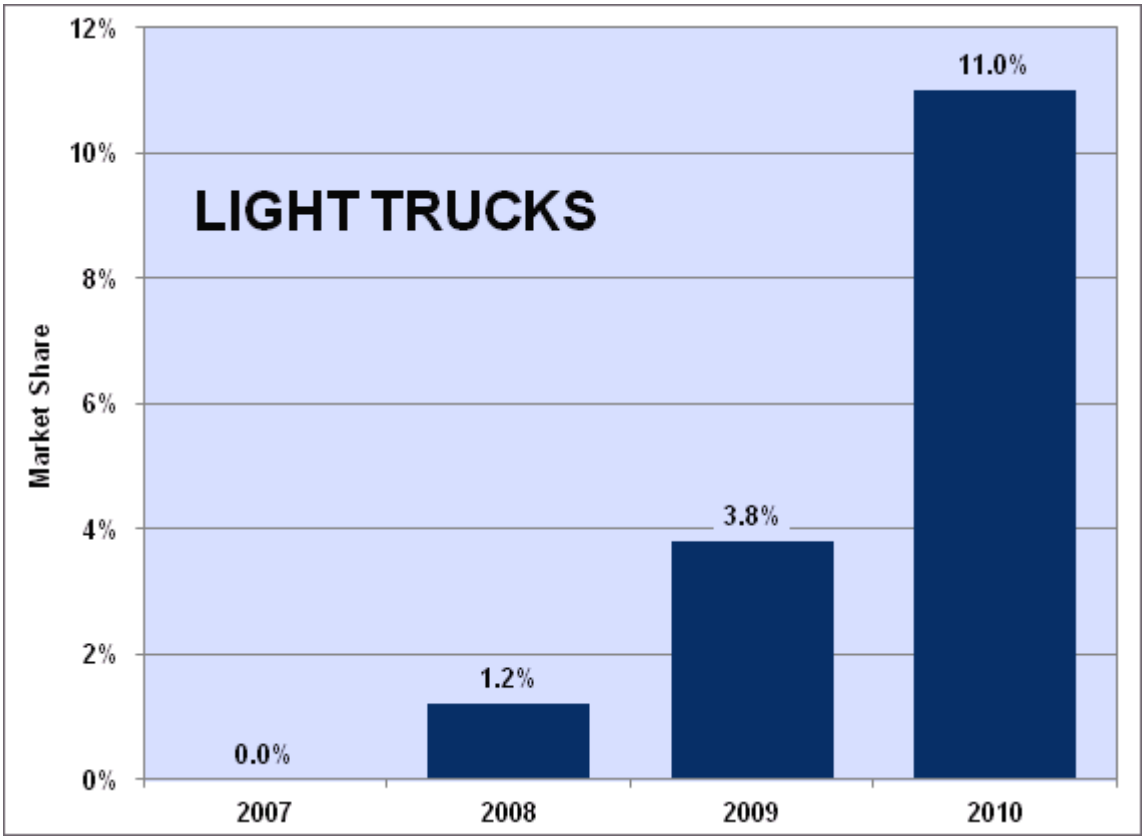
Fact #720: March 26, 2012

Eleven Percent of New Light Trucks Sold Have Gasoline Direct Injection

Gasoline direct fuel injection (GDI) allows fuel to be injected directly into the cylinder so the timing and shape of the fuel mist can be controlled more precisely. The improved combustion and higher compression of GDI engines makes them more efficient especially when paired with turbo charging as they usually are. The market for GDI engines has grown more rapidly for light trucks than for cars. Manufacturers began using GDI in trucks in 2008 and by 2010 GDI had grown to 11% of the market.

Market Share of New Cars and Light Trucks with GDI, Model Year 2007–2010





Supporting Information

Market Share of New Vehicles Sold with GDI, Model Year 2007-2011		
Model Year	**Cars**	**Light Trucks**
2007	0.3%	0.0%
2008	3.2%	1.2%
2009	4.6%	3.8%
2010	6.7%	11.0%

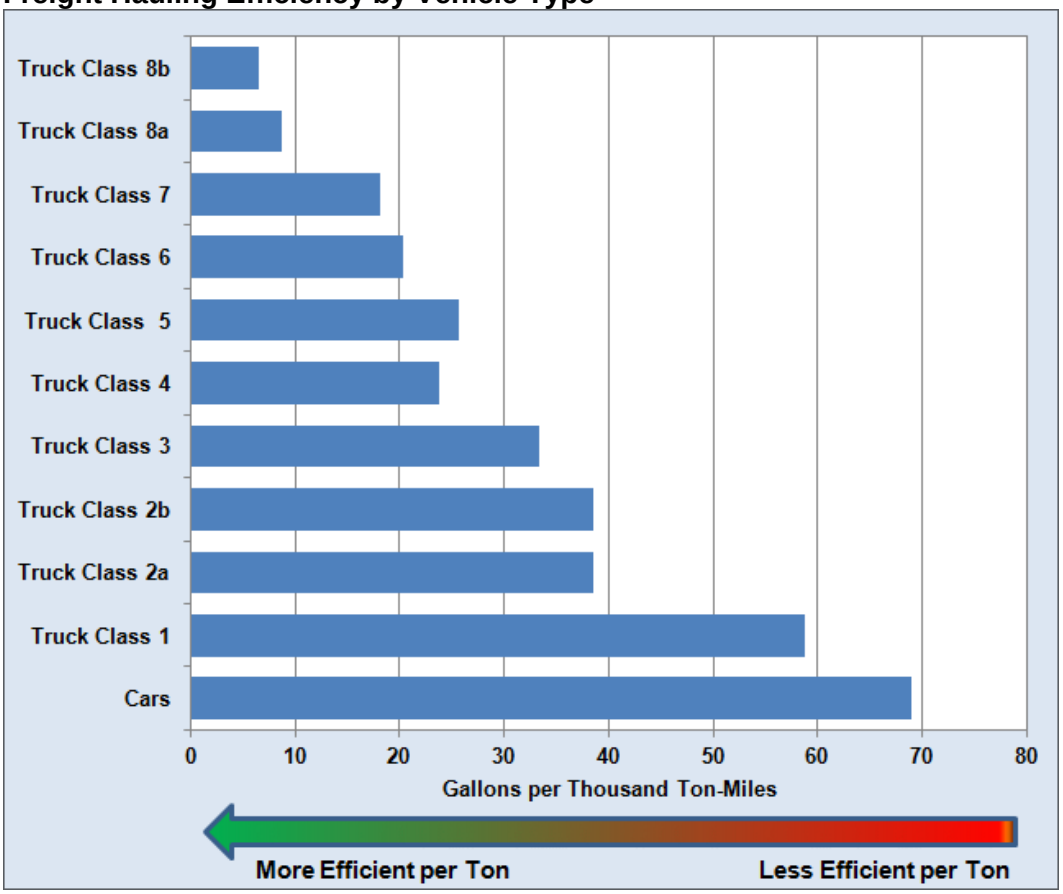
Source: U.S. Environmental Protection Agency, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2010*, EPA420-R-10-023, November 2010.

Fact #721: April 2, 2012

Heavy Trucks Move Freight Efficiently

Though discussions of vehicle efficiency are often centered on a measurement of miles per gallon, it is also important to consider how efficiently a vehicle carries its payload. Although heavy vehicles like buses or class 8 trucks get much fewer miles per gallon than cars, a greater percentage of their mass is payload which means that they are much more efficient at carrying weight whether passengers or cargo. The figure below shows that as the size and mass of a vehicle increases, so does its' efficiency in moving freight. When fuel efficiency is measured in gallons of fuel per thousand ton miles, a car consumes 69 gallons of fuel while a school bus consumes about 20 gallons and a class 8 truck consumes just six and a half gallons.

Freight Hauling Efficiency by Vehicle Type



Supporting Information

Freight Hauling Efficiency by Vehicle Type

Class	Applications	Gross Weight Range (lbs.)	Typical Fuel Consumed (gallons per thousand ton-miles)
1c	Cars only	3,200-6,000	69.0
1t	Minivans, Small SUVs, Small Pick-Ups	4,000-6,000	58.8
2a	Large SUVs, Standard Pick-Ups	6,001-8,500	38.5
2b	Large Pick-Ups, Utility Van, Multi-Purpose, Mini-Bus, Step Van	8,501 -10,000	38.5
3	Utility Can, Multi-Purpose, Mini-Bus, Step Van	10,001-14,000	33.3
4	City Delivery, Parcel delivery, Large Walk-in, Bucket, Landscaping	14,001-16,000	23.8
5	City Delivery, Parcel Delivery, Large Walk-in, Bucket, Landscaping	16,001-19,500	25.6
6	City Delivery, School Bus, Large Walk-in, Bucket	19,501-26,000	20.4
7	City Bus, Furniture, Refrigerated, Refuse, Fuel Tanker, Dump, Tow, Concrete, Fire Engine, Tractor-Trailer	26,001 -33,000	18.2
8a	Straight trucks, e.g., Dump, Refuse, Concrete, Furniture, City Bus, Tow, Fire Engine	33,001 -80,000	8.7
8b	Combination trucks, e.g., Tractor-Trailer: Van, Refrigerated, Bulk Tanker, Flat Bed,	33,001-80,000	6.5

Source: Oak Ridge National Laboratory, *2011 Vehicle Technologies Market Report*, Oak Ridge, TN, ORNL-TM-2011/016, February 2012.

Fact #722: April 9, 2012

Hybrid Vehicles Can Save Money Over Time

Hybrid vehicles are typically very well equipped with standard amenities comparable to those found on the upper trim levels of their non-hybrid counterparts. Many consumers do not settle for the base model but rather opt for the higher trim levels with amenities that come standard on the hybrid model. For these consumers, a hybrid vehicle can offer real savings over time. The table below shows a selection of hybrid vehicles available for the 2012 and 2013 model years paired with a comparably equipped non-hybrid vehicle from the same manufacturer. With the exception of the Lincoln MKZ and Buick LaCrosse, where the hybrid model is offered as a zero cost alternative to the six cylinder model, the cost premiums for the hybrid models fall within a range of about $1,400 to $5,000*. The vehicles shown in the table below are those with a payback period of less than five years when the price of fuel is $4.00 per gallon.

Selected Hybrid Vehicles Paired with a Comparably Equipped Non-Hybrid Vehicle

Manufacturer	Model	Price Difference	Combined MPG	Years to Pay Back at $4/gal	Years to Pay Back at $5/gal	Savings - 10 Years at $4.00/gal minus Price Difference
Lincoln	2012 MKZ Hybrid	$0	39	<1	<1	$13,187
Lincoln	2012 MKZ 6cyl		21			
Buick	2012 LaCrosse eAssist	$0	29	<1	<1	$7,882
Buick	2012 LaCrosse 6cyl		21			
Cadillac	2012 Escalade Hybrid 4wd	$2,175	21	1.9	1.5	$9,254
Cadillac	2012 Escalade Premium Awd		15			
Chevrolet	2013 Malibu Eco	$545	29	2.3	1.8	$1,842
Chevrolet	2012 Malibu 2LT		26			
Toyota	2012 Camry Hybrid XLE	$1,480	40	2.3	1.8	$4,949
Toyota	2012 Camry XLE		28			
Toyota	2012 Highlander Hybrid 4wd	$3,240	28	3.2	2.6	$6,910
Toyota	2012 Highlander SE 4wd		19			
Buick	2012 Regal eAssist	$2,000	29	3.7	3.0	$3,397
Buick	2012 Regal 4cyl		23			

Selected Hybrid Vehicles Paired with a Comparably Equipped Non-Hybrid Vehicle

Manufacturer	Model	Price Difference	Combined MPG	Years to Pay Back at $4/gal	Years to Pay Back at $5/gal	Savings - 10 Years at $4.00/gal minus Price Difference
Ford	2012 Fusion Hybrid	$3,055	39	4.0	3.2	$4,637
Ford	2012 Fusion SEL 4cyl		26			
Honda	2012 Civic Hybrid	$2,095	44	4.1	3.3	$3,019
Honda	2012 Civic EX-L Automatic		32			
Toyota	2012 Prius c One	$2,850	50	4.2	3.4	$3,900
Toyota	2012 Yaris 5-Door LE Automatic		32			
GMC	2012 Yukon Denali Hybrid 4wd	$5,125	21	4.5	3.6	$6,304
GMC	2012 Yukon Denali Awd		15			
Toyota	2012 Prius Two	$4,315	50	4.6	3.7	$5,114
Toyota	2012 Matrix		28			
Honda	2012 Insight Hybrid	$2,375	42	4.7	3.7	$2,694
Honda	2012 Fit Automatic		31			
Kia	2012 Optima Hybrid	$2,500	37	4.8	3.8	$2,712
Kia	2012 Optima EX		28			

Note: Fuel savings and years to pay back are based on an assumption of 15,000 annual miles. Hybrid vehicles were matched to their most comparable non-hybrid counterpart in terms of vehicle content and performance within the same manufacturer. The Toyota Prius, Prius c and Honda Insight are unique hybrid models without a direct non-hybrid counterpart for comparison. They were matched to the model that was deemed closest to offering the same utility and amenities. No attempt was made to include cost factors beyond vehicle purchase price and fuel costs such as insurance, long term maintenance or resale value.

*The $545 price difference shown for the 2013 Chevrolet Malibu Eco is disregarded in this price range because it is compared to a 2012 conventional Malibu. There was no conventional Malibu available for the 2013 model year at the time the comparison was made. The 2013 Malibu Eco is a completely redesigned model versus the 2012 model so the added costs associated with the hybrid system are difficult to measure.

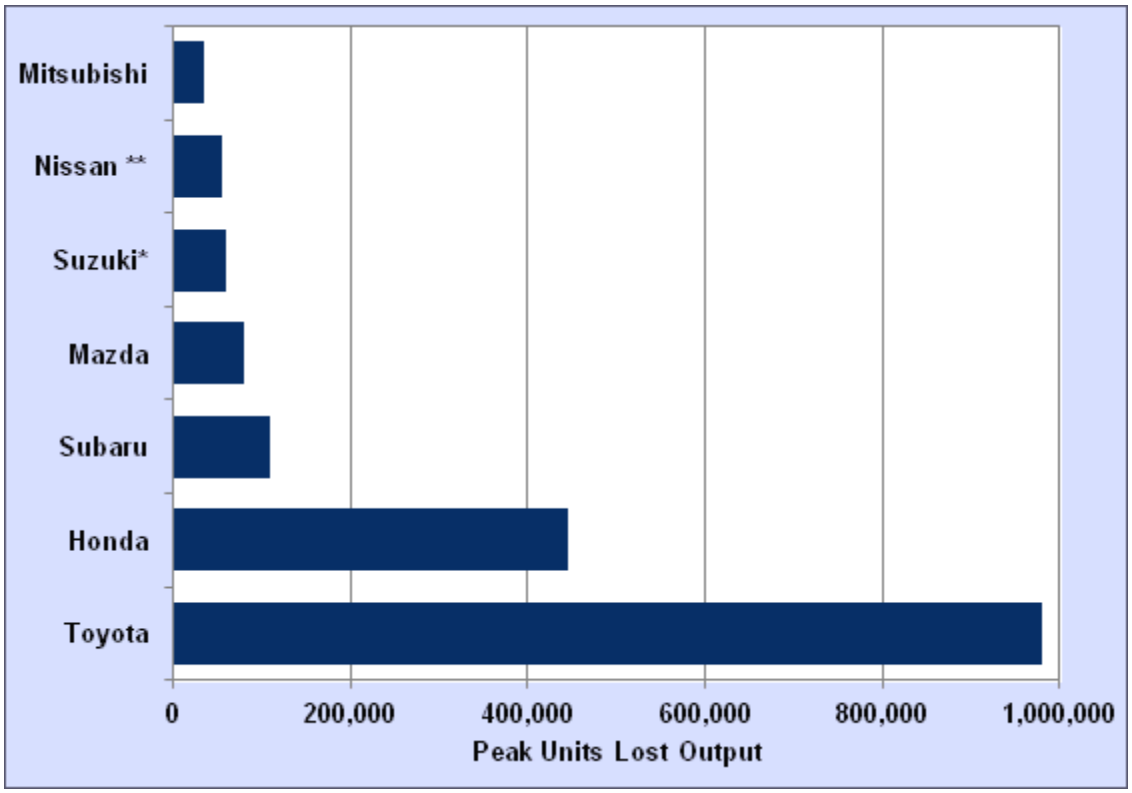
Source: Compiled by Robert Boundy, Roltek, Inc., Clinton, TN, from manufacturer websites and the *Fuel Economy Guide*. Data accessed March 22, 2012.

Fact #723: April 16, 2012

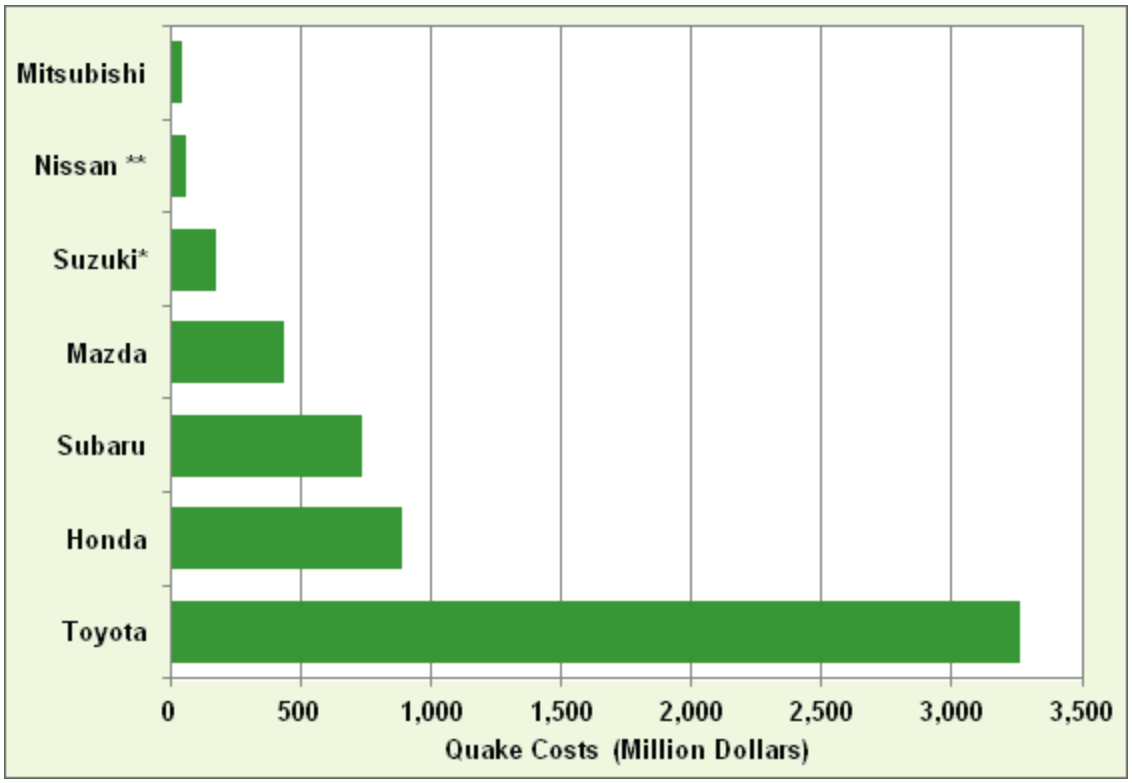
Japan's Earthquake and Tsunami Resulted in Major Losses for Japanese Automakers

The 9.0 magnitude earthquake and subsequent tsunami that struck northern Japan on March 11, 2011 resulted in severe disruptions and losses for Japan's seven major automakers. *Automotive News* contacted individual companies to collect data on the losses resulting from the event. For the one year period following the disaster, Toyota reported the greatest loss in financial terms and in lost output totaling nearly 1 million units. Through March 31, 2012, the earthquake and tsunami cost the seven largest automakers in Japan an estimated 5.6 billion dollars. More losses will follow as actions such as plant relocations and manufacturing changes continue to take place to limit disruptions from future disasters.

Lost Output for Japan's Seven Major Automakers, March 11, 2011–March 31, 2012



Financial Losses of Japan's Seven Major Automakers, March 11, 2011–March 31, 2012



Supporting Information

Company	Lost Output	Quake Costs (Million Dollars)
Toyota	980,000	$3,260
Honda	446,000	$889
Subaru	109,000	$733
Mazda	80,000	$433
Suzuki*	59,000	$177
Nissan**	55,000	$60
Mitsubishi	35,000	$46

Note: Results translated at an exchange rate of $1=¥82.87, the rate on March 11, 2011, the day of the disaster.

* Suzuki does not disclose lost production figures. But it had reported losing 59,000 units through April 9. Global output rose 13 percent in the year ended March 2011. But Suzuki expects a drop of 2 percent in current fiscal year.
** Nissan provides lost production only for March 2011, no figures for lost output since April 2011. But full, unrestricted production was restored only in September 2011. Nissan says it has recovered all lost output.

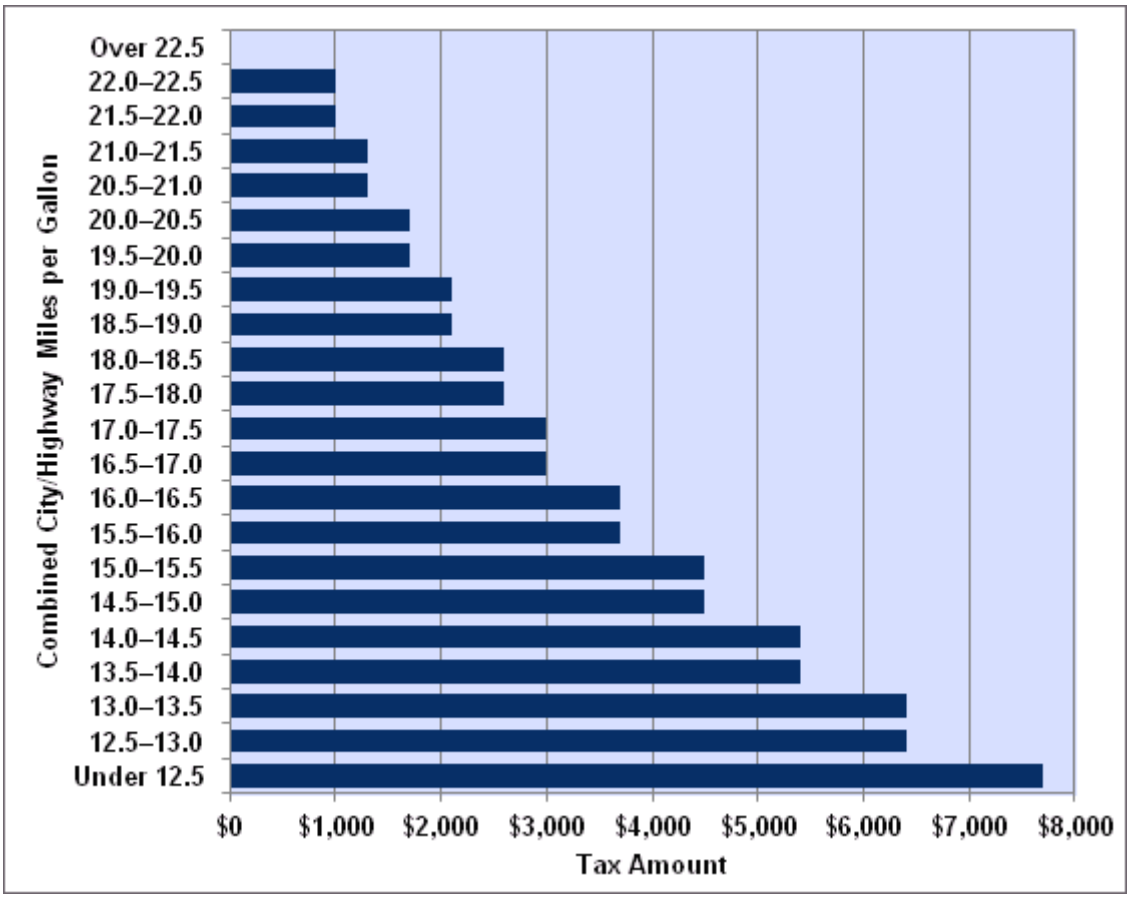
Source: Crain Communications, *Automotive News*, March 12, 2012, p. 50. [As reported to *Automotive News* by individual companies.]

Fact #724: April 23, 2012

Gas Guzzler Tax Levied on New Cars with Low Fuel Economy

The "Gas Guzzler Tax" is collected from the public for each new car purchased with fuel economy less than 22.5 miles per gallon (mpg). The Gas Guzzler Tax does not apply to light trucks, only cars. Most of the vehicles on the model year 2011 Gas Guzzler list are high-end performance or luxury cars.

Current Gas Guzzler Tax on New Cars



List of Model Year 2011 Cars with Gas Guzzler Taxes

Make	Model(s)	Size Class	Combined City/Highway Fuel Economy* (mpg)
Aston Martin	DB9	Minicompact Cars	13
Aston Martin	DBS	Minicompact Cars	13
Aston Martin	Rapide	Subcompact Cars	15
Aston Martin	V12 Vantage	Two Seaters	13
Aston Martin	V8 Vantage	Two Seaters	15
Audi	R8/R8 Spyder	Two Seaters	15
Audi	S5	Subcompact Cars	17
Audi	S6	Midsize Cars	16
Bentley	Continental Flying Spur	Midsize Cars	13
Bentley	Continental GTC	Subcompact Cars	13
Bentley	Continental Supersports/Supersports Convertible	Two Seaters	14
Bentley	Mulsanne	Midsize Cars	13
BMW	550i Gran Turismo	Large Cars	18
BMW	750i/Li xDrive	Large Cars	17
BMW	750Li	Large Cars	17
BMW	760Li	Large Cars	15
BMW	Alpina B7 SWB/LWB xDrive	Large Cars	16
BMW	Alpina B7 SWB/LWB	Large Cars	17
BMW	M3 Sedan/Coupe/Convertible	Subcompact Cars	16
Bugatti	Veyron	Two Seaters	10
Cadillac	CTS/CTS Wagon	Midsize Cars	16
Cadillac	Funeral Coach / Hearse	Large Cars	14
Cadillac	Limousine	Large Cars	14
Chevrolet	Corvette	Two Seaters	16
Dodge	Challenger SRT8	Compact Cars	17
Lamborghini	Gallardo Coupe/Spyder	Two Seaters	16
Maserati	GranTurismo/GranTurismo Convertible	Subcompact Cars	15
Maserati	Quattroporte	Large Cars	14
Mercedes-Benz	C63 AMG	Compact Cars	15
Mercedes-Benz	CL600	Compact Cars	14

List of Model Year 2011 Cars with Gas Guzzler Taxes

Make	Model(s)	Size Class	Combined City/Highway Fuel Economy* (mpg)
Mercedes-Benz	CL63/CL65 AMG	Compact Cars	17
Mercedes-Benz	CLS550	Compact Cars	16
Mercedes-Benz	E63 AMG	Midsize Cars	15
Mercedes-Benz	S550 4matic	Large Cars	17
Mercedes-Benz	S600	Large Cars	14
Mercedes-Benz	S65 AMG	Large Cars	14
Mercedes-Benz	SL550	Two Seaters	17
Mercedes-Benz	SL63/SL65 AMG	Two Seaters	14
Mercedes-Benz	SLS AMG	Two Seaters	16
Porsche	911 GT3/GT3 RS	Two Seaters	16
Rolls-Royce	Ghost	Large Cars	15
Rolls-Royce	Phantom Coupe/ Phantom Drophead Coupe	Compact Cars	14
Rolls-Royce	Phantom/Phantom EWB	Large Cars	14

* The tax is based on unadjusted combined fuel economy. The fuel economy shown in this column is the adjusted fuel economy that would appear on the window sticker of the car at the time of purchase.

Source: U.S. Department of Energy and U.S. Environmental Protection Agency, Fuel Economy Guide database

Supporting Information

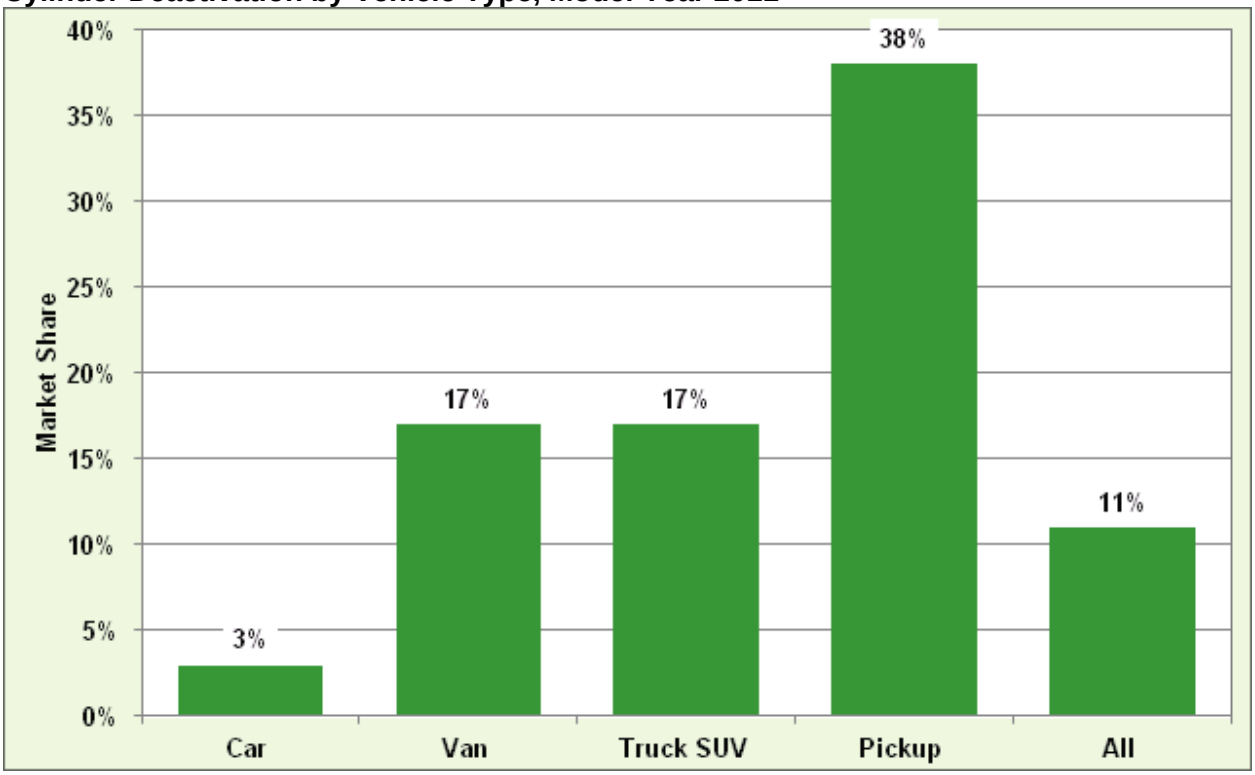
Current Gas Guzzler Tax on New Cars	
New Vehicle Combined City/Highway Fuel Economy (mpg)	**Gas Guzzler Tax**
Over 22.5	$0
22.0–22.5	$1,000
21.5–22.0	$1,000
21.0–21.5	$1,300
20.5–21.0	$1,300
20.0–20.5	$1,700
19.5–20.0	$1,700
19.0–19.5	$2,100
18.5–19.0	$2,100
18.0–18.5	$2,600
17.5–18.0	$2,600
17.0–17.5	$3,000
16.5–17.0	$3,000
16.0–16.5	$3,700
15.5–16.0	$3,700
15.0–15.5	$4,500
14.5–15.0	$4,500
14.0–14.5	$5,400
13.5–14.0	$5,400
13.0–13.5	$6,400
12.5–13.0	$6,400
Under 12.5	$7,700
Source: Internal Revenue Service, Form 6197, (Rev. 10-05), "Gas Guzzler Tax."	

Fact #725: April 30, 2012

Cylinder Deactivation is More Prevalent in Light Trucks than Cars

Cylinder deactivation is a fuel-saving technology that allows a vehicle to shut down some of its cylinders when extra power is not needed like when cruising down the highway at a constant speed. The cylinders can be activated under heavy load situations like towing or acceleration where more power is required. This technology is particularly well suited to light trucks where the power requirements for hauling, towing and cruising vary greatly. In model year 2011, 38% of pickup trucks and 17% of vans and SUVs had engines with cylinder deactivation while just 3% of cars took advantage of the technology.

Cylinder Deactivation by Vehicle Type, Model Year 2011



Supporting Information

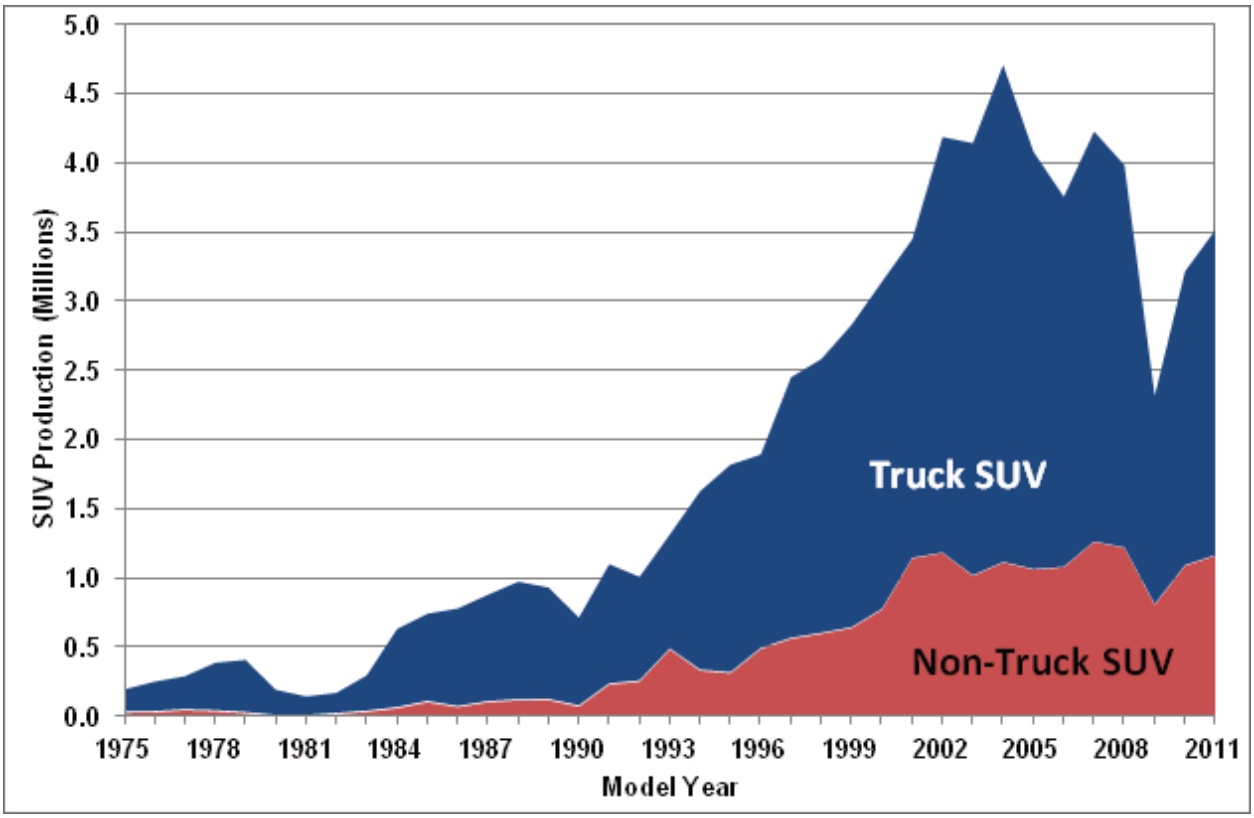
Model Year 2011 Cylinder Deactivation by Vehicle Type	
Vehicle Type	**Cylinder Deactivation**
Car	3%
Van	17%
Truck SUV	17%
Pickup	38%
All	11%
Source: U.S. Environmental Protection Agency, Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2011 EPA-420-R-12-001, March 2012.	

Fact #726: May 7, 2012

SUVs: Are They Cars or Trucks?

The Corporate Average Fuel Economy (CAFE) Standards set for model years (MY) 2011 through 2016 include small, 2-wheel drive sport utility vehicles (SUVs) with cars instead of light trucks. Until this regulation, all SUVs were categorized as light trucks, along with pickups and vans. A recent report by the Environmental Protection Agency shows how many SUVs fall into this new "non-truck SUV" category. The production data show that most SUVs are "truck SUVs" which will continue to be in the light truck category. However, in MY 2011 nearly 1.1 million non-truck SUVs (9.4% of 2011 light-duty vehicle sales) are now classified as cars that in previous years would have been classified as light trucks. A listing of which vehicles are included in the non-truck SUV category in MY 2011 is below.

SUV Production by Truck/Non-Truck Category, MY 1970–2011



List of Non-Truck SUVs, MY 2011
Mazda TRIBUTE HYBRID 2WD
Ford ESCAPE HYBRID FWD
Ford MARINER HYBRID FWD
Mitsubishi OUTLANDER SPORT 2WD
Hyundai TUCSON 2WD
Kia SPORTAGE 2WD
Nissan ROGUE FWD
Chrysler Compass 2WD
Chrysler Patriot 2WD
Mitsubishi OUTLANDER 2WD
Honda CR-V 2WD
Mazda TRIBUTE FWD
Toyota RAV4 2WD
Kia SORENTO 2WD
Ford ESCAPE FWD
Ford MARINER FWD
Toyota VENZA
Hyundai SANTA FE 2WD
Mazda CX-7 2WD
Honda ELEMENT 2WD
VW TIGUAN
Ford ESCAPE FWD FFV
Ford MARINER FWD FFV
Mazda TRIBUTE FWD FFV
Toyota HIGHLANDER 2WD
Suzuki GRAND VITARA
Honda RDX 2WD
Volvo XC60 FWD
Toyota RX 350
Toyota 4RUNNER 2WD
Honda PILOT 2WD

List of Non-Truck SUVs, MY 2011
Toyota FJ CRUISER 2WD
Daimler GLK 350
Nissan XTERRA 2WD
Chrysler Liberty 2WD
Chrysler Nitro 2WD
Mitsubishi ENDEAVOR 2WD
GM EQUINOX FWD
GM TERRAIN FWD
Ford EDGE FWD
Honda ACCORD CROSSTOUR 2WD
Ford MKX FWD
Volvo XC70 FWD
GM SRX 2WD
Spyker 9-4X FWD
Ford EXPLORER FWD
Nissan MURANO FWD
Chrysler Journey FWD
Mazda CX-9 2WD
Ford FLEX FWD
Hyundai VERACRUZ 2WD
Nissan FX35 RWD
Chrysler Grand Cherokee 2WD
Kia BORREGO 2WD
Nissan PATHFINDER 2WD
Source: U.S. Environmental Protection Agency, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2011*, EPA-420-R-12-001, March 2012.

Supporting Information

SUV Production by Truck/Non-Truck Category, MY 1975-2011			
Model Year	**Non-Truck SUV**	**Truck SUV**	**Total SUV Production (Millions)**
1975	14.9%	85.1%	0.2
1976	12.9%	87.1%	0.2
1977	15.8%	84.2%	0.3
1978	10.0%	90.0%	0.4
1979	6.2%	93.8%	0.4
1980	2.3%	97.7%	0.2
1981	1.9%	98.1%	0.1
1982	11.0%	89.0%	0.2
1983	12.0%	88.0%	0.3
1984	9.5%	90.5%	0.6
1985	14.2%	85.8%	0.7
1986	8.8%	91.2%	0.8
1987	11.9%	88.1%	0.9
1988	12.1%	87.9%	1.0
1989	12.9%	87.1%	0.9
1990	10.3%	89.7%	0.7
1991	21.1%	78.9%	1.1
1992	25.2%	74.8%	1.0
1993	37.0%	63.0%	1.3
1994	20.4%	79.6%	1.6
1995	17.2%	82.8%	1.8
1996	25.8%	74.2%	1.9
1997	22.9%	77.1%	2.4
1998	23.2%	76.8%	2.6
1999	22.6%	77.4%	2.8
2000	24.6%	75.4%	3.1
2001	33.1%	66.9%	3.4
2002	28.2%	71.8%	4.2

SUV Production by Truck/Non-Truck Category, MY 1975-2011

Model Year	Non-Truck SUV	Truck SUV	Total SUV Production (Millions)
2003	24.5%	75.5%	4.1
2004	23.6%	76.4%	4.7
2005	26.0%	74.0%	4.1
2006	28.7%	71.3%	3.8
2007	29.8%	70.2%	4.2
2008	30.5%	69.5%	4.0
2009	34.8%	65.2%	2.3
2010	33.8%	66.2%	3.2
2011	33.0%	67.0%	3.5

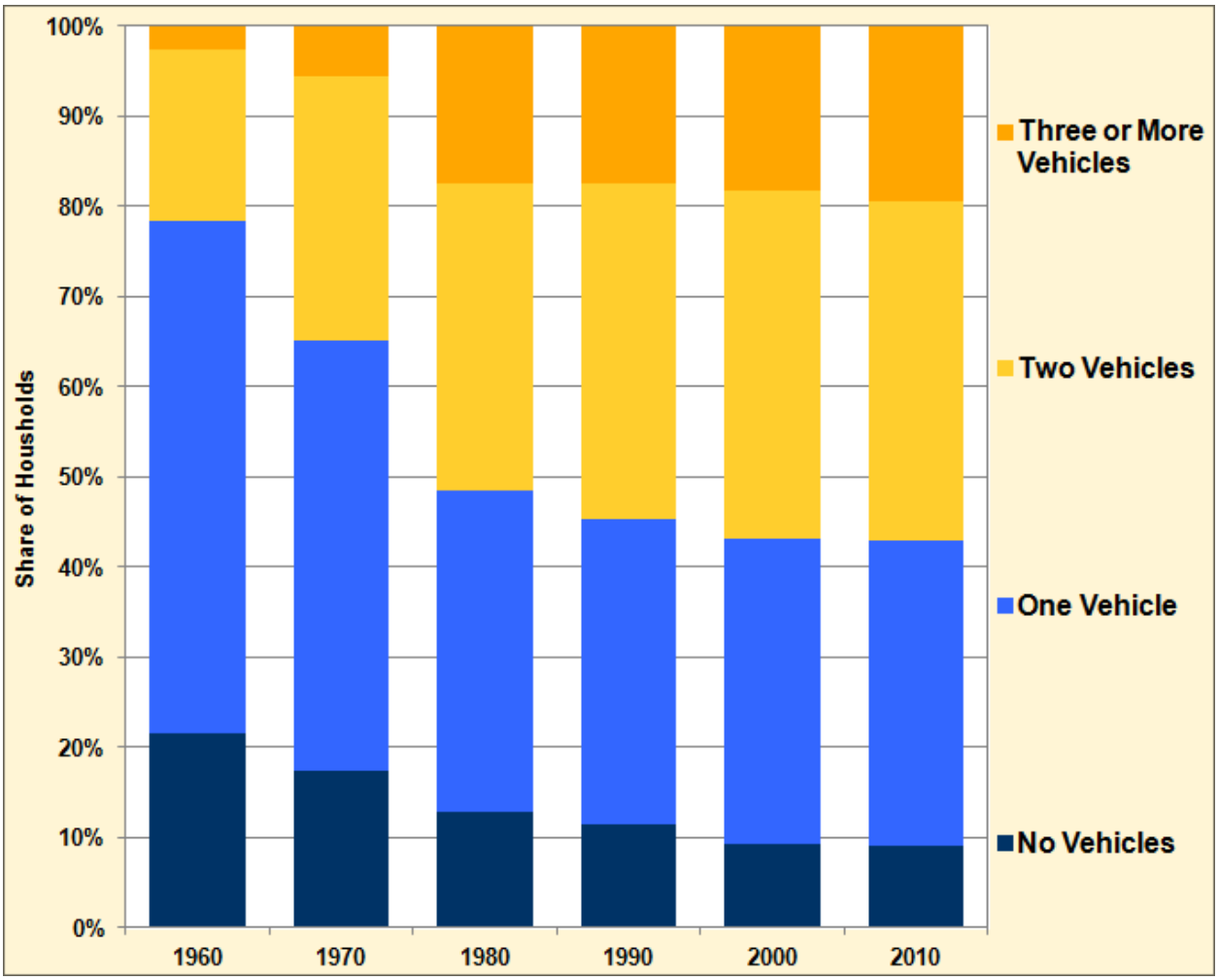
Source: U.S. Environmental Protection Agency, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2011*, EPA-420-R-12-001, March 2012.

Fact #727: May 14, 2012

Nearly Twenty Percent of Households Own Three or More Vehicles

Household vehicle ownership has changed over the last six decades. In 1960, over twenty percent of households did not own a vehicle, but by 2010, that number fell to less than 10%. The number of households with three or more vehicles grew from 2% in 1960 to nearly 20% in 2010. Before 1990, the most common number of vehicles per household was one, but since 1990, the most common number of vehicles is two. Starting in 1980, more than 50% of American households owned two or more vehicles.

Household Vehicle Ownership, 1960–2010



Supporting Information

Household Vehicle Ownership, 1960–2010 (percentage)

Year	No Vehicles	One Vehicle	Two Vehicles	Three or More Vehicles
1960	21.5%	56.9%	19.0%	2.5%
1970	17.5%	47.7%	29.3%	5.5%
1980	12.9%	35.5%	34.0%	17.5%
1990	11.5%	33.7%	37.4%	17.3%
2000	9.4%	33.8%	38.6%	18.3%
2010	9.1%	33.8%	37.6%	19.5%

Sources:

1960-1990 - U.S. Department of Transportation, Volpe National Transportation Systems Center, *Journey-to-Work Trends in the United States and its Major Metropolitan Area*, 1960–1990, Cambridge, MA, 1994, p. 2-2.

2000 data - U.S. Bureau of the Census, American Fact Finder, factfinder.census.gov, Table QT-04, August 2001.

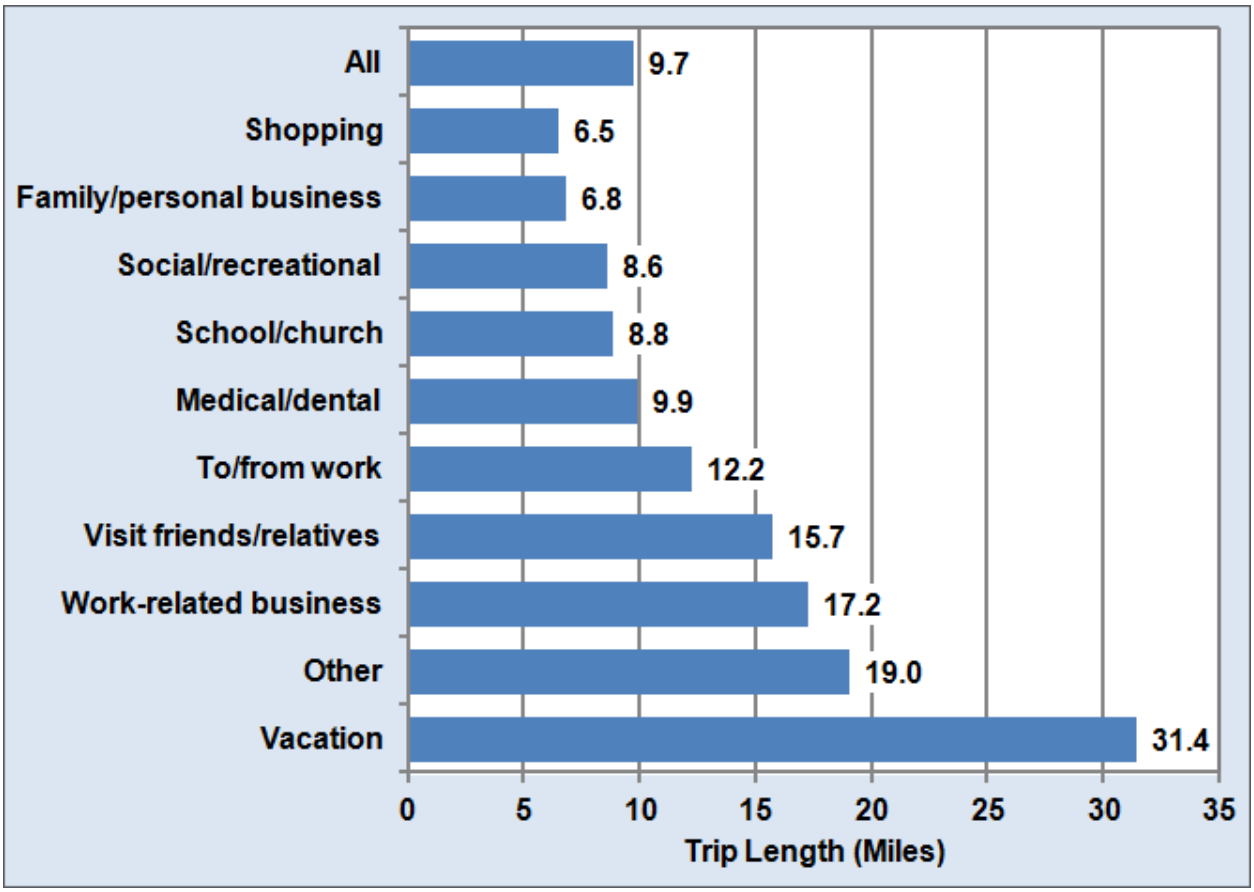
2010 data - U.S. Bureau of the Census, American Community Survey, 2010 data, Table CP-4.

Fact #728: May 21, 2012

Average Trip Length is Less than Ten Miles

The average trip length (one-way) is 9.7 miles according to the 2009 Nationwide Personal Transportation Survey. Trip lengths vary by the purpose of the trip. Shopping and family/personal business are the shortest trips, on average. One-way trips to/from work average 12.2 miles.

Trip Length by Purpose, 2009



Note: A trip is defined as one-way travel from one address to another address. For specific definitions of trip purposes, see pdf page 77 of the *Summary of Travel Trends: 2009 National Household Travel Survey*.

Supporting Information

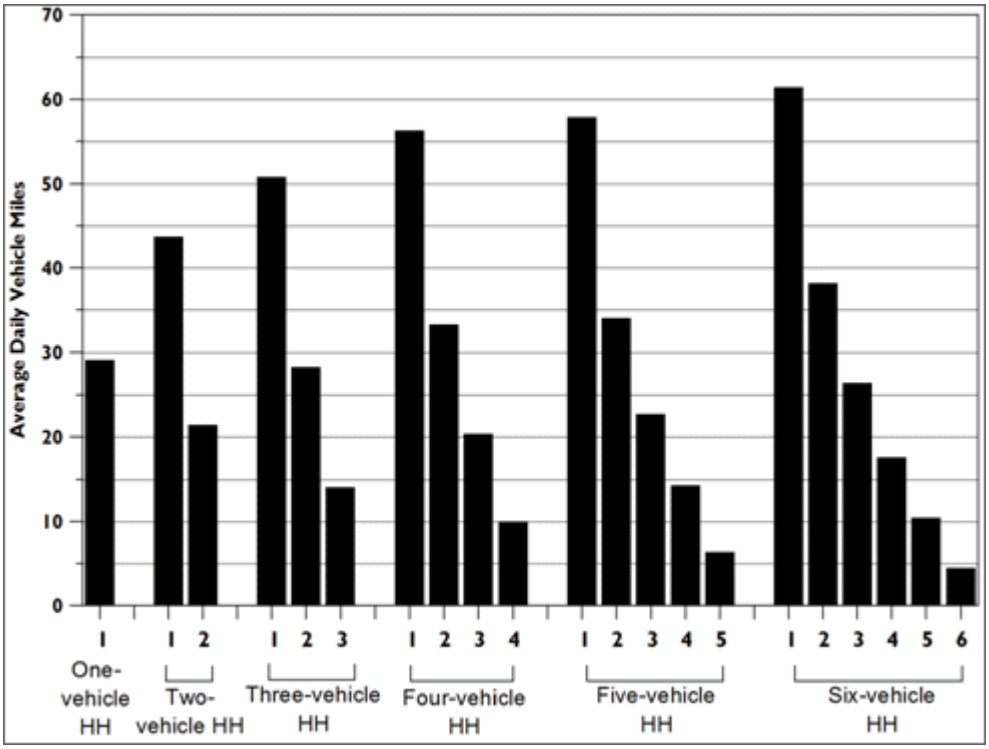
Trip Length and Share of Trips by Purpose		
Trip Purpose	**Trip Length (Miles)**	**Share of Trips**
To/from work	12.2	22.3%
Work-related business	17.2	3.9%
Shopping	6.5	22.8%
Other family/personal business	6.8	21.9%
School/church	8.8	5.0%
Medical/dental	9.9	2.6%
Vacation	31.4	0.7%
Visit friends/relatives	15.7	5.7%
Other social/recreational	8.6	14.9%
Other	19	0.3%
All	9.7	100.0%
Source: 2009 National Household Travel Survey		

Fact #729: May 28, 2012

Secondary Household Vehicles Travel Fewer Miles

When a household has more than one vehicle, the secondary vehicles travel fewer miles than the primary vehicle. In a two-vehicle household, the second vehicle travels less than half of the miles that the primary vehicle travels in a day. In a six-vehicle household, the sixth vehicle travels fewer than five miles a day.

Daily Vehicle Miles of Travel by Household Vehicle Ownership, 2009



Supporting Information

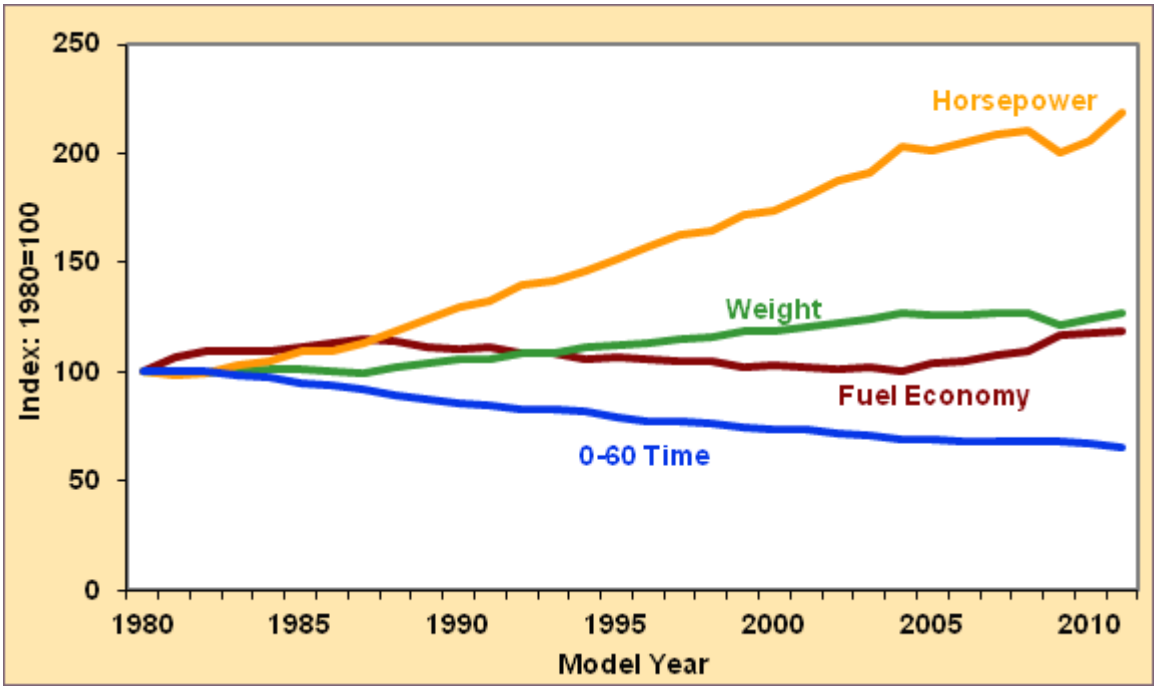
Daily Vehicle Miles of Travel for Each Vehicle in a Household, 2009 NHTS		
No. of Household Vehicles	**Vehicle Number**	**Average Daily Vehicle Miles**
1	1	29.0
2	1	43.6
	2	21.4
3	1	50.7
	2	28.2
	3	14.0
4	1	56.2
	2	33.2
	3	20.3
	4	9.9
5	1	57.8
	2	34.0
	3	22.7
	4	14.2
	5	6.3
6	1	61.4
	2	38.1
	3	26.3
	4	17.5
	5	10.4
	6	4.4
Source: 2009 National Household Travel Survey		

Fact #730: June 4, 2012

Fuel Economy of New Light Vehicles is Up 19% from 1980 to 2011

In addition to a 120% increase in horsepower and 35% decrease in 0-60 time from 1980 to 2011, the fuel economy of vehicles improved nearly 19%. All of these data series are sales-weighted averages that have been indexed to 1980, showing the relative relationship among the years since 1980. In the graph, the weight of the vehicle appears to mirror fuel economy, showing the close relationship between the two.

Characteristics of New Light Vehicles, 1980–2011



Supporting Information

Characteristics of New Light Vehicles, 1980-2011

	Actual Values					Index Values (1980=100)			
Model Year	Fuel Economy (Miles per Gallon)	Weight (Pounds)	Horse-power	0-60 Time (Seconds)		Fuel Economy	Weight	Horse-power	0-60 Time
1980	19.2	3,228	104	14.3		100	100	100	100
1981	20.5	3,202	102	14.4		107	99	98	101
1982	21.1	3,202	103	14.4		110	99	99	101
1983	21.0	3,257	107	14.1		109	101	103	99
1984	21.0	3,262	109	14.0		109	101	105	98
1985	21.3	3,271	114	13.5		111	101	110	94
1986	21.8	3,238	114	13.4		114	100	110	94
1987	22.0	3,221	118	13.1		115	100	113	92
1988	21.9	3,283	123	12.8		114	102	118	90
1989	21.4	3,351	129	12.5		111	104	124	87
1990	21.2	3,426	135	12.2		110	106	130	85
1991	21.3	3,410	138	12.1		111	106	133	85
1992	20.8	3,512	145	11.8		108	109	139	83
1993	20.9	3,519	147	11.8		109	109	141	83
1994	20.4	3,603	152	11.7		106	112	146	82
1995	20.5	3,613	158	11.3		107	112	152	79
1996	20.4	3,659	164	11.1		106	113	158	78
1997	20.1	3,727	169	11.0		105	115	163	77
1998	20.1	3,744	171	10.9		105	116	164	76
1999	19.7	3,835	179	10.7		103	119	172	75
2000	19.8	3,821	181	10.6		103	118	174	74
2001	19.6	3,879	187	10.5		102	120	180	73
2002	19.5	3,951	195	10.3		102	122	188	72
2003	19.6	3,999	199	10.2		102	124	191	71
2004	19.3	4,111	211	9.9		101	127	203	69
2005	19.9	4,059	209	9.9		104	126	201	69

Characteristics of New Light Vehicles, 1980-2011

	Actual Values					Index Values (1980=100)			
Model Year	Fuel Economy (Miles per Gallon)	Weight (Pounds)	Horse-power	0-60 Time (Seconds)		Fuel Economy	Weight	Horse-power	0-60 Time
2006	20.1	4,067	213	9.8		105	126	205	69
2007	20.6	4,093	217	9.7		107	127	209	68
2008	21.0	4,085	219	9.7		109	127	211	68
2009	22.4	3,914	208	9.7		117	121	200	68
2010	22.6	4,002	214	9.6		118	124	206	67
2011	22.8	4,084	228	9.3		119	127	219	65

Source: U.S. Environmental Protection Agency, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2011*, March 2012.

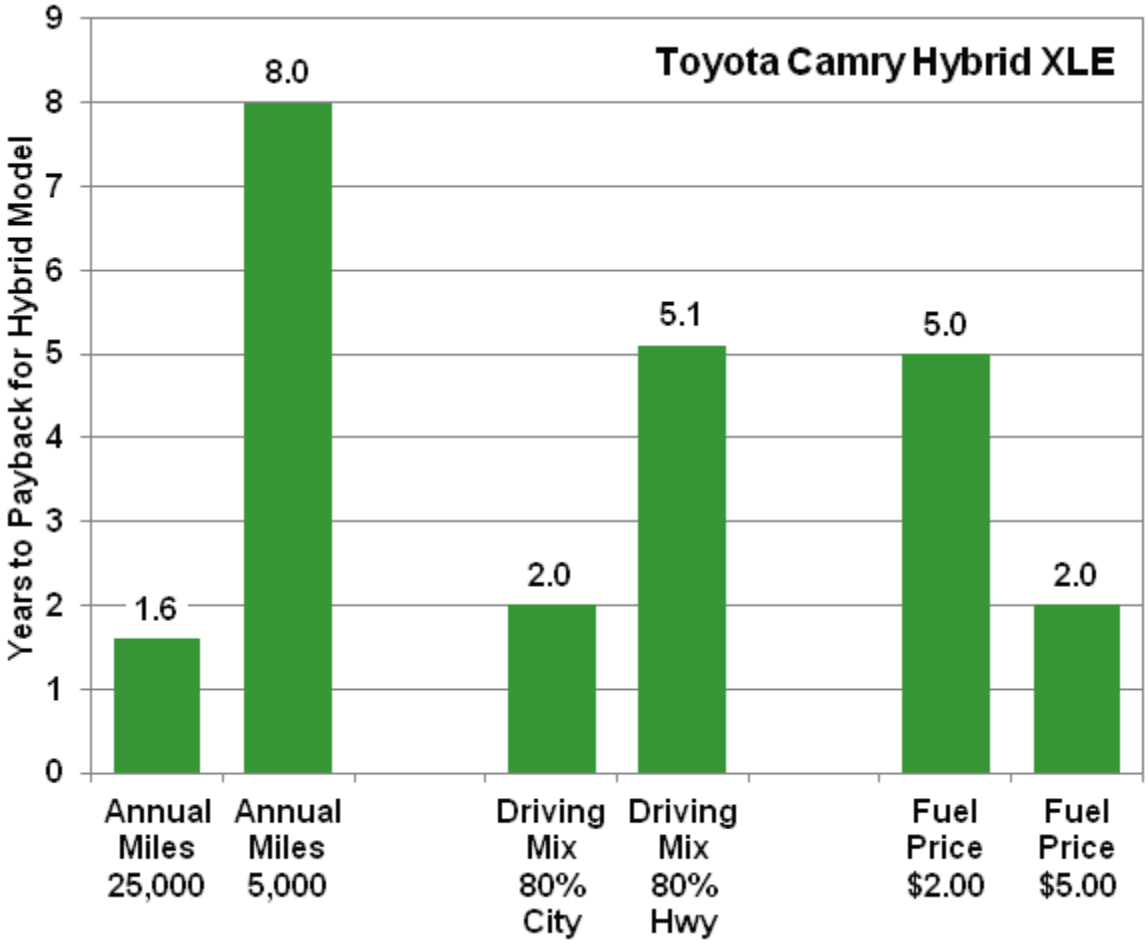
Fact #731: June 11, 2012

Cost-Effectiveness of a Hybrid Vehicle is Highly Conditional

The U.S. Department of Energy and U.S. Environmental Protection Agency's Fuel Economy website at www.fueleconomy.gov has a hybrid vehicle comparison calculator that allows users to compare a selection of hybrids with their non-hybrid counterparts. The calculator shows the manufacturer's suggested retail price (MSRP) and fuel economy difference between the two models and then calculates the fuel savings and payback period or number of years for the fuel savings to equal the extra cost of the hybrid model. Users may adjust the annual miles, percent mix of city versus highway (hwy) driving, and fuel price to see how the fuel savings and payback period changes.

The graph below shows an example of a hybrid model compared to its non-hybrid counterpart with the payback periods (expressed in years) under different assumptions. By adjusting the annual miles for the Camry Hybrid, the payback period changes from 1.6 years with 25,000 annual miles to 8 years with 5,000 annual miles. Fuel prices and driving mix also have a large effect on the payback period. Of course, if these assumptions are combined, the effect can be even more dramatic. To select different models and try your own driving/fuel assumptions, visit http://www.fueleconomy.gov/feg/hybridCompare.jsp.

Comparison of Payback Periods for Hybrid vs. Non-Hybrid Vehicles



Supporting Information

Illustration of Payback Period Changes with Changes to Annual Miles, City/Highway Driving and Fuel Price (Example Vehicle = Toyota Camry Hybrid XLE)		
	2012 Toyota Camry Hybrid XLE (MSRP $28,160)	**2012 Toyota Camry XLE (MSRP $26,690)**
Assumptions	**Years to Pay Back the Extra Cost of the Hybrid Model with Fuel Savings**	
Default - Annual Miles 15,000, % Driving Mix 55city/45hwy, and Fuel Price of $3.75	2.7	
Annual Miles 25,000	1.6	
Annual Miles 5,000	8.0	
Driving Mix 80% City	2.0	
Driving Mix 80% Hwy	5.1	
Fuel Price $2.00	5.0	
Fuel Price $5.00	2.0	
Source: U.S. Department of Energy and Environmental Protection Agency Fuel Economy website: http://www.fueleconomy.gov/feg/hybridCompare.jsp. Date accessed: May 16, 2012.		

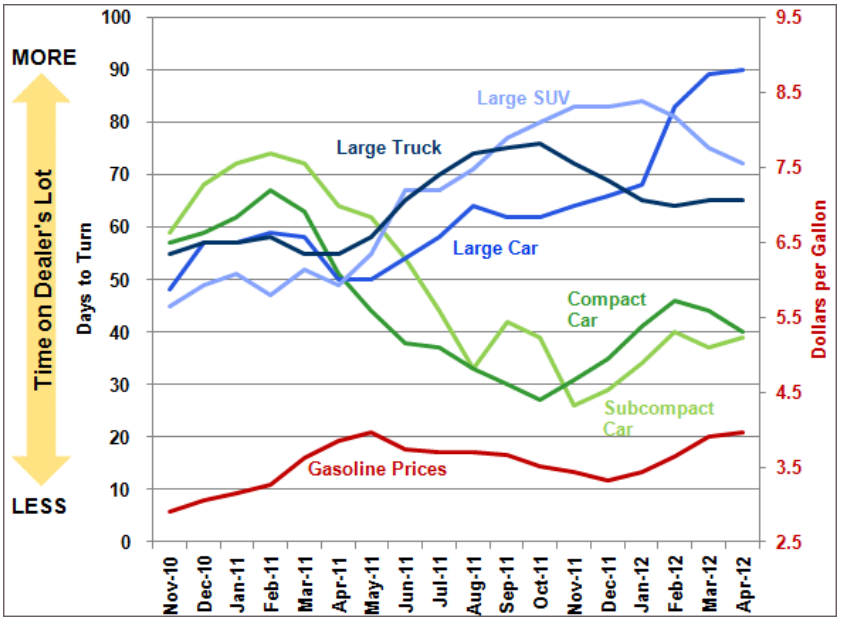
Fact #732: June 18, 2012

Days to Turn Trend by Vehicle Class

"Days to turn" is an automotive industry term that refers to the number of days that vehicles stay in dealer inventories before they are sold (i.e., the time a vehicle stays on the dealer's lot). There are many factors that influence this number including fuel prices, the economy, and supply disruptions. The figure below shows that the days to turn by vehicle class were closer together in November 2010 when light vehicle sales were depressed across all classes and fuel prices were under $3 per gallon. As light vehicle sales recovered, there was greater variability in the pace of sales among the different vehicle classes.

Fuel prices can affect the vehicle classes in different ways. The red line at the bottom of the figure shows a rise in fuel prices from November 2010 through May of 2011. After May 2011, sales of subcompact and compact cars were quicker (fewer days to turn) while large cars, large sport-utility vehicles (SUV's), and large trucks stayed on the dealer's lot longer. The sharp decline in days to turn for cars around March 2011 probably reflects the earthquake and tsunami that struck Japan which constrained supplies, limited dealer inventories and shortened days to turn, particularly among the smaller cars produced in Japan.

Days to Turn by Vehicle Class, November 2010–April 2012



Supporting Information

Days to Turn by Vehicle Class, November 2010–April 2012

Month-Year	Subcompact Car	Compact Car	Large Car	Large SUV	Large Truck	Gasoline Prices
Nov-10	59	57	48	45	55	$2.91
Dec-10	68	59	57	49	57	$3.05
Jan-11	72	62	57	51	57	$3.15
Feb-11	74	67	59	47	58	$3.26
Mar-11	72	63	58	52	55	$3.62
Apr-11	64	51	50	49	55	$3.85
May-11	62	44	50	55	58	$3.96
Jun-11	54	38	54	67	65	$3.74
Jul-11	44	37	58	67	70	$3.71
Aug-11	33	33	64	71	74	$3.70
Sep-11	42	30	62	77	75	$3.67
Oct-11	39	27	62	80	76	$3.51
Nov-11	26	31	64	83	72	$3.44
Dec-11	29	35	66	83	69	$3.33
Jan-12	34	41	68	84	65	$3.44
Feb-12	40	46	83	81	64	$3.64
Mar-12	37	44	89	75	65	$3.91
Apr-12	39	40	90	72	65	$3.96

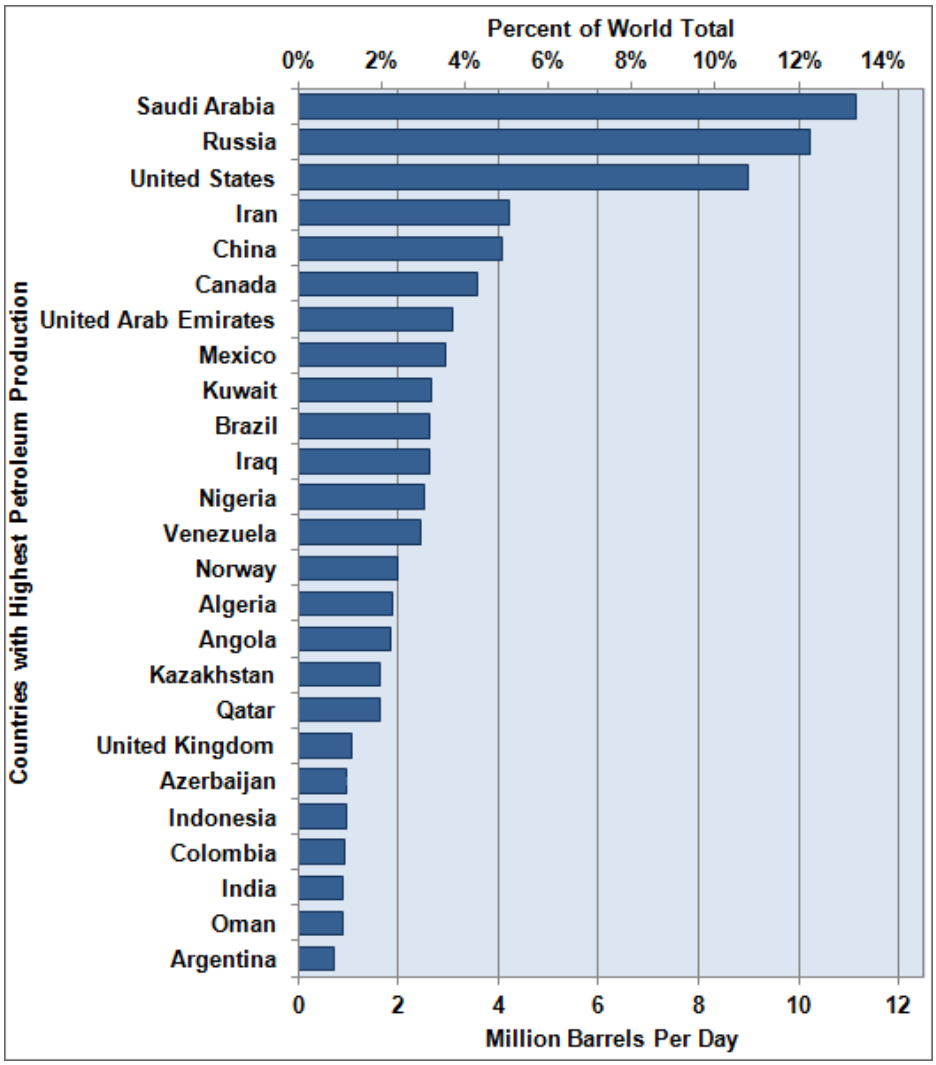
Sources: Days to Turn: Edmunds.com; Gasoline Price: Energy Information Administration

Fact #733: June 25, 2012

World's Top Petroleum-Producing Countries

In 2011, total world petroleum production was 84.7 million barrels per day. Saudi Arabia, Russia and the United States were by far the top petroleum producing countries with 11.1, 10.2, and 9.0 million barrels per day respectively. Iran was the fourth largest producer of petroleum with about 4 million barrels per day. The United States' neighbors Canada and Mexico also ranked within the top 10 petroleum-producing countries.

Top Petroleum-Producing Countries



Supporting Information

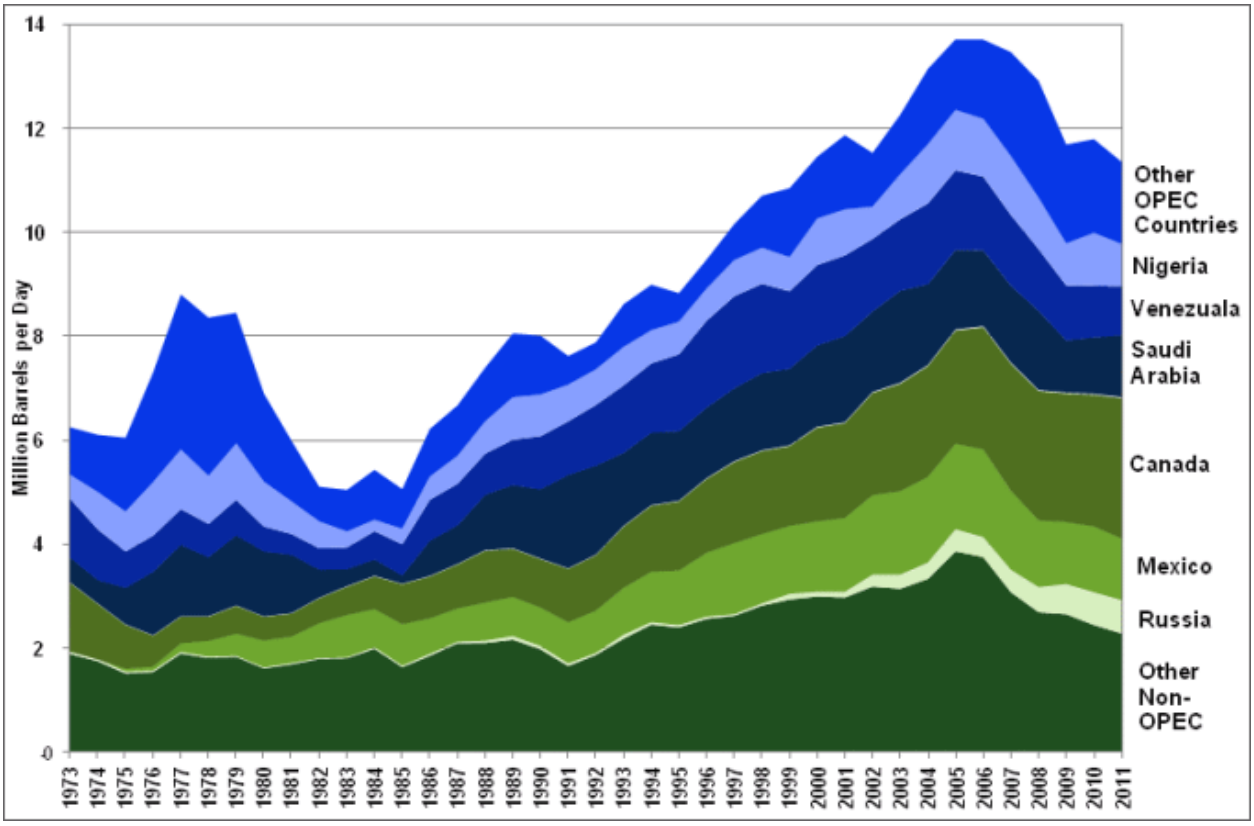
Petroleum Production by Country, 2011	
Country	**Million Barrels per Day**
Saudi Arabia	11.1
Russia	10.2
United States	9.0
Iran	4.2
China	4.1
Canada	3.6
United Arab Emirates	3.1
Mexico	2.9
Kuwait	2.7
Brazil	2.6
Iraq	2.6
Nigeria	2.5
Venezuela	2.5
Norway	2.0
Algeria	1.9
Angola	1.8
Kazakhstan	1.6
Qatar	1.6
United Kingdom	1.1
Azerbaijan	1.0
Indonesia	1.0
Colombia	0.9
India	0.9
Oman	0.9
Argentina	0.7
All Other Countries	8.0
World Total	**84.7**
Source: Energy Information Administration, World Oil Production	

Fact #734: July 2, 2012

OPEC Countries Represent Less than Half of U.S. Petroleum Imports

Even though Saudi Arabia is the world's largest producer of petroleum, and OPEC countries produce much of the oil in the global market, the U.S. imports most of its oil from Canada, Mexico and other non-OPEC countries. Petroleum imports from Canada have been increasing since the early 1980s and in the last decade, the U.S. has begun to import more from Russia as well. Overall petroleum imports to the U.S. have varied considerably since 1973 reflecting U.S. and global economic conditions. The sharp decline in the "Other OPEC Countries" category in the early 1980s reflects in part the effect of the U.S. embargo of oil from Iran in late 1979. The total amount of imported petroleum peaked in 2005 and 2006 at 13.71 million barrels per day before declining with the global economic recession that followed.

Sources of U.S. Petroleum Imports, 1973–2011



Note: OPEC = Organization of Petroleum Exporting Countries

Supporting Information

Crude Oil Imported to the U.S. by Country of Origin, 1973-2011 (million barrels per day)

Year	Saudi Arabia	Venezuela	Nigeria	Other OPEC Countries	Canada	Mexico	Russia	Other Non-OPEC Countries	Total
1973	0.49	1.13	0.46	0.91	1.32	0.02	0.03	1.90	6.26
1974	0.46	0.98	0.71	1.10	1.07	0.01	0.02	1.76	6.11
1975	0.71	0.70	0.76	1.42	0.85	0.07	0.01	1.52	6.06
1976	1.23	0.70	1.02	2.11	0.60	0.09	0.01	1.55	7.31
1977	1.38	0.69	1.14	2.98	0.52	0.18	0.01	1.91	8.81
1978	1.14	0.65	0.92	3.04	0.47	0.32	0.01	1.82	8.36
1979	1.36	0.69	1.08	2.51	0.54	0.44	0.00	1.84	8.46
1980	1.26	0.48	0.86	1.70	0.45	0.53	0.00	1.62	6.91
1981	1.13	0.41	0.62	1.17	0.45	0.52	0.00	1.70	6.00
1982	0.55	0.41	0.51	0.67	0.48	0.68	0.00	1.80	5.11
1983	0.34	0.42	0.30	0.80	0.55	0.83	0.00	1.81	5.05
1984	0.32	0.55	0.22	0.96	0.63	0.75	0.01	2.00	5.44
1985	0.17	0.60	0.29	0.76	0.77	0.82	0.01	1.64	5.07
1986	0.68	0.79	0.44	0.92	0.81	0.70	0.02	1.86	6.22
1987	0.75	0.80	0.53	0.97	0.85	0.65	0.01	2.10	6.68
1988	1.07	0.79	0.62	1.03	1.00	0.75	0.03	2.11	7.40
1989	1.22	0.87	0.82	1.23	0.93	0.77	0.05	2.17	8.06
1990	1.34	1.02	0.80	1.13	0.93	0.76	0.04	1.99	8.02
1991	1.80	1.03	0.70	0.55	1.03	0.81	0.03	1.67	7.63
1992	1.72	1.17	0.68	0.52	1.07	0.83	0.02	1.88	7.89
1993	1.41	1.30	0.74	0.82	1.18	0.92	0.05	2.19	8.62
1994	1.40	1.33	0.64	0.87	1.27	0.98	0.03	2.46	9.00
1995	1.34	1.48	0.63	0.55	1.33	1.07	0.02	2.41	8.83
1996	1.36	1.68	0.62	0.56	1.42	1.24	0.03	2.57	9.48
1997	1.41	1.77	0.70	0.69	1.56	1.39	0.01	2.63	10.16
1998	1.49	1.72	0.70	1.00	1.60	1.35	0.02	2.83	10.71
1999	1.48	1.49	0.66	1.33	1.54	1.32	0.09	2.95	10.85

Crude Oil Imported to the U.S. by Country of Origin, 1973-2011 (million barrels per day)									
Year	Saudi Arabia	Venezuela	Nigeria	Other OPEC Countries	Canada	Mexico	Russia	Other Non-OPEC Countries	Total
2000	1.57	1.55	0.90	1.19	1.81	1.37	0.07	3.00	11.46
2001	1.66	1.55	0.89	1.43	1.83	1.44	0.09	2.98	11.87
2002	1.55	1.40	0.62	1.03	1.97	1.55	0.21	3.20	11.53
2003	1.77	1.38	0.87	1.14	2.07	1.62	0.25	3.15	12.26
2004	1.56	1.55	1.14	1.45	2.14	1.66	0.30	3.34	13.15
2005	1.54	1.53	1.17	1.36	2.18	1.66	0.41	3.87	13.71
2006	1.46	1.42	1.11	1.52	2.35	1.71	0.37	3.76	13.71
2007	1.48	1.36	1.13	2.00	2.45	1.53	0.41	3.09	13.47
2008	1.53	1.19	0.99	2.25	2.49	1.30	0.47	2.70	12.92
2009	1.00	1.06	0.81	1.90	2.48	1.21	0.56	2.66	11.69
2010	1.10	0.99	1.02	1.80	2.54	1.28	0.61	2.46	11.79
2011	1.19	0.94	0.82	1.58	2.71	1.20	0.62	2.29	11.36

Source: Energy Information Administration, *Monthly Energy Review*, Washington, DC, March 2012, Tables 3.3c and 3.3d.

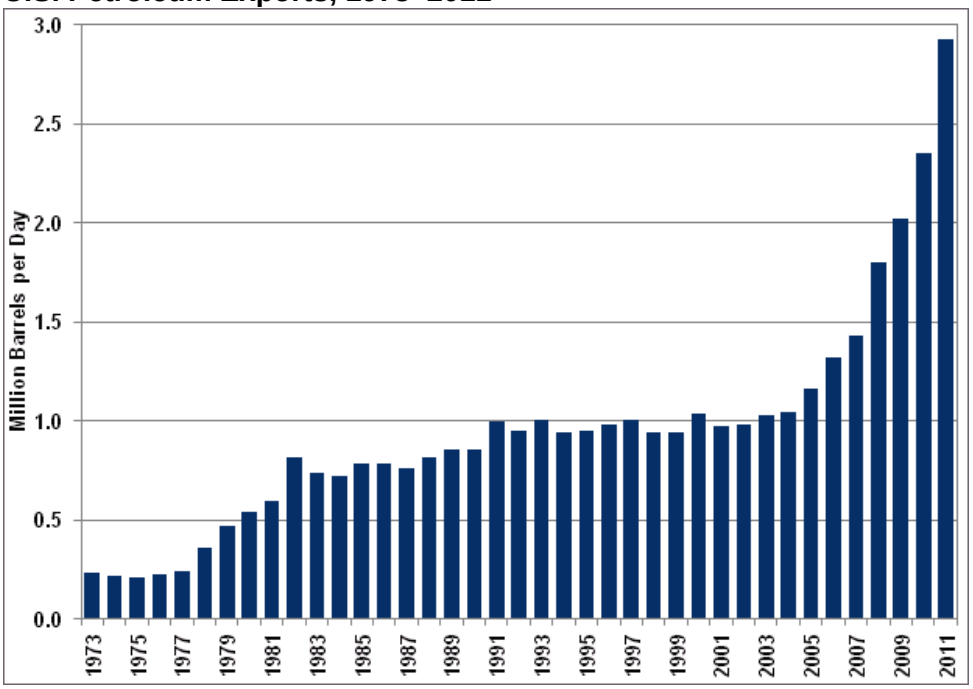
Fact #735: July 9, 2012

U.S. Petroleum Exports Are on the Rise

The amount of petroleum that the U.S. exports is small in comparison to the amount consumed. Petroleum exports, which are mainly petroleum products, have been rising in recent years. Until 2004, petroleum exports accounted for one million barrels per day or less. During a span of just seven years, from 2004 until 2011, U.S. petroleum exports increased nearly threefold to 2.9 million barrels per day. In 2011, total U.S. consumption of petroleum was 18.8 million barrels per day.

Concerns have been raised that increasing petroleum exports are contributing to rising fuel costs by restricting U.S. fuel supplies. However, the Energy Information Administration has suggested that exports may in fact be helping to stabilize fuel prices. With U.S. refiners selling to outside markets, they are able to operate their facilities at more consistent and economically viable levels rather than continually adjusting output solely based on U.S. demands. When refiners cut production due to weak demand or low profit margins, this causes the price of fuel to rise at the pump for consumers.

U.S. Petroleum Exports, 1973–2011



Note: Petroleum exports include petroleum products (98%) and crude oil (2%).

Supporting Information

U.S. Petroleum Exports,1973-2011 (Million Barrels per Day)	
Year	Petroleum Exports
1973	0.2
1974	0.2
1975	0.2
1976	0.2
1977	0.2
1978	0.4
1979	0.5
1980	0.5
1981	0.6
1982	0.8
1983	0.7
1984	0.7
1985	0.8
1986	0.8
1987	0.8
1988	0.8
1989	0.9
1990	0.9
1991	1.0
1992	0.9
1993	1.0
1994	0.9
1995	0.9
1996	1.0
1997	1.0
1998	0.9
1999	0.9
2000	1.0
2001	1.0

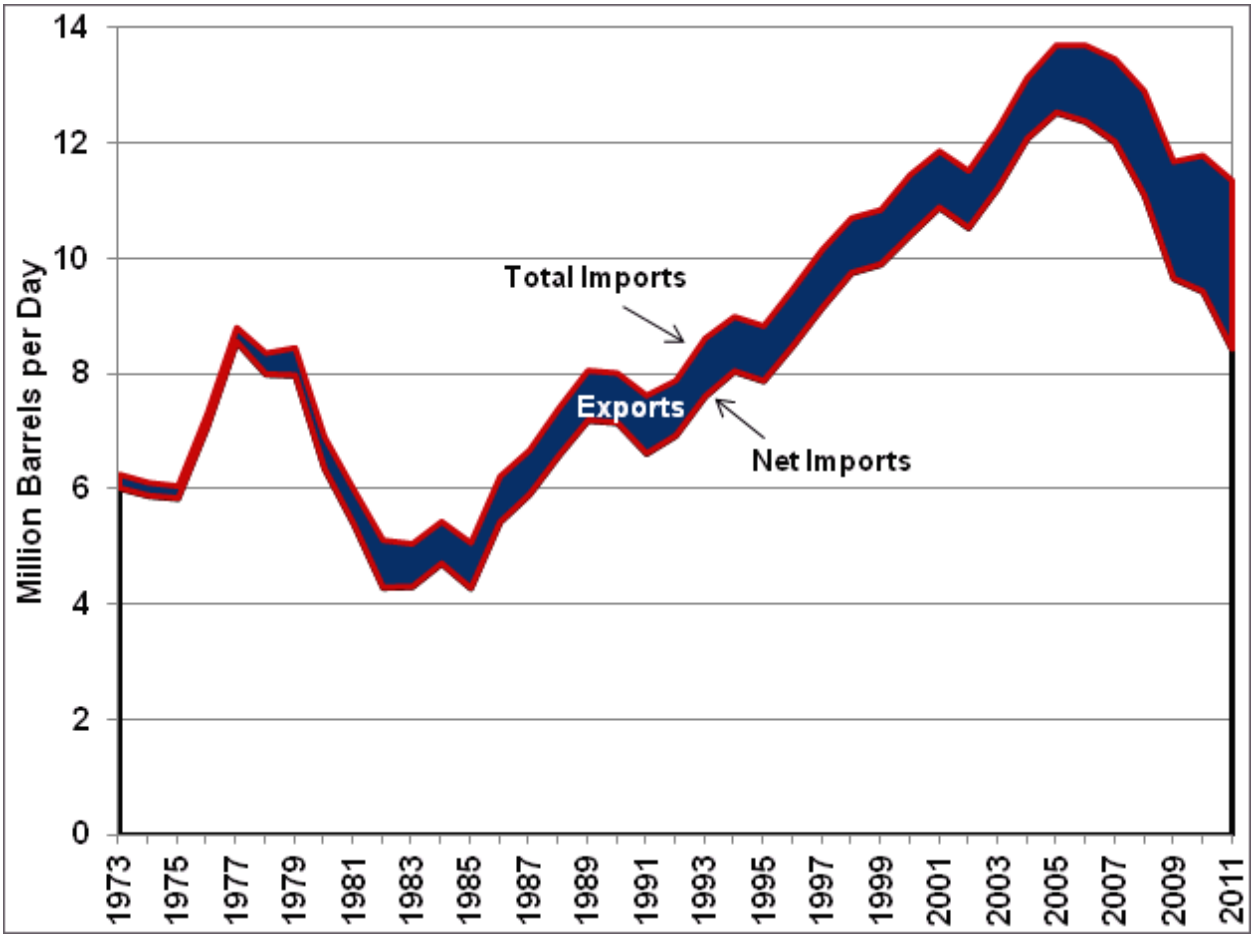
U.S. Petroleum Exports,1973-2011 (Million Barrels per Day)	
Year	**Petroleum Exports**
2002	1.0
2003	1.0
2004	1.0
2005	1.2
2006	1.3
2007	1.4
2008	1.8
2009	2.0
2010	2.4
2011	2.9
Sources: Energy Information Administration, Monthly Energy Review, May 2012, Table 3.3a. U. S. Energy Information Administration, "Why is the United States exporting gasoline when prices are so high?"	

Fact #736: July 16, 2012

Total Petroleum Imports and Net Petroleum Imports: The Difference Is Growing

When referring to U.S. imports of petroleum, it is important to make the distinction between total imports and net imports. Net imports are equal to the amount of total imported petroleum minus the petroleum that is exported by the U.S. In the 1970s the difference between total and net imports was minor. However, as the U.S. exports more petroleum, the gap between total imports and net imports grows. In 2011, net imports of petroleum were 44.8% of U.S. petroleum consumption, but total imports of petroleum in 2011 were 60.3% of consumption.

Total Imports, Net Imports, and Exports of Petroleum, 1973–2011



Supporting Information

U.S. Petroleum Total Imports, Net Imports, and Exports, 1973-2011 (million barrels per day)			
Year	**Imports**	**Exports**	**Net Imports**
1973	6.3	0.2	6.0
1974	6.1	0.2	5.9
1975	6.1	0.2	5.8
1976	7.3	0.2	7.1
1977	8.8	0.2	8.6
1978	8.4	0.4	8.0
1979	8.5	0.5	8.0
1980	6.9	0.5	6.4
1981	6.0	0.6	5.4
1982	5.1	0.8	4.3
1983	5.1	0.7	4.3
1984	5.4	0.7	4.7
1985	5.1	0.8	4.3
1986	6.2	0.8	5.4
1987	6.7	0.8	5.9
1988	7.4	0.8	6.6
1989	8.1	0.9	7.2
1990	8.0	0.9	7.2
1991	7.6	1.0	6.6
1992	7.9	0.9	6.9
1993	8.6	1.0	7.6
1994	9.0	0.9	8.1
1995	8.8	0.9	7.9
1996	9.5	1.0	8.5
1997	10.2	1.0	9.2
1998	10.7	0.9	9.8
1999	10.9	0.9	9.9
2000	11.5	1.0	10.4

U.S. Petroleum Total Imports, Net Imports, and Exports, 1973-2011 (million barrels per day)

Year	Imports	Exports	Net Imports
2001	11.9	1.0	10.9
2002	11.5	1.0	10.5
2003	12.3	1.0	11.2
2004	13.1	1.0	12.1
2005	13.7	1.2	12.5
2006	13.7	1.3	12.4
2007	13.5	1.4	12.0
2008	12.9	1.8	11.1
2009	11.7	2.0	9.7
2010	11.8	2.4	9.4
2011	11.4	2.9	8.4

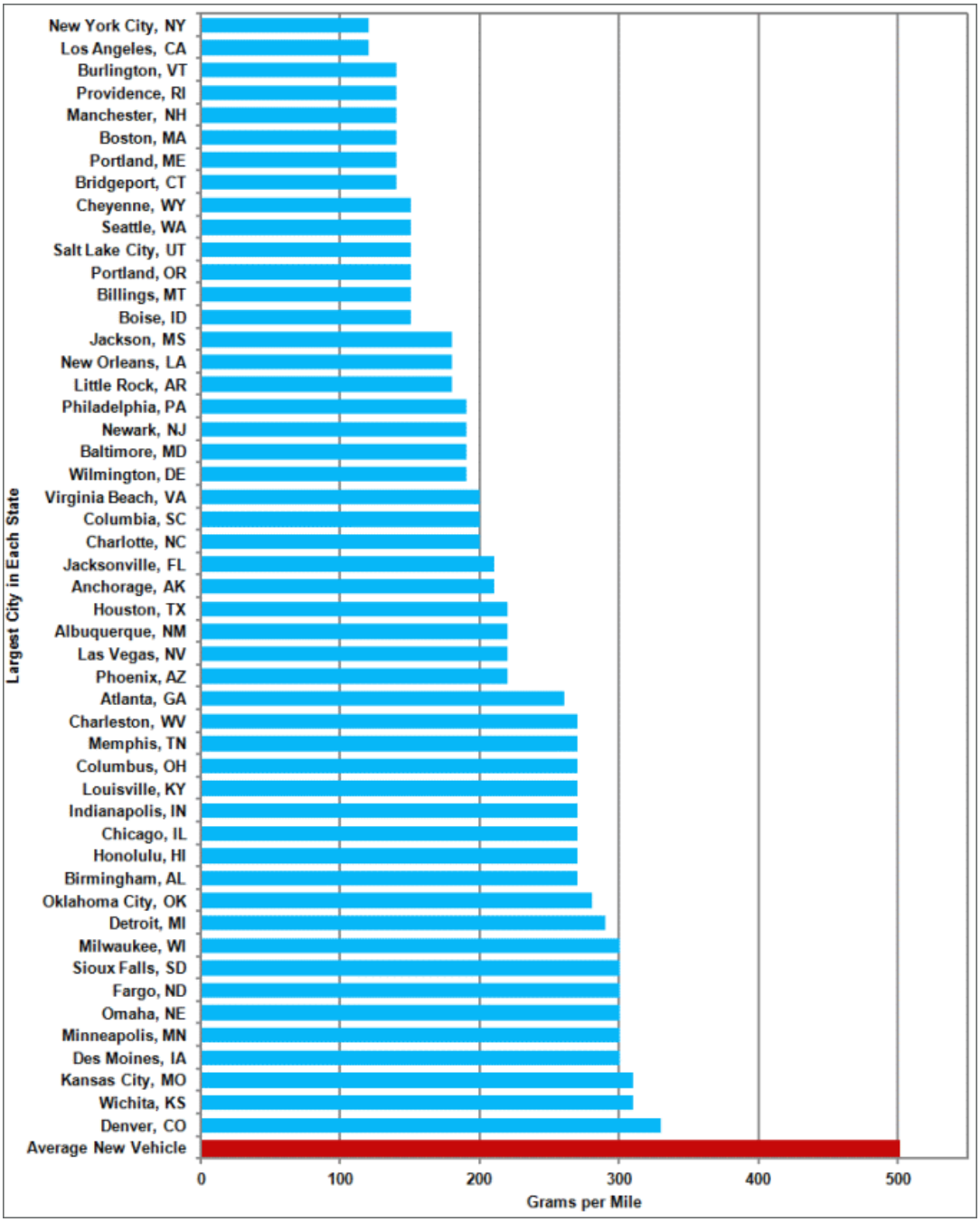
Source: Energy Information Administration, *Monthly Energy Review*, May 2012, Table 3.3a.

Fact #737: July 23, 2012

Upstream Emissions for Nissan Leaf

The all-electric Nissan Leaf does not emit tailpipe emissions like an internal combustion engine, but there are emissions associated with the production of electricity to fuel the Leaf, called upstream emissions. The Environmental Protection Agency (EPA) has estimated those upstream emissions using information about the electric utility fuel sources. The graph below shows the upstream carbon dioxide emission estimates for the 2012 Nissan Leaf charging in the largest city of each State. California and New York have the lowest emissions due to their efforts to produce clean electricity. Even in Colorado, where the emissions estimates are the highest, the Leaf emissions are about one-third less than the average new vehicle emissions (upstream and tailpipe emissions combined). To find the upstream emissions estimates in your area for electric vehicles certified by the EPA, go to www.fueleconomy.gov.

Upstream Carbon Dioxide Emissions for a 2012 Nissan Leaf



Notes: Based on 45% highway, 55% city driving, and 15,000 annual miles.

Average New Vehicle is based on the average of all new gasoline vehicles.
Upstream emissions for electric vehicles are those emissions resulting from the process of generating electricity. These emissions vary depending on which fuel source a utility uses to generate electricity.

Supporting Information

Upstream Carbon Dioxide Emissions for a 2012 Nissan Leaf	
City, State	**Grams Per Mile**
New York City, NY	120
Los Angeles, CA	120
Burlington, VT	140
Providence, RI	140
Manchester, NH	140
Boston, MA	140
Portland, ME	140
Bridgeport, CT	140
Cheyenne, WY	150
Seattle, WA	150
Salt Lake City, UT	150
Portland, OR	150
Billings, MT	150
Boise, ID	150
Jackson, MS	180
New Orleans, LA	180
Little Rock, AR	180
Philadelphia, PA	190
Newark, NJ	190
Baltimore, MD	190
Wilmington, DE	190
Virginia Beach, VA	200
Columbia, SC	200
Charlotte, NC	200
Jacksonville, FL	210
Anchorage, AK	210
Houston, TX	220
Albuquerque, NM	220

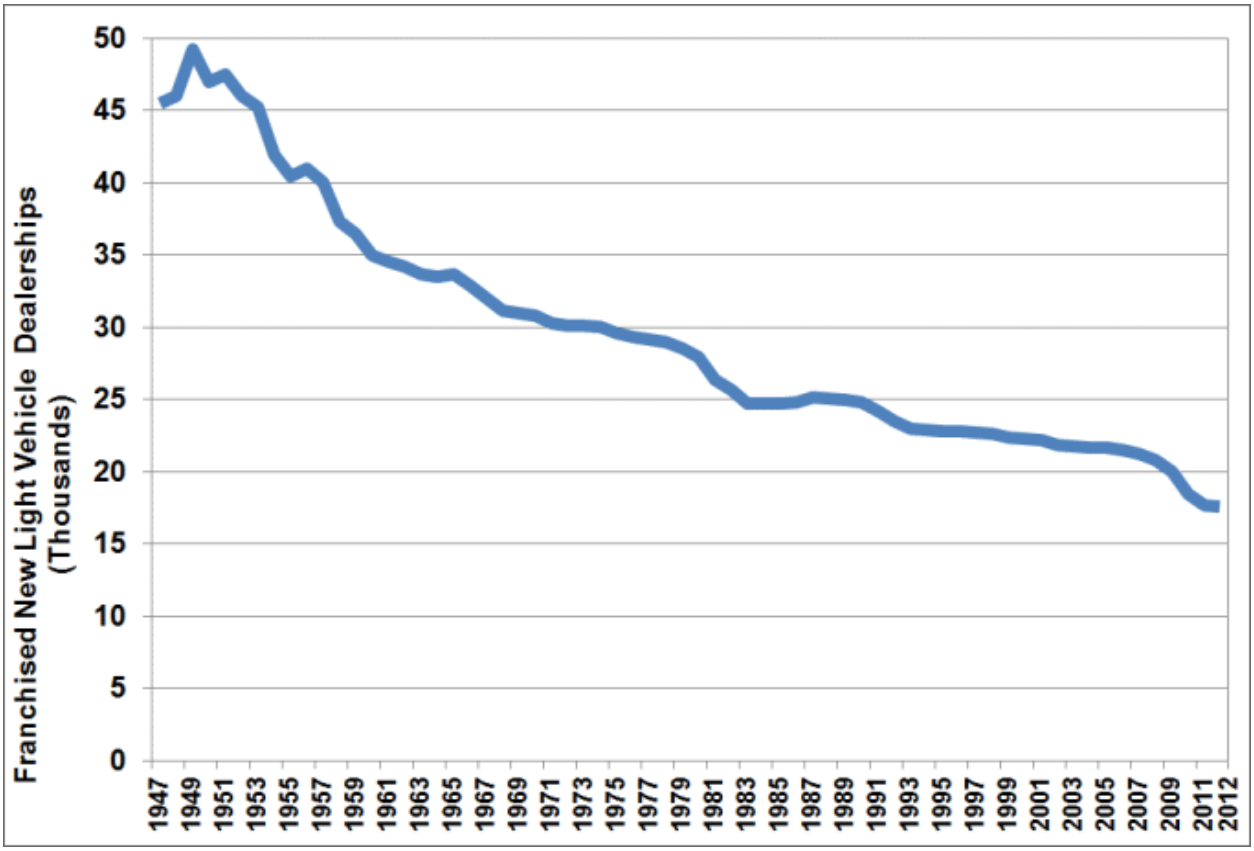
Upstream Carbon Dioxide Emissions for a 2012 Nissan Leaf	
City, State	**Grams Per Mile**
Las Vegas, NV	220
Phoenix, AZ	220
Atlanta, GA	260
Charleston, WV	270
Memphis, TN	270
Columbus, OH	270
Louisville, KY	270
Indianapolis, IN	270
Chicago, IL	270
Honolulu, HI	270
Birmingham, AL	270
Oklahoma City, OK	280
Detroit, MI	290
Milwaukee, WI	300
Sioux Falls, SD	300
Fargo, ND	300
Omaha, NE	300
Minneapolis, MN	300
Des Moines, IA	300
Kansas City, MO	310
Wichita, KS	310
Denver, CO	330
Average New Vehicle	500

Fact #738: July 30, 2012

Number of New Light Vehicle Dealerships Decreasing

The number of franchised new light vehicle dealerships peaked in 1949 with more than 49,000 dealers. By 2012, the number is less than half of that – 17,540 dealers.

Number of Franchised New Light Vehicle Dealerships



Supporting Information

Number of Franchised New-Car Dealerships, 1947-2012	
Year	**Number of Dealerships**
1947	45,500
1948	46,000
1949	49,200
1950	47,000
1951	47,500
1952	46,000
1953	45,200
1954	41,900
1955	40,400
1956	41,000
1957	40,000
1958	37,300
1959	36,400
1960	35,000
1961	34,500
1962	34,200
1963	33,700
1964	33,500
1965	33,700
1966	32,900
1967	32,000
1968	31,100
1969	31,000
1970	30,800
1971	30,300
1972	30,100
1973	30,100
1974	30,000
1975	29,600

Number of Franchised New-Car Dealerships, 1947-2012	
Year	**Number of Dealerships**
1976	29,300
1977	29,100
1978	29,000
1979	28,500
1980	27,900
1981	26,350
1982	25,700
1983	24,725
1984	24,725
1985	24,725
1986	24,825
1987	25,150
1988	25,025
1989	25,000
1990	24,825
1991	24,200
1992	23,500
1993	22,950
1994	22,850
1995	22,800
1996	22,750
1997	22,700
1998	22,600
1999	22,400
2000	22,250
2001	22,150
2002	21,800
2003	21,725
2004	21,650
2005	21,640
2006	21,495

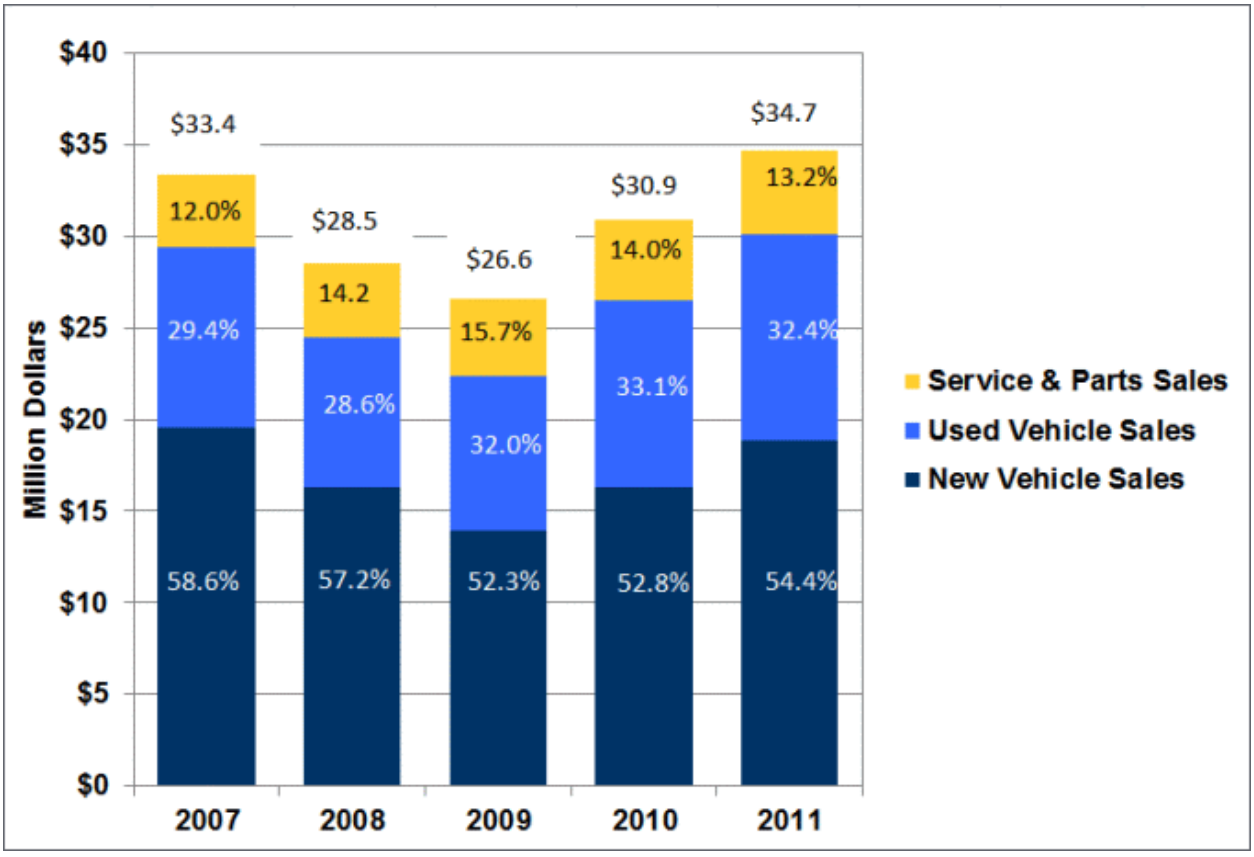
Number of Franchised New-Car Dealerships, 1947-2012	
Year	**Number of Dealerships**
2007	21,200
2008	20,770
2009	20,010
2010	18,460
2011	17,700
2012	17,540
Source: National Automobile Dealers Association	

Fact #739: August 6, 2012

Light Vehicle Dealership Sales Trends – New Vehicles, Used Vehicles, and Service/Parts

In 2007, almost 60% of sales from an average light vehicle dealership were new cars. New car sales declined to 52.3% of a dealership's sales in 2009, when service/parts rose to 15.7% and used vehicle sales rose to 32%. Total dealership sales for the average dealer were at their lowest in 2009 – $26.6 million. Since 2010, dealership sales and new vehicle sales share have risen.

Annual Sales for an Average Light Vehicle Dealership, 2007–2011



Supporting Information

Average Dealership Sales: New Vehicles, Used Vehicles, and Service/Parts

Year	New Vehicle Sales Share	Used Vehicle Sales Share	Service & Parts Sales Share	Annual Sales (Million dollars)
2007	58.6%	29.4%	12.0%	$33.4
2008	57.2%	28.6%	14.2%	$28.5
2009	52.3%	32.0%	15.7%	$26.6
2010	52.8%	33.1%	14.0%	$30.9
2011	54.4%	32.4%	13.2%	$34.7

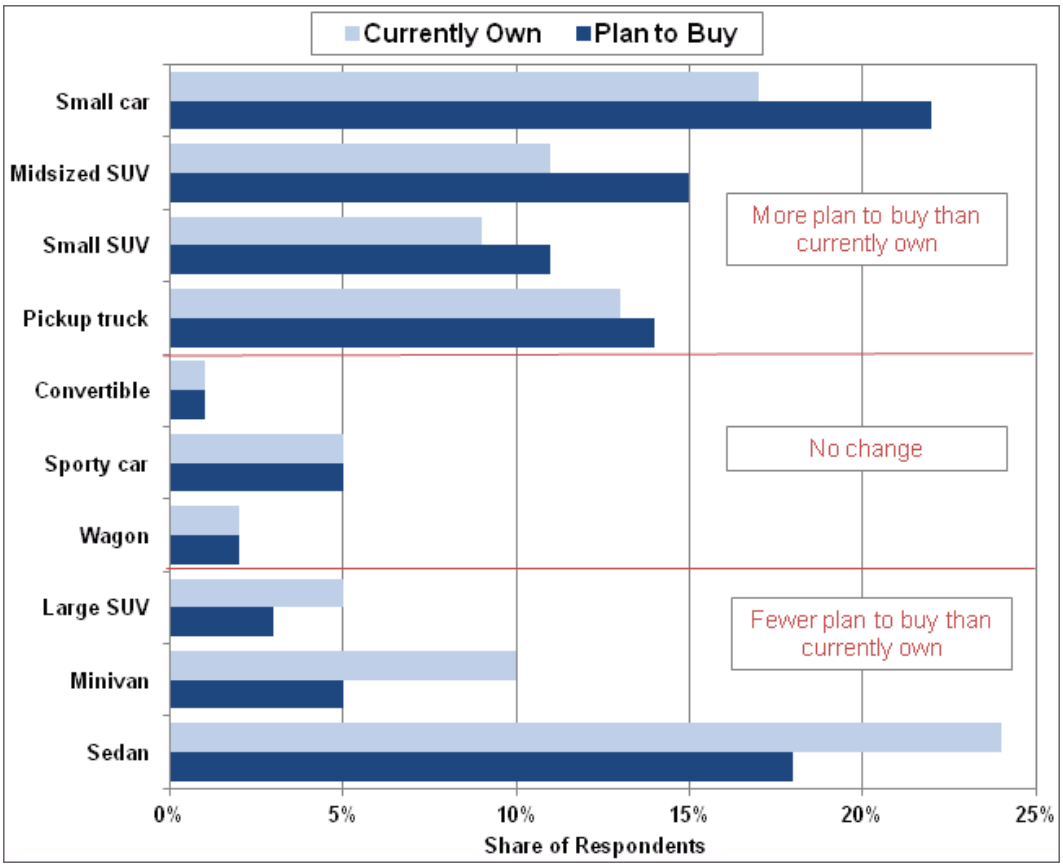
Source: Crain Communications, "New car profits rise with sales surge," *Automotive News*, June 18, 2012. **Original Source:** National Automobile Dealers Association.

Fact #740: August 13, 2012

Interest in Smaller Vehicles Is on the Rise

Consumer Reports conducted a survey of 1,702 adults in April 2012. Respondents were asked what type of vehicle they currently own and what type of vehicle they plan to buy next. The responses reveal a shift from larger vehicle types including large sedans, minivans and large SUVs, toward smaller cars and SUVs. Of those surveyed, 17% owned a small car while 22% reported that they were planning to buy a small car. Small and midsized SUVs also appear to have gained favor with consumers while interest in large SUVs has declined. According to the results of the survey, the number of respondents considering pickup trucks has increased slightly while consideration of wagons, sporty cars and convertibles have remained low but consistent.

Survey Respondents: What vehicle type they currently own and what type they plan to buy when they purchase another vehicle.



Supporting Information

Survey Respondents: What vehicle type they currently own and what type they plan to buy when they purchase another vehicle.

Vehicle Type	Currently Own	Plan to Buy
Small car	17%	22%
Midsized SUV	11%	15%
Small SUV	9%	11%
Pickup truck	13%	14%
Convertible	1%	1%
Sporty car	5%	5%
Wagon	2%	2%
Large SUV	5%	3%
Minivan	10%	5%
Sedan	24%	18%

Note: The random, nationwide telephone survey was conducted in two waves, April 5 to 7 and April 12 to 15, 2012. The Consumer Reports National Research Center interviewed 1,702 adults in households that had at least one car.

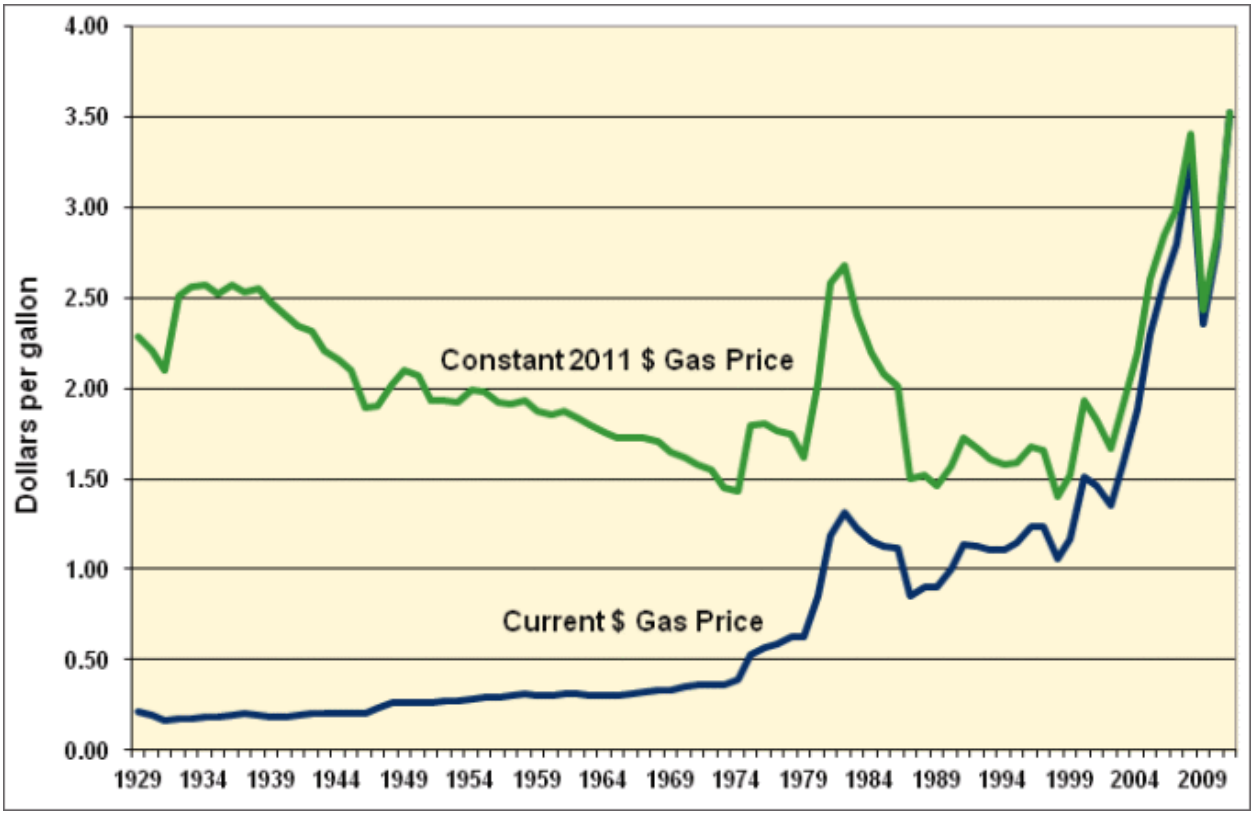
Source: *Consumer Reports*, "High gas prices motivate drivers to change direction."

Fact #741: August 20, 2012

Historical Gasoline Prices, 1929–2011

When adjusted for inflation, the average annual price of gasoline in 2011 was $1.24 above the price of gasoline in 1929. The effect of the U.S. embargo of oil from Iran can be seen in the early 1980's with the price of gasoline peaking in 1982. From 2002 to 2008 the price of gasoline rose substantially, but then fell in 2009 during the economic recession. In 2011, prices are the highest in the eighty-year series in both current and constant dollars.

Price of a Gallon of Gasoline, Current and Constant Dollars, 1929–2011



Supporting Information

Average Annual Retail Price of Gasoline, 1929-2011		
Year	Gasoline Price (Current dollars/gallon)	Gasoline Price (Constant 2011 dollars/gallon)
1929	0.21	2.29
1930	0.20	2.21
1931	0.17	2.10
1932	0.18	2.51
1933	0.18	2.56
1934	0.19	2.57
1935	0.19	2.52
1936	0.19	2.57
1937	0.20	2.53
1938	0.20	2.55
1939	0.19	2.47
1940	0.18	2.40
1941	0.19	2.35
1942	0.20	2.31
1943	0.21	2.20
1944	0.21	2.16
1945	0.21	2.09
1946	0.21	1.90
1947	0.23	1.90
1948	0.26	2.02
1949	0.27	2.09
1950	0.27	2.07
1951	0.27	1.93
1952	0.27	1.93
1953	0.27	1.92
1954	0.29	1.99
1955	0.29	1.98
1956	0.29	1.92

Average Annual Retail Price of Gasoline, 1929-2011		
Year	Gasoline Price (Current dollars/gallon)	Gasoline Price (Constant 2011 dollars/gallon)
1957	0.30	1.91
1958	0.31	1.94
1959	0.30	1.88
1960	0.31	1.86
1961	0.31	1.87
1962	0.31	1.83
1963	0.31	1.80
1964	0.30	1.76
1965	0.30	1.73
1966	0.31	1.73
1967	0.32	1.72
1968	0.33	1.71
1969	0.34	1.65
1970	0.35	1.62
1971	0.36	1.58
1972	0.36	1.55
1973	0.36	1.45
1974	0.39	1.43
1975	0.53	1.80
1976	0.57	1.81
1977	0.59	1.77
1978	0.62	1.74
1979	0.63	1.62
1980	0.86	2.03
1981	1.19	2.58
1982	1.31	2.68
1983	1.22	2.40
1984	1.16	2.19
1985	1.13	2.08
1986	1.12	2.01

Average Annual Retail Price of Gasoline, 1929-2011

Year	Gasoline Price (Current dollars/gallon)	Gasoline Price (Constant 2011 dollars/gallon)
1987	0.86	1.50
1988	0.90	1.52
1989	0.90	1.46
1990	1.00	1.57
1991	1.14	1.73
1992	1.13	1.67
1993	1.11	1.60
1994	1.11	1.58
1995	1.15	1.59
1996	1.23	1.68
1997	1.23	1.65
1998	1.06	1.40
1999	1.17	1.52
2000	1.51	1.93
2001	1.46	1.83
2002	1.36	1.67
2003	1.59	1.92
2004	1.88	2.20
2005	2.30	2.60
2006	2.59	2.84
2007	2.80	2.99
2008	3.27	3.41
2009	2.35	2.43
2010	2.79	2.85
2011	3.53	3.53

Notes: Retail price includes Federal and State Taxes.
Price is for Regular Leaded Gasoline until 1990 and for Regular Unleaded Gasoline thereafter.
Constant dollars calculated using the Gross Domestic Product Inflation Index.

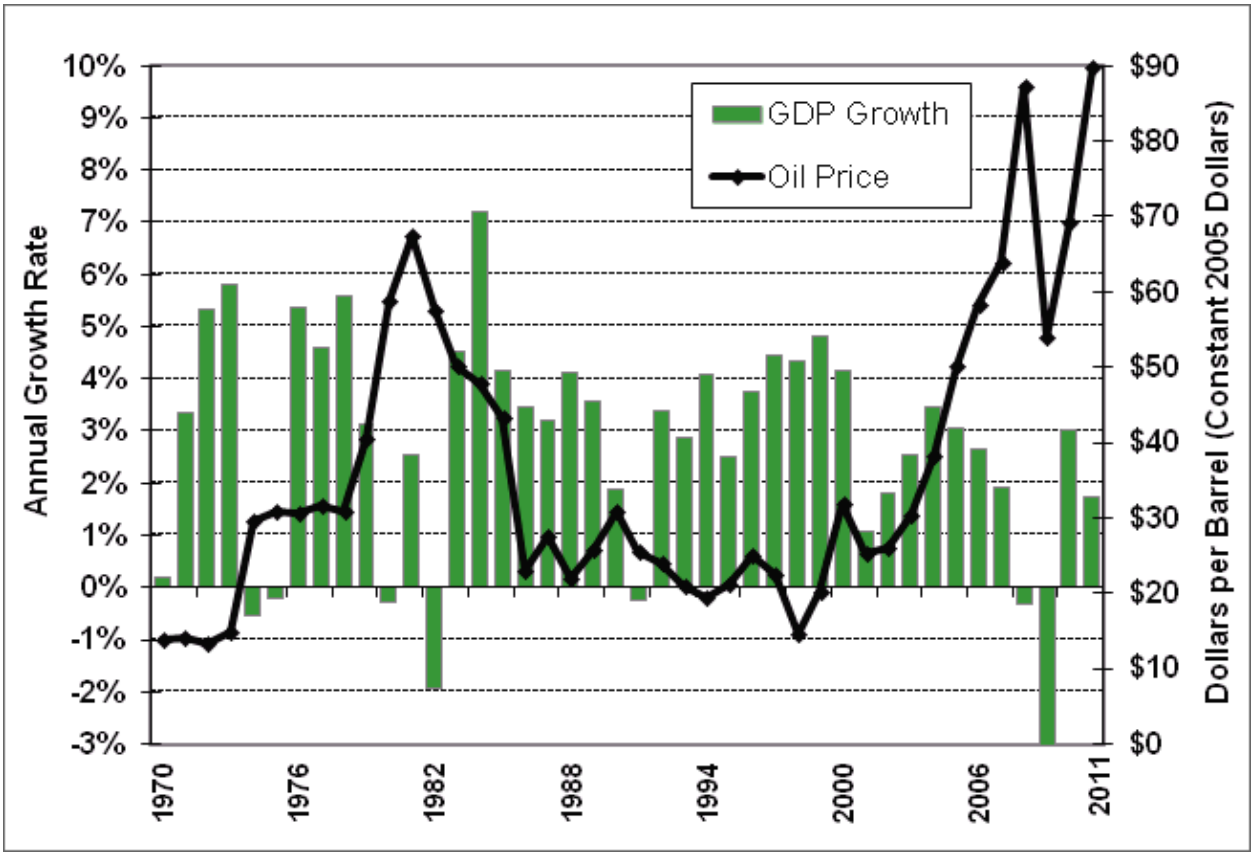
Source: Energy Information Administration, Annual Energy Review, Table 5.4 and *Monthly Energy Review*, Table 9.4.

Fact #742: August 27, 2012

Oil Price and Economic Growth

Major oil price shocks have disrupted world energy markets five times in the past 30 years (1973-74, 1979-80, 1990-91, 1999-2000, and 2008). Most of the oil price shocks were followed by an economic recession in the United States.

Oil Price and Gross Domestic Product Growth Rate, 1970–2011



Supporting Information

Oil Price and Gross Domestic Product Growth Rate, 1970-2011		
Year	Gross Domestic Product Growth Rate	Oil Price (Constant 2005 dollars per barrel)
1970	0.19%	$13.97
1971	3.36%	$14.09
1972	5.31%	$13.43
1973	5.79%	$14.75
1974	-0.55%	$29.55
1975	-0.21%	$30.90
1976	5.36%	$30.66
1977	4.60%	$31.65
1978	5.58%	$30.81
1979	3.13%	$40.46
1980	-0.28%	$58.73
1981	2.54%	$67.42
1982	-1.94%	$57.47
1983	4.52%	$50.28
1984	7.19%	$47.86
1985	4.14%	$43.41
1986	3.46%	$23.10
1987	3.20%	$27.62
1988	4.11%	$21.88
1989	3.57%	$25.83
1990	1.88%	$30.75
1991	-0.23%	$25.47
1992	3.39%	$24.06
1993	2.85%	$20.96
1994	4.07%	$19.50
1995	2.51%	$21.11
1996	3.74%	$24.90
1997	4.46%	$22.50

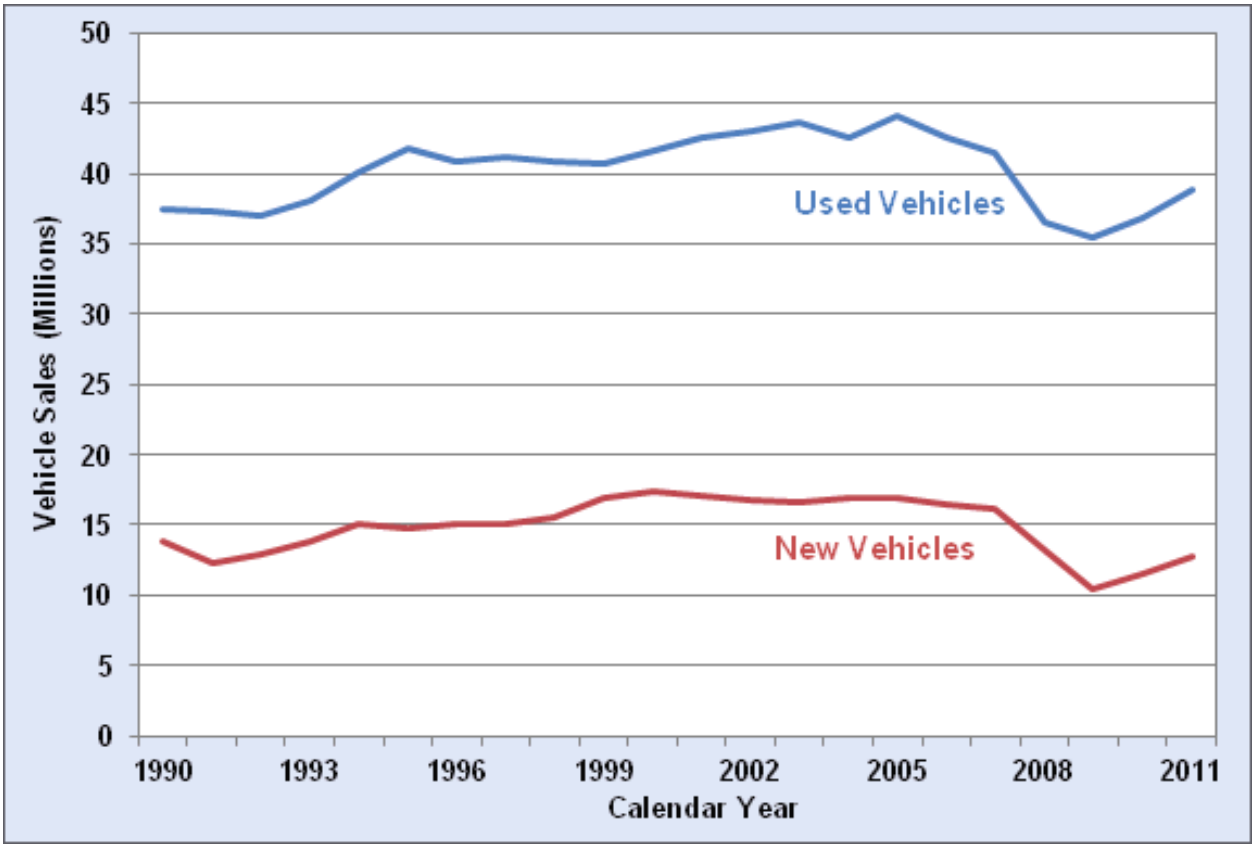
Oil Price and Gross Domestic Product Growth Rate, 1970-2011		
Year	**Gross Domestic Product Growth Rate**	**Oil Price (Constant 2005 dollars per barrel)**
1998	4.36%	$14.63
1999	4.83%	$20.16
2000	4.14%	$31.85
2001	1.08%	$25.30
2002	1.81%	$26.14
2003	2.54%	$30.31
2004	3.47%	$38.21
2005	3.07%	$50.24
2006	2.66%	$58.35
2007	1.91%	$63.96
2008	-0.34%	$87.25
2009	-3.49%	$54.03
2010	3.03%	$69.10
2011	1.74%	$89.91
Source: Oak Ridge National Laboratory, Transportation Energy Data Book: Edition 31, Figure 1.3.		

Fact #743: September 3, 2012

Used Vehicle Sales Are Three Times Higher than New Vehicle Sales

From 1990 to 2008, the number of used vehicles sold was between 2.5 and 3 times higher than new vehicle sales. During the recent recession, both new and used vehicle sales declined to sales volumes not seen since the 1980's. Used vehicle sales, however, in 2009 and 2010 were more than three times that of new vehicles for the first time.

New and Used Light Vehicle Sales, 1990–2011



Supporting Information

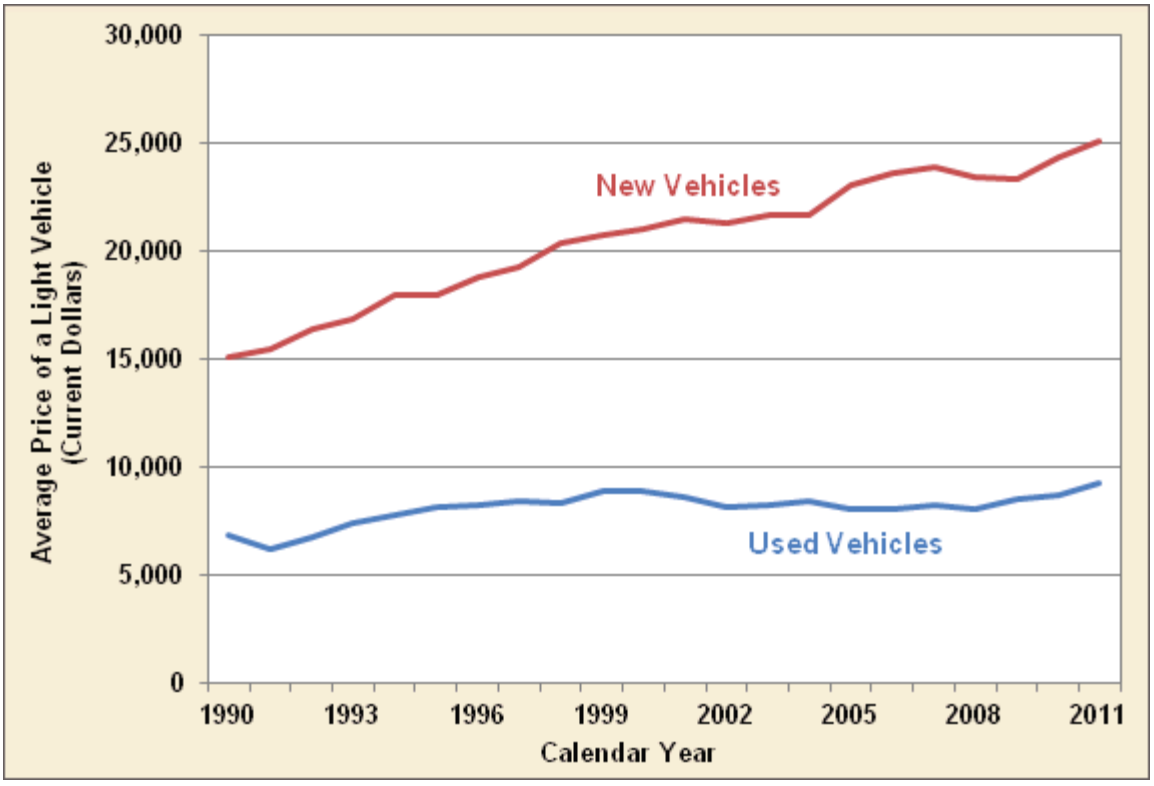
Light Vehicle Sales (Millions)			
Year	**Used Vehicles**	**New Vehicles**	**Ratio of Used Vehicles / New Vehicles**
1990	37.5	13.9	2.7
1991	37.3	12.3	3.0
1992	36.9	12.9	2.9
1993	38.1	13.9	2.7
1994	40.1	15.1	2.7
1995	41.8	14.7	2.8
1996	40.8	15.1	2.7
1997	41.2	15.1	2.7
1998	40.8	15.5	2.6
1999	40.7	16.9	2.4
2000	41.6	17.4	2.4
2001	42.6	17.1	2.5
2002	43.0	16.8	2.6
2003	43.6	16.6	2.6
2004	42.5	16.9	2.5
2005	44.1	16.9	2.6
2006	42.6	16.5	2.6
2007	41.4	16.1	2.6
2008	36.5	13.2	2.8
2009	35.5	10.4	3.4
2010	36.9	11.6	3.2
2011	38.8	12.7	3.0
Source: Ward's Communications			

Fact #744: September 10, 2012

Average New Light Vehicle Price Grows Faster than Average Used Light Vehicle Price

In 2011 the average used light vehicle price was 36% higher than in 1990, while the average new light vehicle price was 67% higher than it was in 1990. The average price of a used vehicle had been between $6,000 and $9,000 until 2011 when the price rose above $9,000 for the first time. New vehicle prices were also at an all-time high in 2011; they averaged above $25,000 for the first time.

Average Price of New and Used Vehicles



Supporting Information

Average Price of New and Used Vehicles, 1990-2011		
Year	**Average Used Vehicle Price**	**Average New Vehicle Price**
1990	$6,830	$15,042
1991	$6,157	$15,475
1992	$6,693	$16,336
1993	$7,335	$16,871
1994	$7,781	$17,903
1995	$8,093	$17,959
1996	$8,257	$18,777
1997	$8,399	$19,236
1998	$8,341	$20,364
1999	$8,828	$20,710
2000	$8,896	$21,041
2001	$8,618	$21,474
2002	$8,130	$21,249
2003	$8,180	$21,646
2004	$8,410	$21,646
2005	$8,036	$23,017
2006	$8,009	$23,634
2007	$8,186	$23,892
2008	$7,986	$23,441
2009	$8,483	$23,276
2010	$8,715	$24,296
2011	$9,275	$25,048

Note: New vehicle price based on cars only. It does not include light trucks.

Source: Used vehicles - Ward's Automotive,
New cars - Bureau of Economic Analysis, National Income and Product Accounts (NIPA) Underlying Detail Tables, Table 7.2.5S.

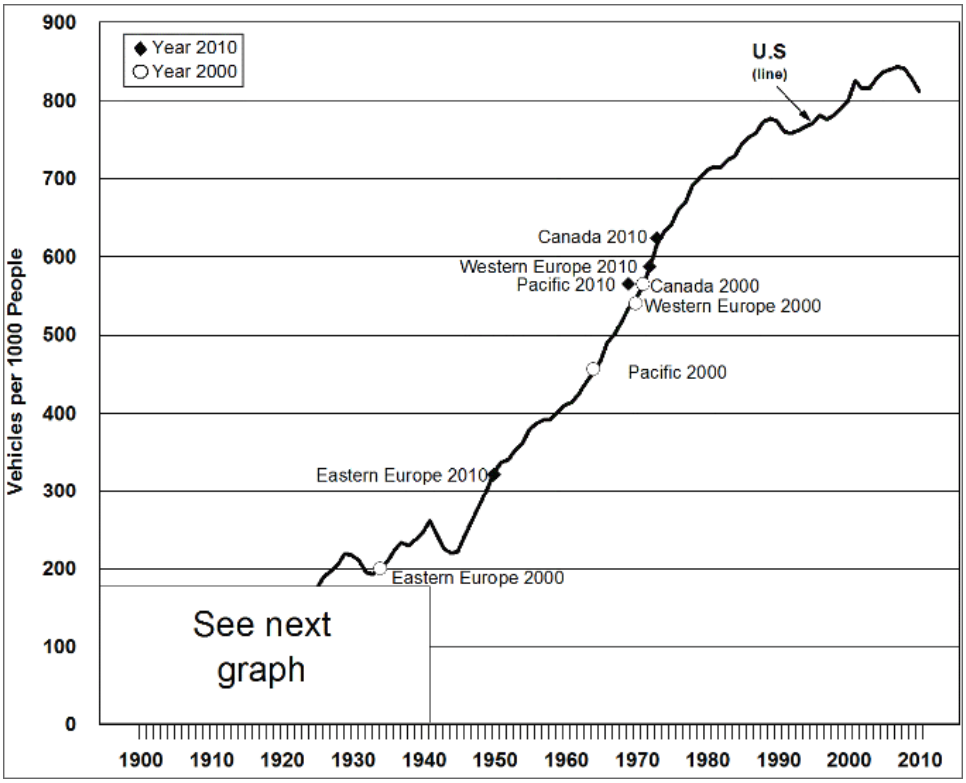
Fact #745: September 17, 2012

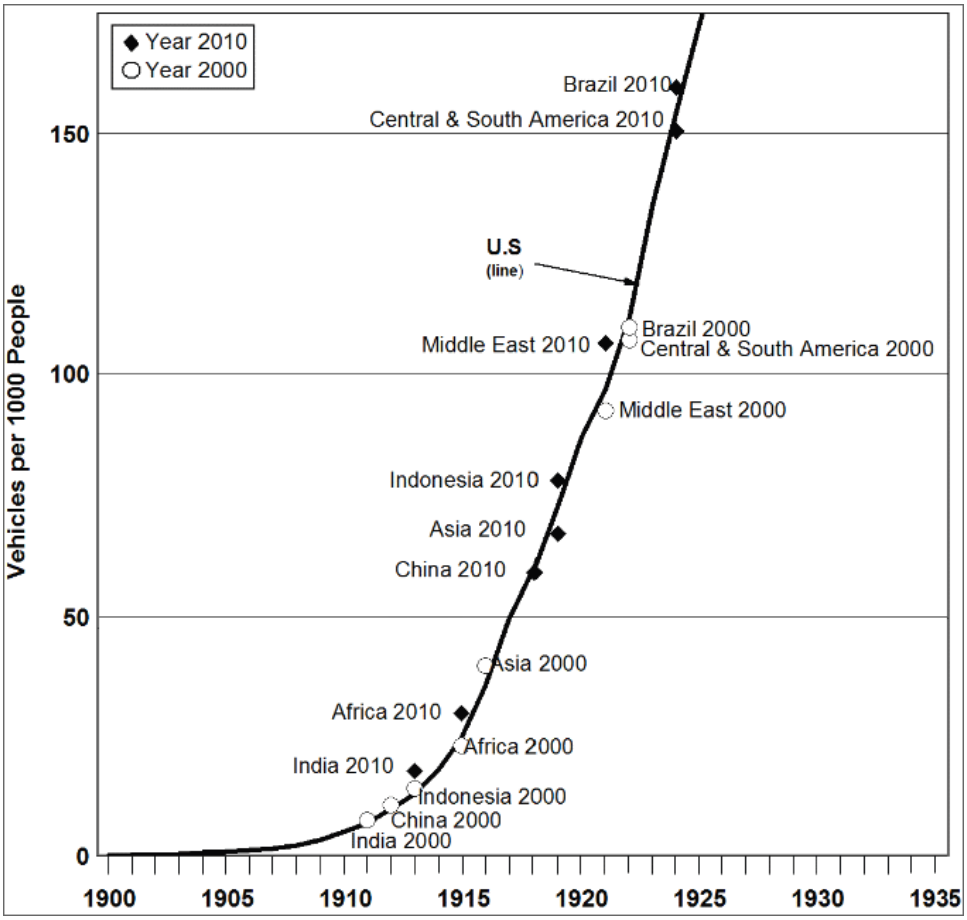
Vehicles per Thousand People: U.S. Compared to Other Countries

The graphs below show the number of motor vehicles per thousand people for various countries. The data for the United States are displayed in the line which goes from 1900 to 2010. The points labeled on that line show data for the other countries/regions around the world and how their vehicles per thousand people compare to the United States at two different points in time, 2000 and 2010. For instance, the graph shows that in 2000, Western Europe's vehicles per thousand people was about where the United States was in 1970, but by 2010 it is about where the United States was in 1972. The lower part of the graph (1900-1940) is shown enlarged below.

The number of vehicles per thousand people in the United States has grown significantly from 1900 to 2007. In 2008 to 2010, however, the number decreased from a high of 843.57 in 2007.

Vehicles per Thousand People: U.S. (Over Time) Compared to Other Countries (in 2000 and 2010)




Year 2010
Year 2000
Brazil 2010
Central & South America 2010
U.S
(line)
Middle East 2010
Brazil 2000
Central & South America 2000
Middle East 2000
Indonesia 2010
Asia 2010
China 2010
Asia 2000
Africa 2010
Africa 2000
India 2010
Indonesia 2000
China 2000
India 2000
Vehicles per 1000 People
150
100
50
0
1900
1905
1910
1915
1920
1925
1930
1935

Supporting Information

Vehicles per Thousand People in Other Countries, 2000 and 2010		
	Vehicle per 1,000 people	
Country/Region	2000	2010
Africa	23.1	29.9
Asia, Far East	39.8	66.7
Asia, Middle East	92.2	106.2
Brazil	109.5	159.6
Canada	565.0	623.6
Central & South America	107.0	150.4
China	10.6	58.7
Europe, East	200.7	321.8
Europe, West	540.7	587.2
India	7.5	17.7
Indonesia	14.1	77.8
Pacific	456.0	565.3

Vehicles per Thousand People in the United States, 1900-2010									
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	1923	134.90	1946	243.11	1969	533.37	1992	757.96
1901	0.19	1924	154.35	1947	262.56	1970	545.35	1993	761.94
1902	0.29	1925	173.26	1948	280.20	1971	562.45	1994	766.94
1903	0.41	1926	189.10	1949	299.56	1972	585.60	1995	770.99
1904	0.67	1927	195.77	1950	323.71	1973	615.19	1996	781.16
1905	0.94	1928	204.87	1951	337.14	1974	632.32	1997	776.02
1906	1.27	1929	219.31	1952	340.57	1975	640.07	1998	781.20
1907	1.65	1930	217.34	1953	353.67	1976	659.47	1999	790.07
1908	2.24	1931	210.37	1954	361.40	1977	669.03	2000	800.30
1909	3.45	1932	195.38	1955	379.77	1978	690.17	2001	825.49
1910	5.07	1933	192.38	1956	387.58	1979	700.42	2002	815.22
1911	6.81	1934	199.90	1957	392.11	1980	710.71	2003	815.50
1912	9.90	1935	208.61	1958	392.17	1981	715.22	2004	829.26
1913	12.94	1936	222.62	1959	402.83	1982	713.95	2005	836.58
1914	17.79	1937	233.33	1960	410.37	1983	724.30	2006	840.09
1915	24.77	1938	229.65	1961	415.11	1984	728.20	2007	843.57
1916	35.48	1939	236.93	1962	426.06	1985	744.50	2008	840.80
1917	49.57	1940	245.63	1963	438.75	1986	753.33	2009	828.04
1918	59.69	1941	261.57	1964	451.57	1987	758.58	2010	811.83
1919	72.50	1942	244.73	1965	466.90	1988	772.92		
1920	86.78	1943	225.89	1966	489.34	1989	776.99		
1921	96.68	1944	220.23	1967	500.66	1990	773.40		
1922	111.53	1945	221.80	1968	516.49	1991	760.19		

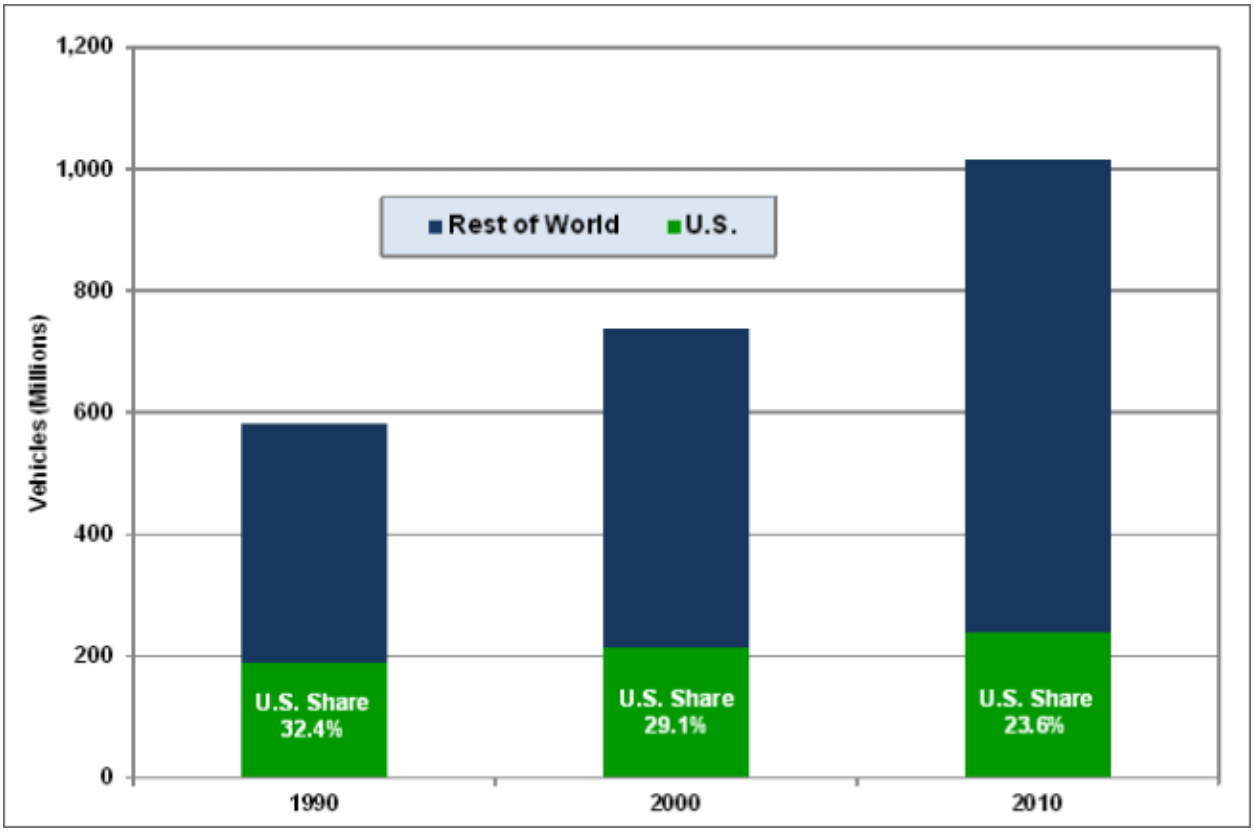
Source: Oak Ridge National Laboratory, Transportation Energy Data Book: Edition 31, Tables 3.5 and 3.6.

Fact #746: September 24, 2012

U.S. Share of World Vehicles Declines

In 1990, the United States accounted for 32.4% of the world's vehicles. The number of vehicles in the world nearly doubled between 1990 and 2010, due to growth of vehicles in other countries, such as China and India. By 2010, the U.S. accounted for only 23.6% of the world's vehicles.

Number of Vehicles in the U.S. and the World, 1990, 2000, and 2010



Note: Vehicles include cars, light trucks, heavy trucks, and buses.

Supporting Information

Number of Vehicles in the U.S. and the World, 1990, 2000, and 2010 (Million Vehicles)

Calendar Year	United States	Rest of the World	Total World Vehicles
1990	189	394	583
2000	214	523	737
2010	240	775	1,015

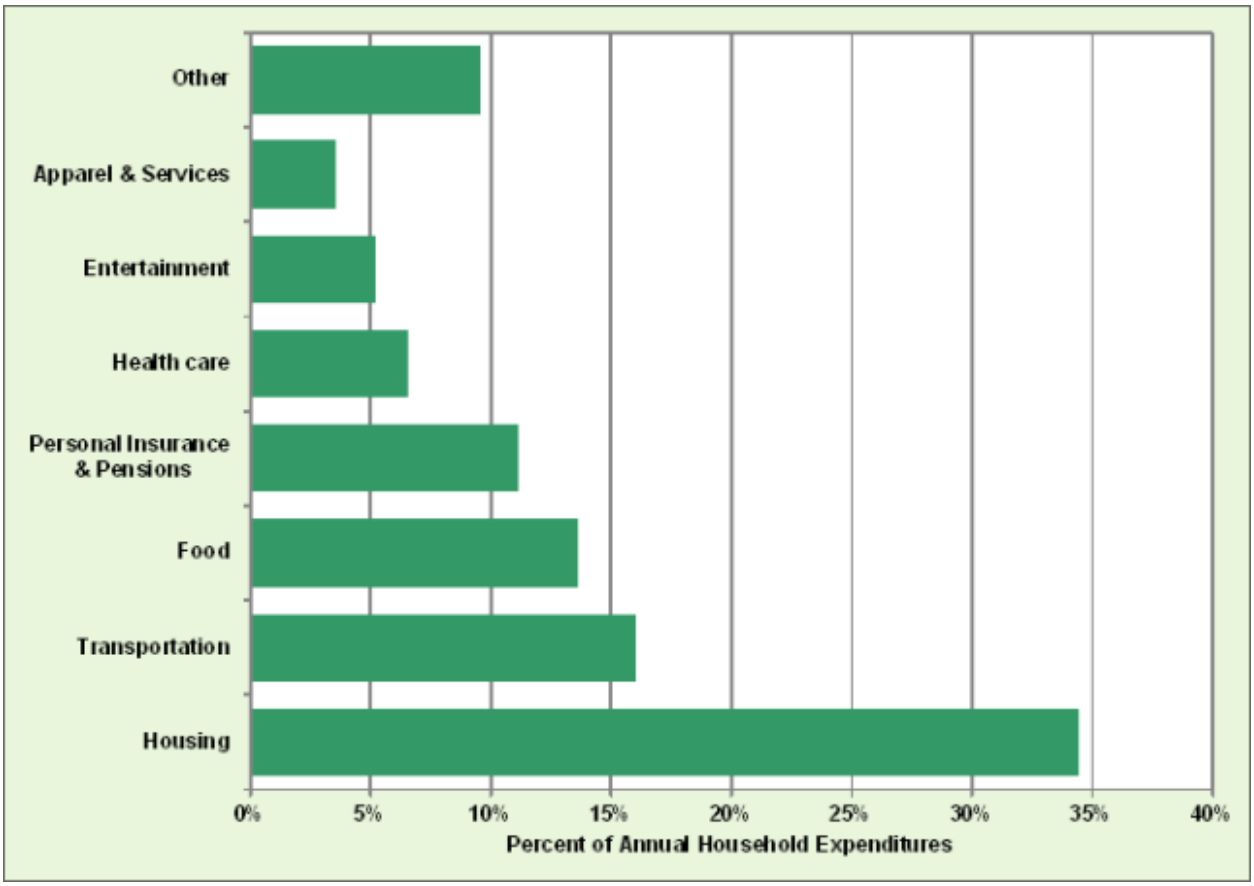
Sources: Oak Ridge National Laboratory, Transportation Energy Data Book: Edition 31, Tables 3.2 and 3.3

Fact #747: October 1, 2012

Behind Housing, Transportation Is the Top Household Expenditure

Except for housing, transportation was the largest single expenditure for the average American household in 2010. The average household spends more on transportation in a year than on food. Vehicle purchases, along with gasoline and motor oil, make up a large part of vehicle expenditures, but insurance, finance charges, repairs, vehicle rental and public transportation are all considered transportation.

2010 Share of Annual Household Expenditures



Notes: *Transportation* includes new and used vehicle purchases; gasoline and motor oil; maintenance and repairs; vehicle insurance; vehicle finance charges; vehicle rental and public transportation. *Other* includes personal care products and services; reading; education; tobacco products and smoking supplies; cash contributions; personal insurance and pensions; and miscellaneous.

Supporting Information

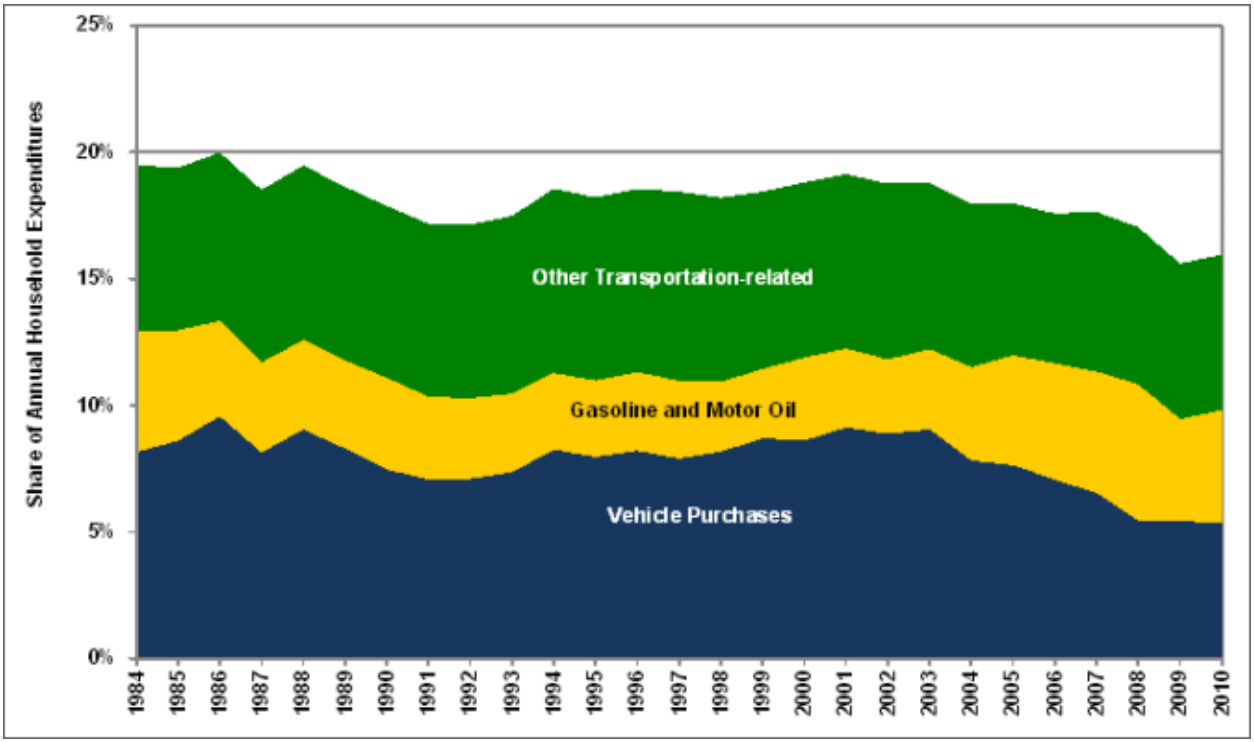
2010 Share of Annual Household Expenditures	
Expenditure Type	**Percent**
Housing	34.4%
Transportation	16.0%
Food	13.6%
Personal Insurance and Pensions	11.2%
Health care	6.6%
Entertainment	5.2%
Apparel and Services	3.5%
Other	9.6%
Source: 2011 Vehicle Technologies Market Report, Figure 19.	

Fact #748: October 8, 2012

Components of Household Expenditures on Transportation, 1984–2010

The overall share of annual household expenditures for transportation was lower in 2010 than it was in 1984, reaching its lowest point in 2009 at 15.5%. In the early to mid-1980s when oil prices were high, gasoline and motor oil made up a larger share of transportation expenditures but then declined until about 2004 when gasoline and motor oil expenditures began to rise again. The share of household expenditures on gasoline and oil was exactly the same in 1985 as it was twenty five years later in 2010 at 4.4%. During this period, expenditures for vehicle purchases declined to the lowest level in 2009 and remained constant for 2010 at 5.4%.

Share of Household Expenditures on Transportation, 1984–2010



Note: Other transportation-related expenditures include vehicle finance charges, maintenance and repairs, vehicle insurance, vehicle rental, leases, licenses and other charges, and public transportation.

Supporting Information

Annual Household Expenditures and Transportation Share of Expenditures, 1984-2010

Year	Vehicle Purchases	Gasoline and Motor Oil	Other Transportation related	Annual Household Expenditures (current dollars)
1984	8.2%	4.8%	6.6%	$22,546
1985	8.6%	4.4%	6.4%	$23,976
1986	9.6%	3.8%	6.6%	$24,439
1987	8.1%	3.6%	6.8%	$24,776
1988	9.0%	3.5%	6.9%	$26,389
1989	8.3%	3.5%	6.9%	$28,323
1990	7.5%	3.6%	6.8%	$29,062
1991	7.1%	3.3%	6.8%	$30,487
1992	7.1%	3.2%	6.9%	$30,527
1993	7.4%	3.1%	7.0%	$31,436
1994	8.3%	3.0%	7.3%	$32,740
1995	8.0%	3.0%	7.2%	$33,597
1996	8.2%	3.1%	7.2%	$35,591
1997	7.9%	3.1%	7.5%	$36,146
1998	8.2%	2.8%	7.3%	$37,260
1999	8.7%	2.7%	7.0%	$39,143
2000	8.6%	3.3%	6.9%	$40,238
2001	9.1%	3.1%	6.9%	$41,395
2002	8.9%	2.9%	6.9%	$42,557
2003	9.1%	3.2%	6.6%	$42,742
2004	7.8%	3.7%	6.5%	$43,395
2005	7.6%	4.3%	6.0%	$46,409
2006	7.1%	4.6%	5.9%	$48,398
2007	6.5%	4.8%	6.3%	$49,638
2008	5.5%	5.4%	6.2%	$50,486
2009	5.4%	4.0%	6.1%	$49,067
2010	5.4%	4.4%	6.1%	$48,109

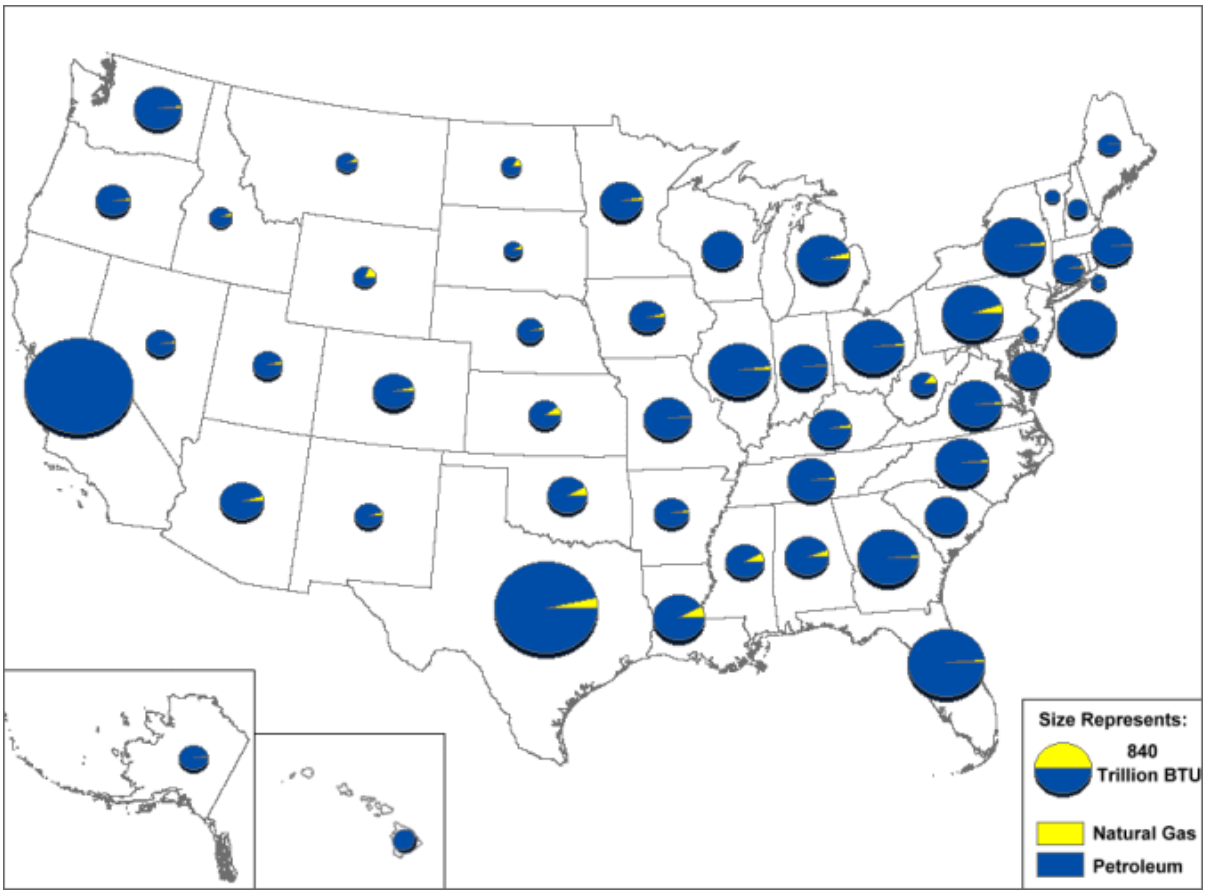
Source: U.S. Department of Labor, Consumer Expenditure Survey 2010, Table 2, 2011.

Fact #749: October 15, 2012

Petroleum and Natural Gas Consumption for Transportation by State, 2010

The map below shows the amount of petroleum and natural gas consumed in the transportation sector by state for 2010. The pie charts for each state are scaled based on total consumption of petroleum and natural gas. The yellow slice of the pie chart represents the share that is natural gas versus petroleum which is shaded blue. Overall consumption tends to follow population density; however, the share of natural gas consumption is usually greater in those states involved in the petroleum, gas, and mining industries like in the Gulf States, Oklahoma, Pennsylvania, West Virginia, and Wyoming. Transportation use of natural gas is consumed in the operation of pipelines and to a lesser extent as vehicle fuel.

Petroleum and Natural Gas Consumption for Transportation by State, 2010



Supporting Information

Transportation Sector Energy Consumption Estimates, 2010 (Trillion Btu)

State	Natural Gas	Petroleum	Both Natural Gas and Petroleum
Alabama	22.6	463.0	485.6
Alaska	3.3	207.3	210.6
Arizona	18.1	459.7	477.8
Arkansas	9.6	284.7	294.3
California	24.7	3,064.0	3,088.7
Colorado	14.8	415.0	429.8
Connecticut	7.0	235.9	242.9
Delaware	0.1	66.6	66.7
Dist. of Col.	1.2	14.8	16.0
Florida	23.5	1,534.4	1,557.9
Georgia	9.9	972.5	982.4
Hawaii	0.0	134.0	134.0
Idaho	7.9	128.7	136.6
Illinois	20.3	965.7	986.0
Indiana	8.9	607.4	616.3
Iowa	11.1	301.3	312.4
Kansas	24.8	243.2	268.0
Kentucky	14.0	460.3	474.3
Louisiana	48.0	646.1	694.1
Maine	1.8	124.1	125.9
Maryland	3.1	434.0	437.1
Massachusetts	4.8	450.3	455.1
Michigan	25.6	715.6	741.2
Minnesota	15.6	467.1	482.7
Mississippi	28.6	339.8	368.4
Missouri	5.9	565.7	571.6
Montana	7.5	104.4	111.9
Nebraska	7.4	174.8	182.2

Transportation Sector Energy Consumption Estimates, 2010 (Trillion Btu)

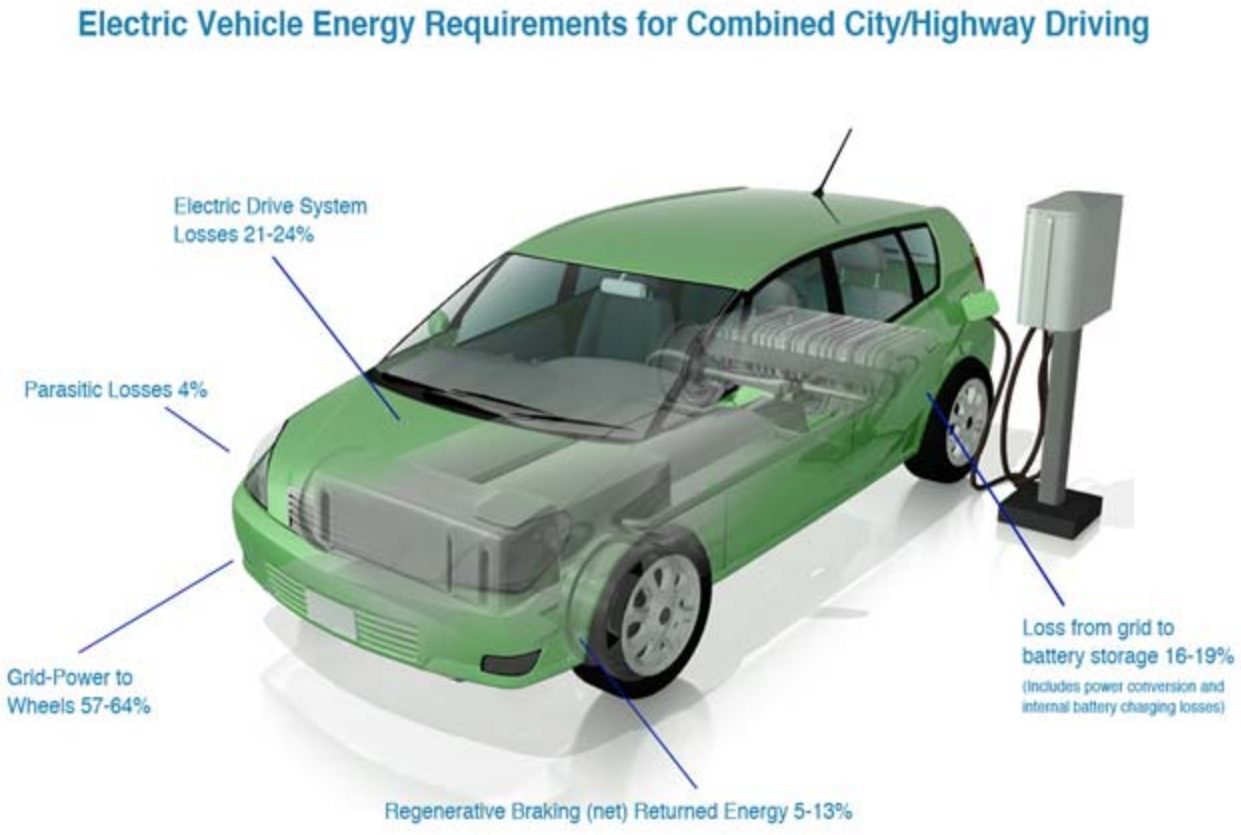
State	Natural Gas	Petroleum	Both Natural Gas and Petroleum
Nevada	4.0	206.8	210.8
New Hampshire	0.3	106.4	106.7
New Jersey	5.7	944.1	949.8
New Mexico	9.0	190.0	199.0
New York	19.0	993.4	1,012.4
North Carolina	8.1	713.5	721.6
North Dakota	14.5	88.2	102.7
Ohio	16.5	941.7	958.2
Oklahoma	31.8	388.3	420.1
Oregon	6.6	312.6	319.2
Pennsylvania	49.5	934.3	983.8
Rhode Island	1.6	62.4	64.0
South Carolina	3.5	457.7	461.2
South Dakota	5.8	89.2	95.0
Tennessee	10.3	599.5	609.8
Texas	84.9	2,729.9	2,814.8
Utah	11.0	222.9	233.9
Vermont	0.0	52.3	52.3
Virginia	10.5	734.1	744.6
Washington	8.4	604.2	612.6
West Virginia	23.2	151.4	174.6
Wisconsin	3.1	440.0	443.1
Wyoming	19.9	102.9	122.8
Total U.S.	717.3	26,646.2	27,363.5

Source: Energy Information Administration Beta website, State Profiles and Energy Estimates, Table C8.

Fact #750: October 22, 2012

Electric Vehicle Energy Requirements for Combined City/Highway Driving

The efficiencies of electric vehicles can vary significantly; however, compared with conventional vehicles, they are very efficient—converting about 60% of the energy from the grid to power at the wheels. There are energy losses of about 16–19% from charging and battery storage while electric drive system and parasitic losses combined account for another 25–28%. Off-setting some of these losses, regenerative braking on electric vehicles produces an energy gain of 5–13% resulting in an overall efficiency of about 57–64%. By comparison, a conventional vehicle converts roughly 14–26% of the energy from fuel to power the wheels in the same combined driving cycle.



Supporting Information

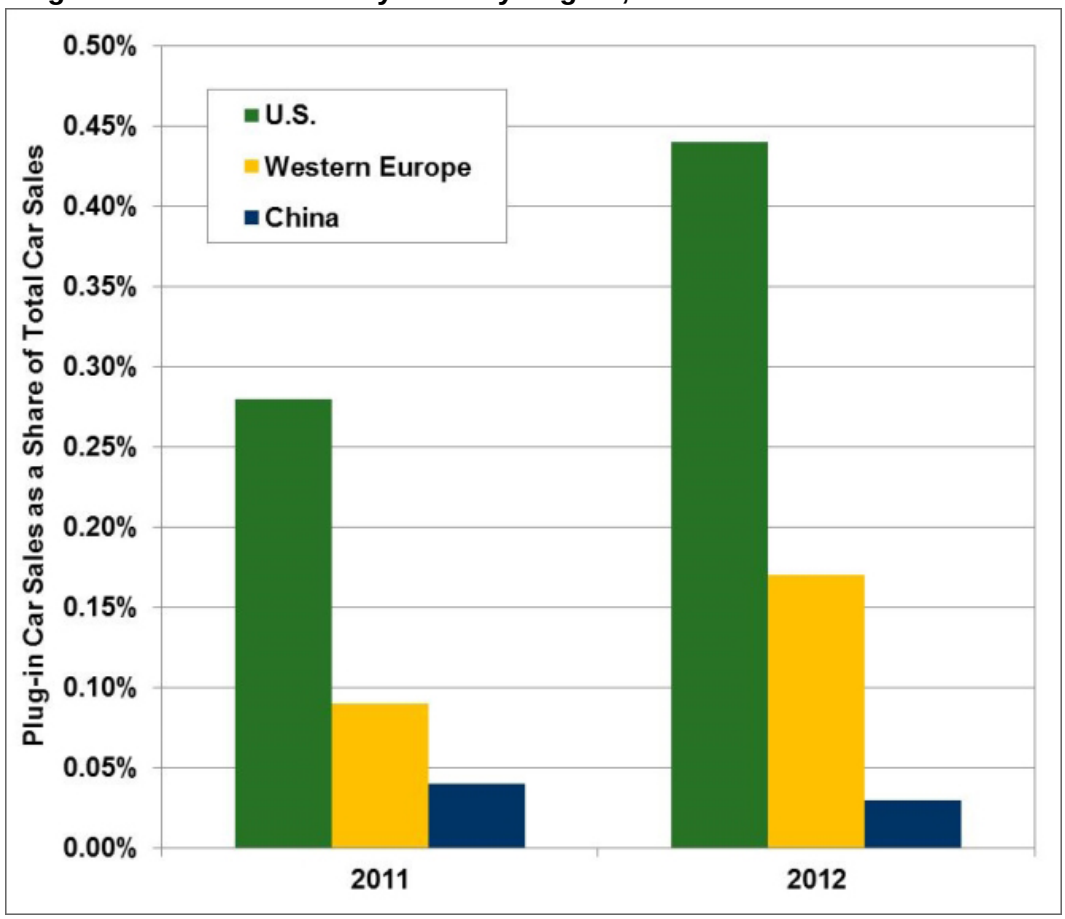
Electric Vehicle Energy Requirements for Combined City/Highway Driving	
Expenditure Type	**Percent**
Grid Power to Wheels	57-64%
Electric Drive System Loss	21-24%
Grid to Battery Storage Loss	16-19%
Parasitic Loss	4%
Regenerative Braking Gain	5-13%
Sources: Estimated by Oak Ridge National Laboratory using published sources including: Fuel Economy Guide Website, "Electric Vehicles." Fuel Economy Guide Website, "Fuel Economy: Where the Energy Goes." Miller, et. al., SAE 2011-01-0887. Chae et. al., 2011. Gautam et. al., 2011.	

Fact #751: October 29, 2012

Plug-In Car Sales Higher in the U.S. Compared to Western Europe and China

In 2011, plug-in car sales in the U.S. were 0.28% of the U.S. car market, and grew to 0.44% of the U.S. car market in the first eight months of 2012. Western Europe has also increased their plug-in market share from 2011 to 2012. In China, however, plug-in market share decreased slightly (0.01%).

Plug-In Car Market Share by Country/Region, 2011 and 2012*



Notes: Total car sales do not include light trucks.
Western Europe data consists of the following 16 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Supporting Information

Plug-In Car Sales and Market Shares by Country/Region, 2011 and 2012*
(Plug-In Sales as a Share of Total Car Sales)

	U.S.		Western Europe		China	
Calendar Year	Units	Market Share	Units	Market Share	Units	Market Share
2011	17,763	0.28%	11,563	0.09%	5,579	0.04%
2012*	25,290	0.44%	12,853	0.17%	2,975	0.03%

*European data are through July 2012; U.S. & China data are through August 2012.

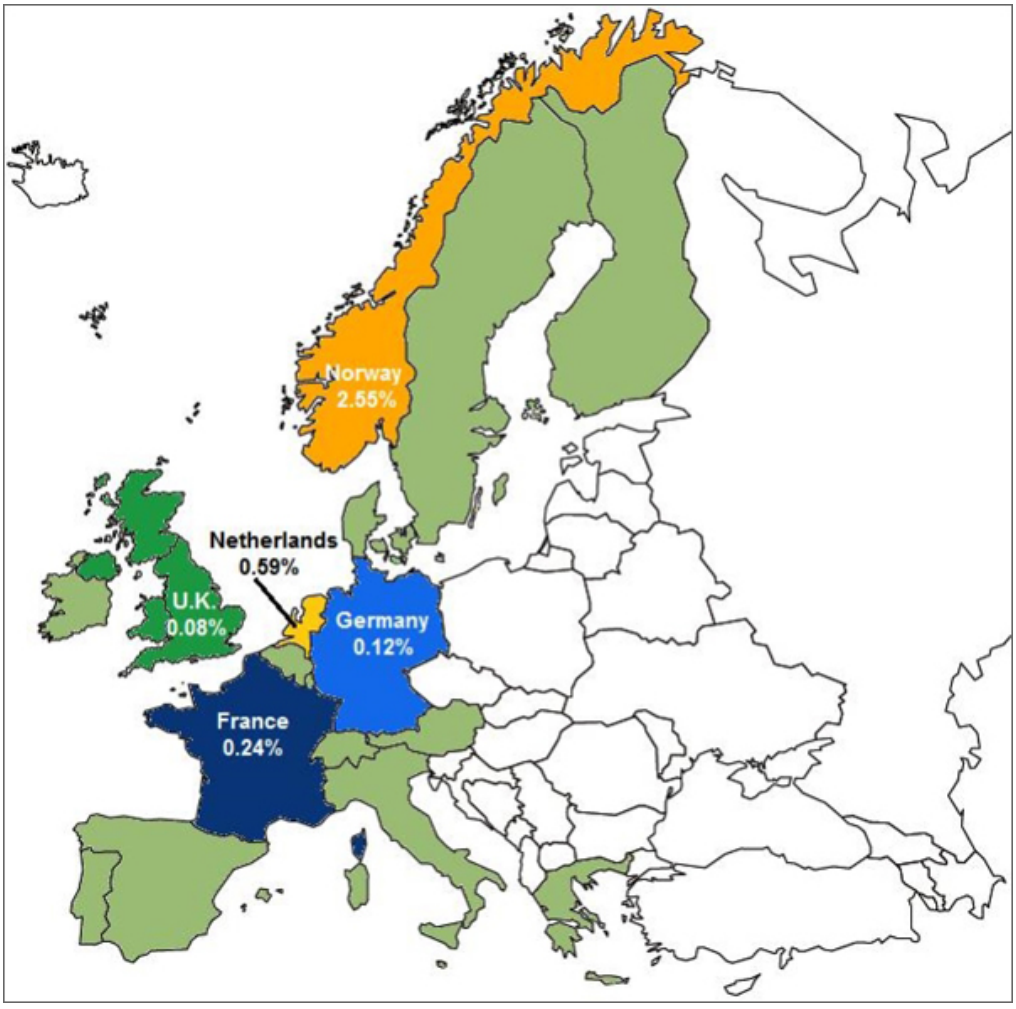
Source: Data compiled by Argonne National Laboratory.

Fact #752: November 5, 2012

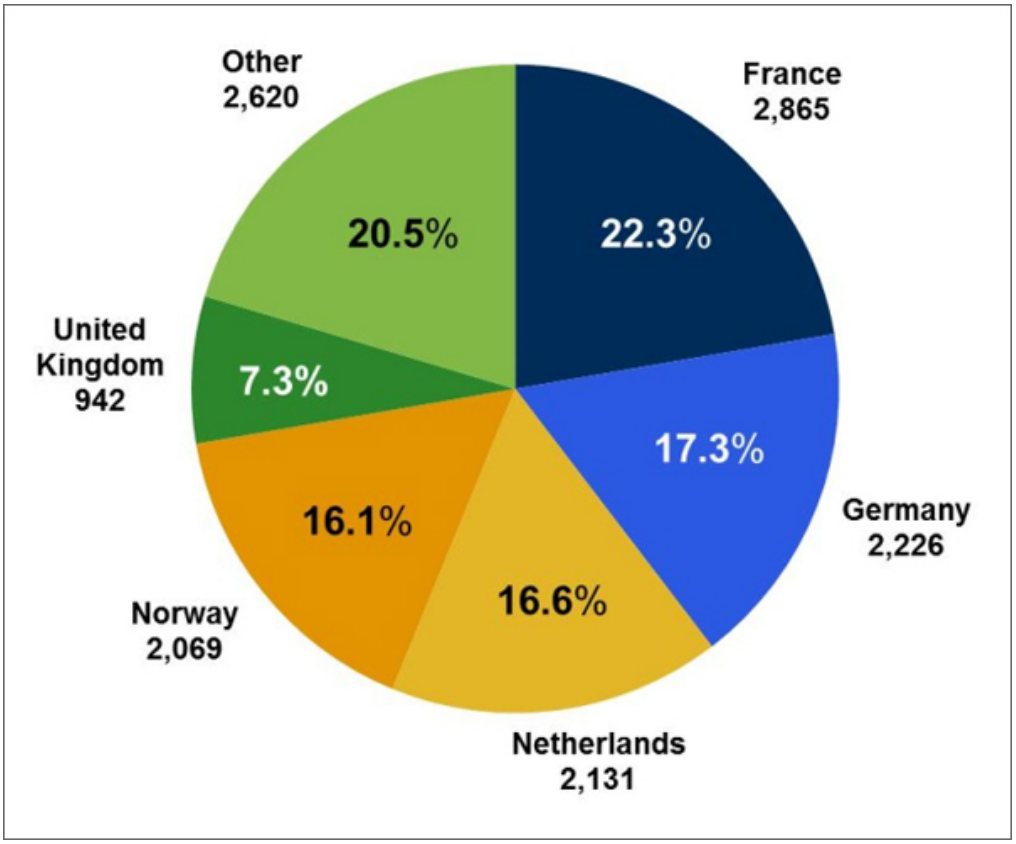
Western Europe Plug-In Car Sales, 2012

Using data for the first seven months of 2012, Norway has the highest plug-in car market share at 2.55%. The Netherlands has the second highest plug-in market share (0.59%) and despite its small size, accounts for 16.1% of all plug-ins sold in Western Europe (see pie chart). France accounted for 22.3% of Western European plug-in car sales, followed by Germany at 17.3%.

Plug-In Car Market Share, 2012*
(Plug-In Sales as a Share of Total Car Sales)



Plug-In Car Sales in Western Europe, 2012*



Supporting Information

Plug-In Car Sales in Western Europe, 2012*

Country	Plug-in Sales	Percent of Total Plug-in Sales	Plug-in Sales as a Share of Total Car Sales
France	2,865	22.3%	0.24%
Germany	2,226	17.3%	0.12%
Netherlands	2,131	16.6%	0.59%
Norway	2,069	16.1%	2.55%
United Kingdom	942	7.3%	0.08%
Other Countries	2,620	20.5%	0.10%
TOTAL	12,853	100.0%	0.17%

*First seven months of 2012.

Source: Data compiled by Argonne National Laboratory.

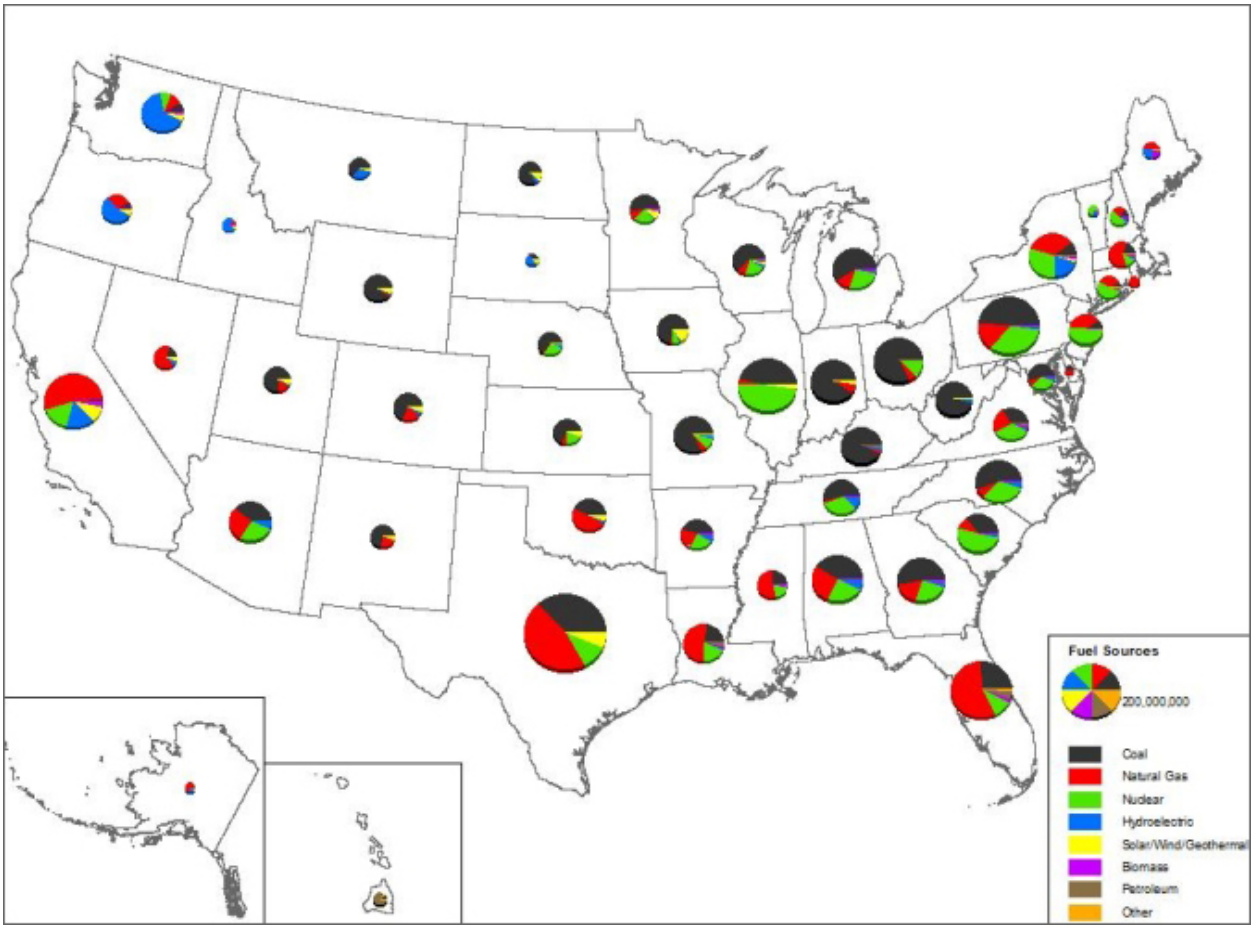
Fact #753: November 12, 2012

Sources of Electricity by State

Electric vehicles do not create emissions from a tailpipe like conventional vehicles do. The electricity used to fuel electric vehicles is generated at power plants all across the nation. Because each plant that generates electricity can use a different mix of energy sources, the emissions associated with electric vehicle charging can vary significantly depending on where the vehicle's electricity is generated. For more specifics on electric vehicle upstream emissions, see Fact of the Week #737, July 23, 2012.

Electricity is generated from many different sources, with the most prevalent being coal, natural gas, nuclear and hydroelectric. The size of the pie charts on the map below indicates how much electricity is generated within that State and the pie slices show the sources used to generate that electricity. More than half of the electricity is generated by natural gas in seven States – Alaska, California, Connecticut, Delaware, Florida, Louisiana, Massachusetts, Mississippi, Nevada and Rhode Island. In Idaho, Oregon, South Dakota and Washington State, more than half of the electricity is generated by hydroelectric means. Though coal-producing States, such as West Virginia, Kentucky, and Wyoming use mainly coal to produce electricity, more than half of the States (29 States and the District of Columbia) produce less than half of their electricity from coal.

Electricity Generation by Source and State, 2010



Supporting Information

Electricity Generation Sources by State, 2010

State	Source								Total	Total Generation (Thousand Megawatt-hours)
	Coal	Petroleum	Natural Gas	Nuclear	Hydro-electric	Solar/Wind/ Geothermal	Biomass	Other		
AK	9.2%	13.9%	55.5%	0.0%	21.2%	0.2%	0.1%	0.0%	100.0%	6,759,575
AL	41.4%	0.1%	26.0%	24.9%	5.7%	0.0%	1.6%	0.2%	100.0%	152,150,512
AR	46.2%	0.1%	20.4%	0.0%	24.6%	6.0%	2.7%	0.0%	100.0%	61,000,184
AZ	39.1%	0.1%	26.6%	27.9%	5.9%	0.1%	0.2%	0.2%	100.0%	111,750,957
CA	1.0%	0.5%	53.5%	15.8%	16.4%	9.5%	2.9%	0.3%	100.0%	204,125,595
CO	68.1%	0.0%	21.8%	0.0%	3.1%	6.9%	0.1%	-0.1%	100.0%	50,720,793
CT	7.8%	1.2%	50.2%	1.2%	35.2%	0.0%	2.2%	2.2%	100.0%	33,349,623
DC	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	199,858
DE	45.6%	1.0%	50.9%	0.0%	0.0%	0.0%	2.4%	0.0%	100.0%	5,627,645
FL	26.1%	4.0%	56.2%	10.4%	0.1%	0.0%	1.9%	1.2%	100.0%	229,095,935
GA	53.3%	0.5%	17.4%	24.4%	2.4%	0.0%	2.3%	-0.2%	100.0%	137,576,942
HI	14.3%	74.6%	0.2%	0.0%	0.6%	4.3%	2.6%	3.4%	100.0%	10,836,036
IA	71.8%	0.3%	2.3%	7.7%	1.6%	15.9%	0.3%	0.0%	100.0%	57,508,720
ID	0.7%	0.0%	14.0%	0.0%	76.1%	4.3%	4.2%	0.7%	100.0%	12,024,564
IL	46.5%	0.1%	2.9%	47.8%	0.1%	2.2%	0.3%	0.1%	100.0%	201,351,871
IN	89.7%	0.1%	6.9%	0.0%	0.4%	2.3%	0.2%	0.3%	100.0%	125,180,738
KS	67.8%	0.2%	4.8%	19.9%	0.0%	7.1%	0.1%	0.0%	100.0%	47,923,763
KY	92.7%	2.3%	1.9%	0.0%	2.6%	0.0%	0.4%	0.0%	100.0%	98,217,657
LA	23.3%	3.2%	51.4%	18.1%	1.1%	0.0%	2.4%	0.5%	100.0%	102,884,941
MA	19.4%	0.7%	59.8%	13.8%	2.3%	0.1%	2.9%	1.0%	100.0%	42,804,824
MD	54.3%	0.7%	7.1%	32.1%	3.8%	0.0%	1.3%	0.6%	100.0%	43,607,264
ME	0.5%	1.6%	49.2%	0.0%	22.4%	2.9%	21.5%	1.9%	100.0%	17,018,659
MI	58.8%	0.3%	11.2%	26.6%	1.1%	0.3%	2.2%	-0.6%	100.0%	111,551,372
MN	52.3%	0.1%	8.1%	25.1%	1.6%	8.9%	3.4%	0.5%	100.0%	53,670,228
MO	81.3%	0.1%	5.1%	9.7%	1.7%	1.0%	0.1%	1.0%	100.0%	92,312,990
MS	25.0%	0.1%	54.4%	17.7%	0.0%	0.0%	2.8%	0.0%	100.0%	54,487,261
MT	62.4%	1.4%	0.2%	0.0%	31.6%	3.1%	0.3%	0.9%	100.0%	29,791,179
NC	55.9%	0.2%	6.6%	31.7%	3.7%	0.0%	1.6%	0.3%	100.0%	128,678,484
ND	81.9%	0.1%	0.1%	5.9%	0.0%	11.8%	0.0%	0.1%	100.0%	34,739,542
NE	63.8%	0.1%	1.0%	30.2%	3.6%	1.2%	0.2%	0.0%	100.0%	36,630,006
NH	13.9%	0.3%	24.2%	49.2%	6.7%	0.3%	5.2%	0.3%	100.0%	22,195,912

Electricity Generation Sources by State, 2010

State	Source								Total	Total Generation (Thousand Megawatt-hours)
	Coal	Petroleum	Natural Gas	Nuclear	Hydro-electric	Solar/Wind/ Geothermal	Biomass	Other		
NJ	9.8%	0.4%	38.1%	49.9%	0.0%	0.1%	1.2%	0.6%	100.0%	65,682,494
NM	70.7%	0.1%	23.5%	0.0%	0.6%	5.1%	0.0%	0.0%	100.0%	36,251,543
NV	19.9%	0.0%	67.4%	0.0%	6.1%	0.0%	6.5%	0.0%	100.0%	35,146,247
NY	9.9%	1.5%	35.7%	30.6%	18.6%	1.9%	1.6%	0.2%	100.0%	136,961,653
OH	82.1%	1.0%	11.0%	0.3%	5.1%	0.0%	0.5%	0.0%	100.0%	143,598,337
OK	43.6%	0.0%	3.9%	0.0%	5.3%	47.0%	0.5%	-0.2%	100.0%	72,250,733
OR	7.5%	0.0%	28.4%	0.0%	55.4%	7.1%	1.5%	0.1%	100.0%	55,126,999
PA	48.0%	0.2%	14.9%	33.9%	1.0%	0.8%	1.0%	0.1%	100.0%	229,752,307
RI	0.0%	0.2%	98.0%	0.0%	0.0%	0.0%	1.8%	0.0%	100.0%	7,738,719
SC	36.2%	0.2%	10.5%	49.9%	2.3%	0.0%	1.8%	-0.8%	100.0%	104,153,132
SD	32.8%	0.1%	1.3%	0.0%	52.1%	13.6%	0.0%	0.0%	100.0%	10,049,637
TN	53.0%	0.3%	2.8%	33.7%	9.9%	0.0%	1.1%	-0.9%	100.0%	82,348,624
TX	36.5%	0.2%	46.2%	10.0%	0.3%	6.4%	0.4%	0.1%	100.0%	411,695,046
UT	76.0%	0.1%	14.5%	0.0%	1.6%	7.4%	0.1%	0.4%	100.0%	44,837,624
VA	34.9%	1.8%	23.3%	36.4%	2.1%	0.0%	3.0%	-1.5%	100.0%	72,966,456
VT	0.0%	0.1%	0.1%	72.2%	20.3%	0.2%	7.1%	0.0%	100.0%	6,619,991
WA	8.2%	0.0%	10.3%	8.9%	66.0%	4.6%	1.8%	0.1%	100.0%	103,472,730
WI	62.5%	1.1%	8.5%	20.7%	3.3%	1.7%	2.2%	0.1%	100.0%	64,314,068
WV	96.7%	0.2%	0.2%	0.0%	1.7%	1.2%	0.0%	0.0%	100.0%	80,788,947
WY	89.3%	0.1%	1.5%	0.0%	2.1%	6.7%	0.0%	0.1%	100.0%	48,119,254
Total	44.8%	0.9%	23.8%	18.5%	7.0%	3.5%	1.4%	0.2%	100.0%	4,127,648,171

Note: The Energy Information Administration collects information from all electric generating facilities in the U.S. with a capacity of 1 or more megawatts.

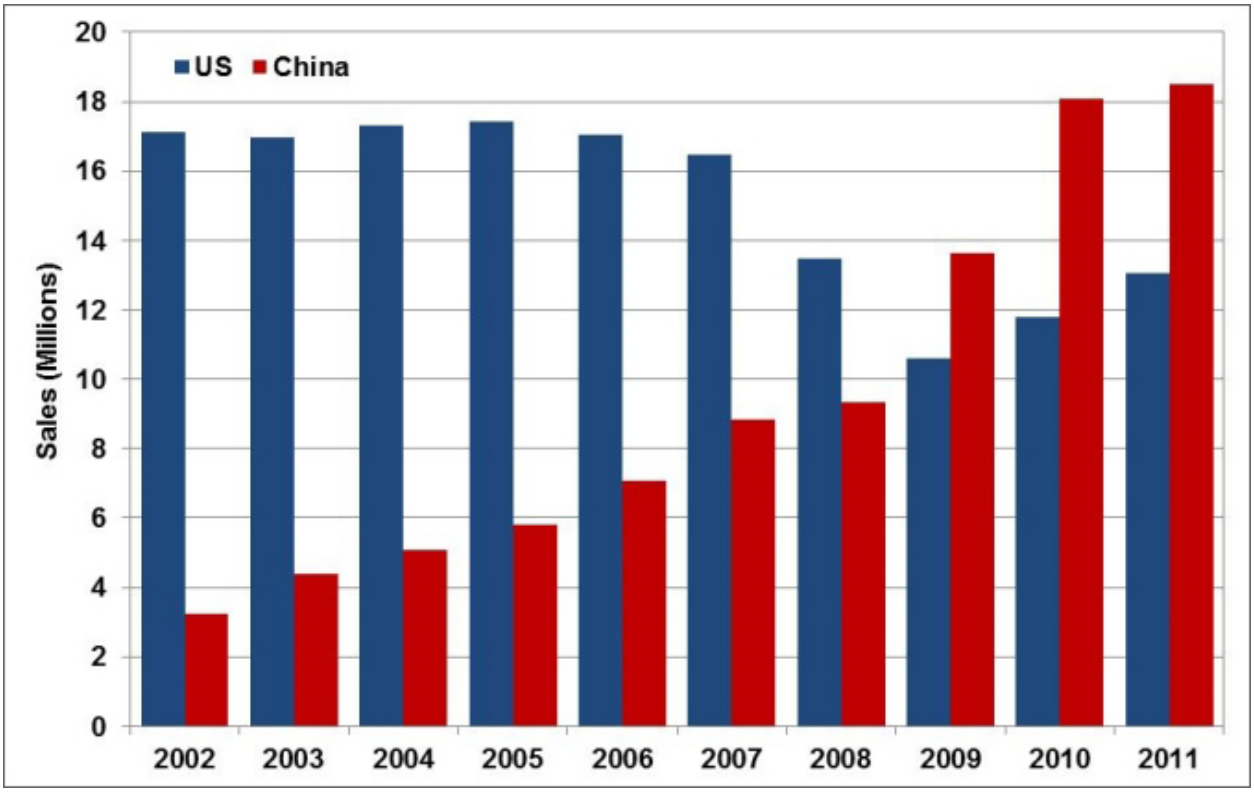
Source: U.S. Department of Energy, Energy Information Administration, Electricity Detailed State Data.

Fact #754: November 19, 2012

Vehicle Sales in the U.S. and China, 2002–2011

In 2002, vehicle sales were about five times higher in the U.S. than in China. Due to a combination of declining sales in the U.S. and rising sales in China, vehicle sales in China exceeded vehicle sales in the U.S. for the first time in 2009. Just one year later, vehicle sales in China were 18.2 million, which topped the U.S. sales record of 17.4 million in 2005.

Vehicle Sales in the U.S. and China, 2002–2011



Note: Vehicle sales include light and heavy vehicles.

Supporting Information

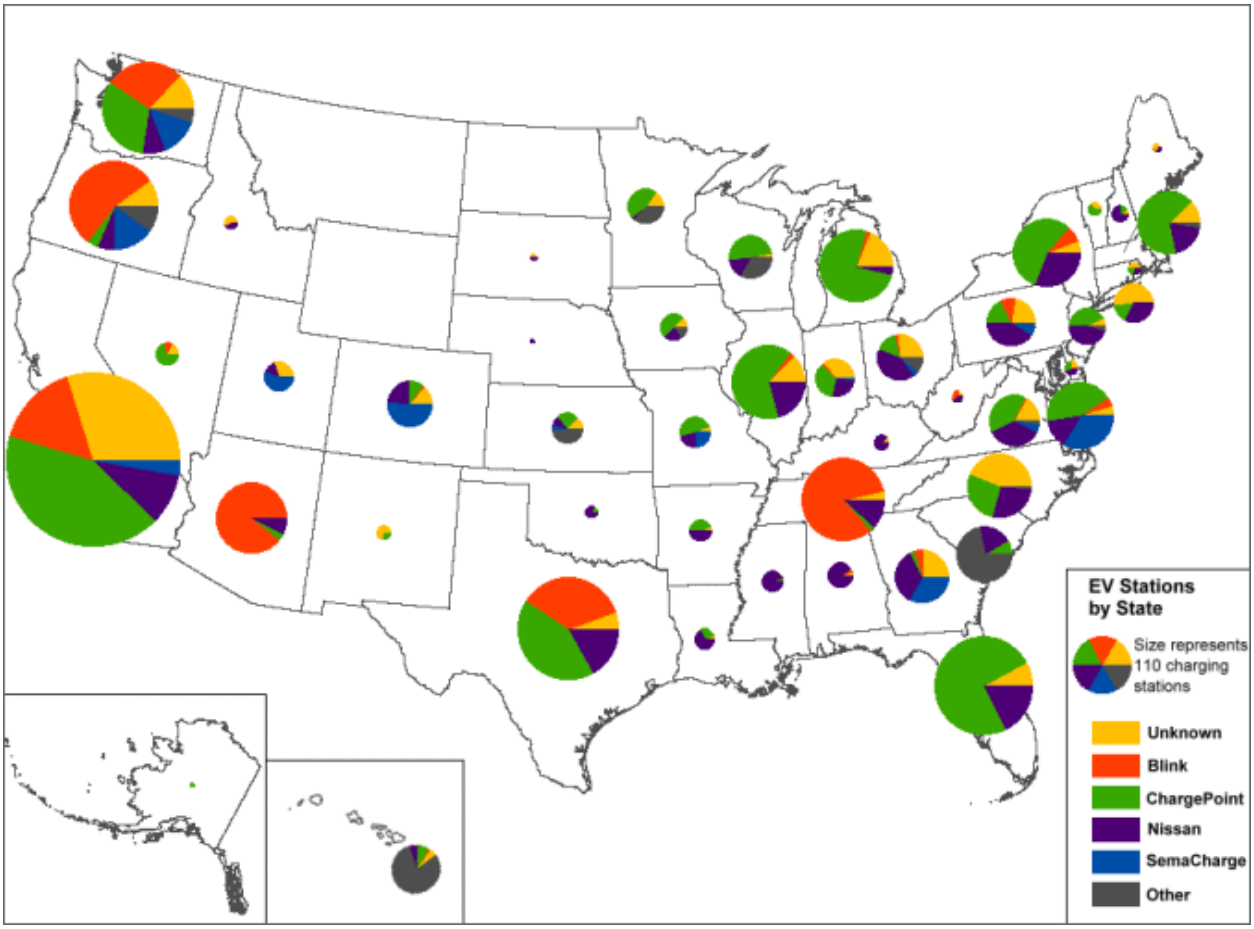
Vehicle Sales in the U.S. and China, 2002-2011 (millions)		
Year	**U.S.**	**China**
2002	17.1	3.2
2003	17.0	4.4
2004	17.3	5.1
2005	17.4	5.8
2006	17.0	7.1
2007	16.5	8.8
2008	13.5	9.3
2009	10.6	13.6
2010	11.8	18.1
2011	13.0	18.5
Source: Ward's Auto Info Bank		

Fact #755: November 26, 2012

Chargepoint, Blink and Nissan Take the Lead in Public Electric Vehicle Chargers

According to the Department of Energy's Alternative Fuels Data Center, there is diversity in the public electric vehicle (EV) charging station network located throughout the nation. As of October 2012, there were over 1,700 Chargepoint EV stations, 900 Blink stations, and nearly 800 Nissan stations. It is important to note that in this database, there are some stations for which the station network is unknown.

Public EV Charging Stations by State and Network Type, October 2012



Supporting Information

Public EV Networks by State, October 2012							
State	**ChargePoint**	**Blink**	**Nissan**	**SemaCharge**	**Other**	**Unknown**	**Total**
AK	1	0	0	0	0	0	1
AL	0	1	20	0	0	1	22
AR	7	0	9	0	0	1	17
AZ	5	150	13	0	1	0	169
CA	429	157	95	29	0	302	1,012
CO	7	1	16	36	0	10	70
CT	8	0	18	0	0	28	54
DC	22	4	0	4	0	4	34
DE	2	0	3	0	0	2	7
FL	236	1	56	1	0	26	320
GA	3	5	33	33	0	24	98
HI	6	1	4	0	64	4	79
IA	13	0	5	0	4	3	25
ID	0	0	3	0	0	4	7
IL	116	4	38	1	0	23	182
IN	18	1	13	1	0	18	51
KS	8	0	3	2	16	4	33
KY	0	0	7	0	0	1	8
LA	4	0	10	0	0	1	15
MA	89	0	25	0	4	16	134
MD	63	7	20	50	0	7	147
ME	0	0	1	0	0	2	3
MI	135	3	7	0	0	34	179
MN	20	0	1	0	17	7	45
MO	16	0	7	8	0	2	33
MS	1	0	15	0	0	0	16
NC	37	0	38	0	2	60	137
NE	0	0	1	0	0	0	1
NH	2	0	8	0	0	1	11

Public EV Networks by State, October 2012

State	ChargePoint	Blink	Nissan	SemaCharge	Other	Unknown	Total
NJ	20	0	22	0	2	4	48
NM	2	0	0	0	0	5	7
NV	12	2	0	0	0	3	17
NY	86	12	47	0	1	9	155
OH	10	2	29	3	8	19	71
OK	1	0	5	0	0	0	6
OR	10	145	15	42	25	25	262
PA	14	8	32	6	1	17	78
RI	1	0	2	0	0	3	6
SC	9	1	20	0	76	0	106
SD	0	0	1	0	0	1	2
TN	4	193	28	0	0	8	233
TX	145	122	59	0	2	19	347
UT	0	0	4	18	0	10	32
VA	34	1	31	5	2	15	88
VT	4	0	0	0	0	2	6
WA	89	79	23	40	14	36	281
WI	32	0	9	0	22	2	65
WV	0	2	2	0	0	1	5
All	1,721	902	798	279	261	764	4,725

Note: Other category includes: AeroVironment, Better Place, OpConnect, Plug In Carolina, RechargeAccess, Schneider, Shorepower, Volta Industries, eVgo Network, Eaton Pow-R Stations, GRIDbot, Kwik Trip, and Legrand EV Charging Station.
Nissan EV stations are made by AeroVironment.

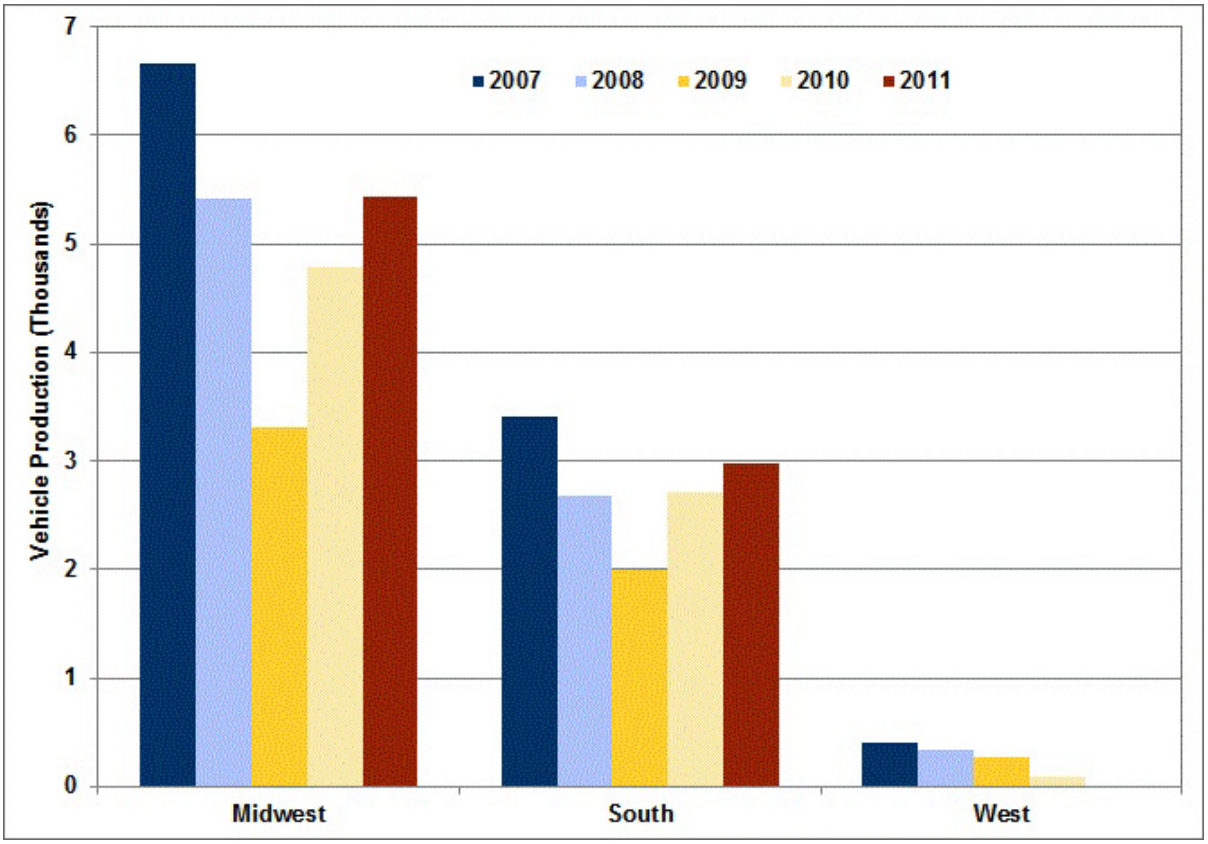
Source: U.S. Department of Energy, Alternative Fuels Data Center, Station Locator, accessed October 2012.

Fact #756: December 3, 2012

Midwest Produces Two-Thirds of All Light Vehicles

Although there are many new vehicle assembly plants located in the South, the Midwest region continues to produce about two-thirds of all light vehicles. The year 2009 was the low point for vehicle production for the Midwest and the South. By 2011, overall production returned to the 2008 level; at that time, the Midwest was 18% below the 2007 production level and the South was 12% lower. The only manufacturing facility in the West was shut down in 2011.

U.S. Light Vehicle Production by Region, 2007–2011



Notes: *Midwest* includes Michigan, Ohio, Indiana, Missouri, Illinois, Kansas, Minnesota, and Wisconsin. *South* includes Alabama, Kentucky, Texas, Tennessee, South Carolina, Georgia, Mississippi, Louisiana, Delaware, and Virginia. *West* includes California only. For 2011, Tesla did not report production information.
No light vehicles are currently manufactured in the Northeast Region.

Supporting Information

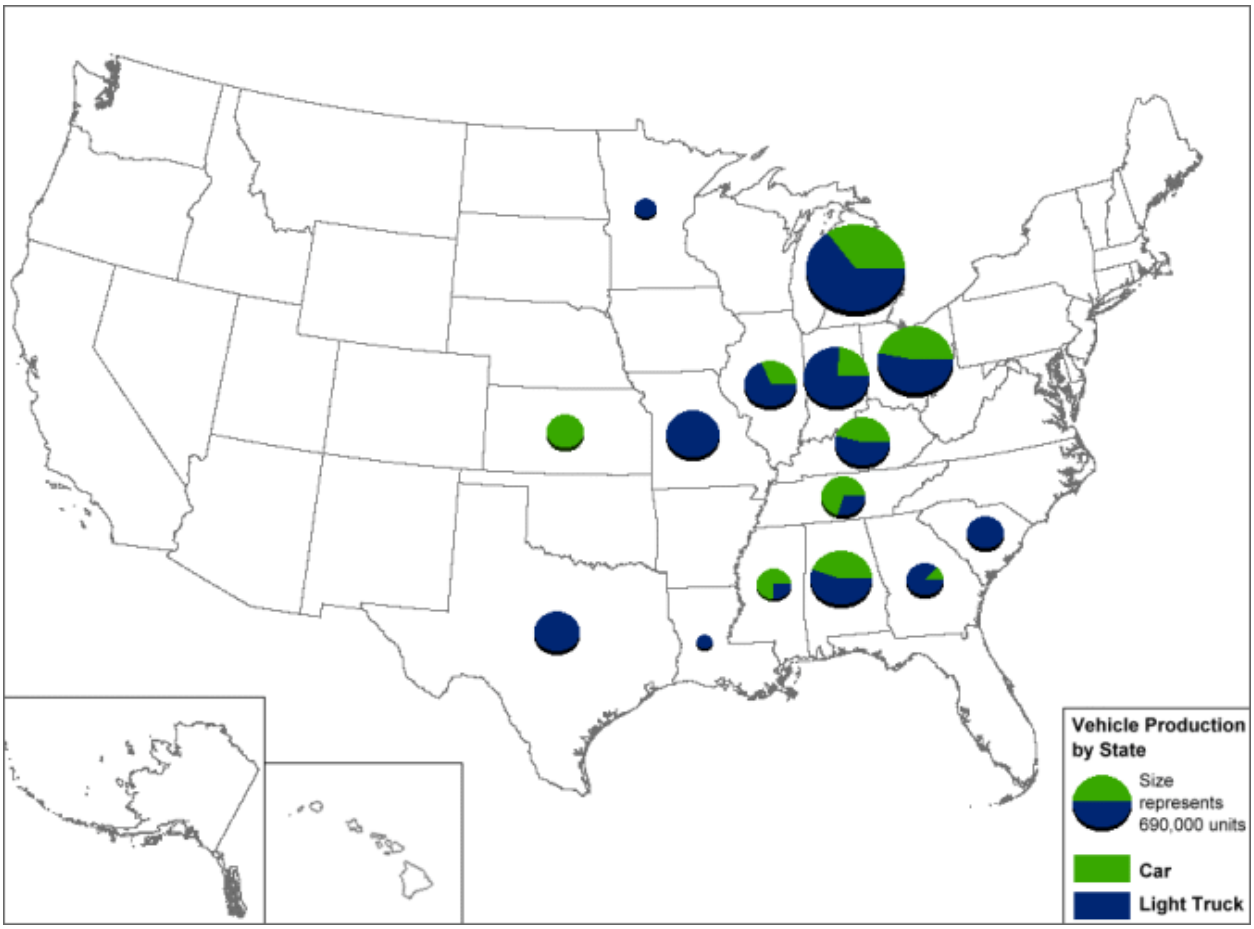
U.S. Light Vehicle Production by Region, 2007-2011 (Thousands of Vehicles)					
Census Region	**2007**	**2008**	**2009**	**2010**	**2011**
Midwest	6.66	5.42	3.31	4.79	5.43
South	3.40	2.68	2.00	2.72	2.98
West	0.41	0.34	0.27	0.09	0.00
Total	**10.47**	**8.45**	**5.58**	**7.60**	**8.41**
Source: Ward's Automotive Group.					

Fact #757: December 10, 2012

The U.S. Manufactures More Light Trucks than Cars

Most of the 16 States that manufacture light vehicles dedicated at least two-thirds of total production to light trucks in 2011. Kansas, Mississippi, and Tennessee are the only States that produced more cars than light trucks. Five States – Missouri, Texas, South Carolina, Minnesota and Louisiana – manufactured light trucks exclusively. Light trucks include pickups, vans, and sport-utility vehicles.

Light Vehicle Production by State and Vehicle Type, 2011



Supporting Information

Light Vehicle Production by State and Vehicle Type, 2011

State	Cars	Light Trucks	Total
Alabama	338,100	408,000	746,100
Georgia	35,100	237,200	272,300
Illinois	168,700	366,600	535,400
Indiana	210,500	670,300	880,800
Kansas	279,100	0	279,100
Kentucky	279,600	325,000	604,600
Louisiana	0	54,200	54,200
Michigan	685,300	1,228,200	1,913,500
Minnesota	0	97,200	97,200
Mississippi	170,400	60,900	231,300
Missouri	0	565,500	565,500
Ohio	547,000	614,500	1,161,500
South Carolina	0	276,100	276,100
Tennessee	262,500	117,200	379,700
Texas	0	417,200	417,200
Total U.S.	**2,976,400**	**5,438,200**	**8,414,500**

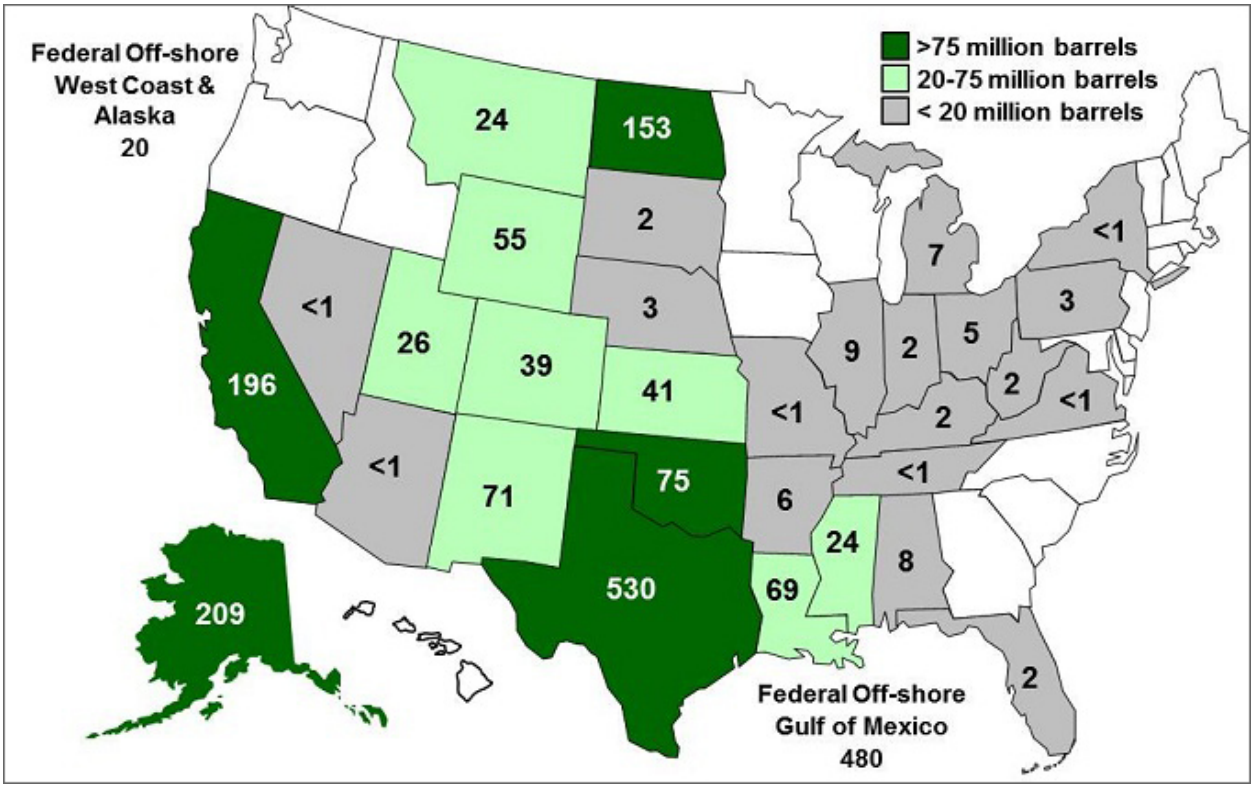
Source: Ward's Automotive Group.

Fact #758: December 17, 2012

U.S. Production of Crude Oil by State, 2011

Texas is by far the State that produces the most crude oil in the U.S., but 30 other States also produced oil in 2011. Alaska, California, North Dakota, and Oklahoma were next in the top five crude oil producing States. Eighteen States generated less than 20 million barrels, but altogether, those 18 States produced nearly 57 million barrels in 2011.

U.S. Production of Crude Oil by State, 2011



Supporting Information

U.S. Production of Crude Oil by State, 2011		
Rank	**State**	**Million barrels**
1	Texas*	530
2	Alaska*	209
3	California*	196
4	North Dakota	153
5	Oklahoma	75
6	New Mexico	71
7	Louisiana*	69
8	Wyoming	55
9	Kansas	41
10	Colorado	39
11	Utah	26
12	Mississippi	24
13	Montana	24
14	Illinois	9
15	Alabama	8
16	Michigan	7
17	Arkansas	6
18	Ohio	5
19	Pennsylvania	3
20	Nebraska	3
21	Kentucky	2
22	West Virginia	2
23	Florida	2
24	Indiana	2
25	South Dakota	2
26	Nevada	<1
27	New York	<1
28	Tennessee	<1

U.S. Production of Crude Oil by State, 2011		
Rank	**State**	**Million barrels**
29	Missouri	<1
30	Arizona	<1
31	Virginia	<1
	Federal Offshore -- Gulf of Mexico	480
	Federal Offshore -- West Coast & Alaska	20
	U.S. Total	1,564

*Includes off-shore production.

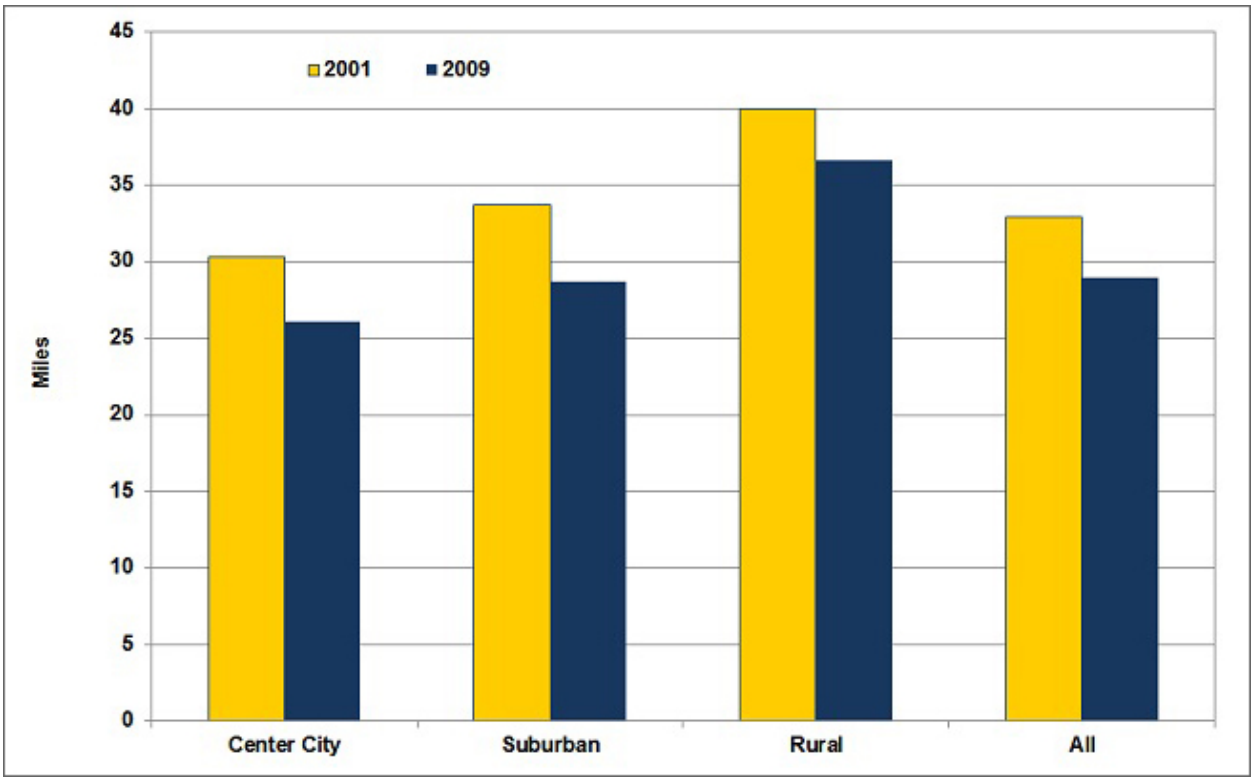
Source: Energy Information Administration, Crude Oil Production Data, September 2012.

Fact #759: December 24, 2012

Rural vs. Urban Driving Differences

According to the National Household Travel Survey, those living in rural areas drive ten more miles in a day than those who live in cities. People living in the suburbs drive only about three to four more miles per day than those within the city. From 2001 to 2009, the total number of daily miles driven decreased by 12%, much of it due to decreases by the city and suburban drivers.

Average Daily Miles Driven (per Driver), 2001 and 2009



Supporting Information

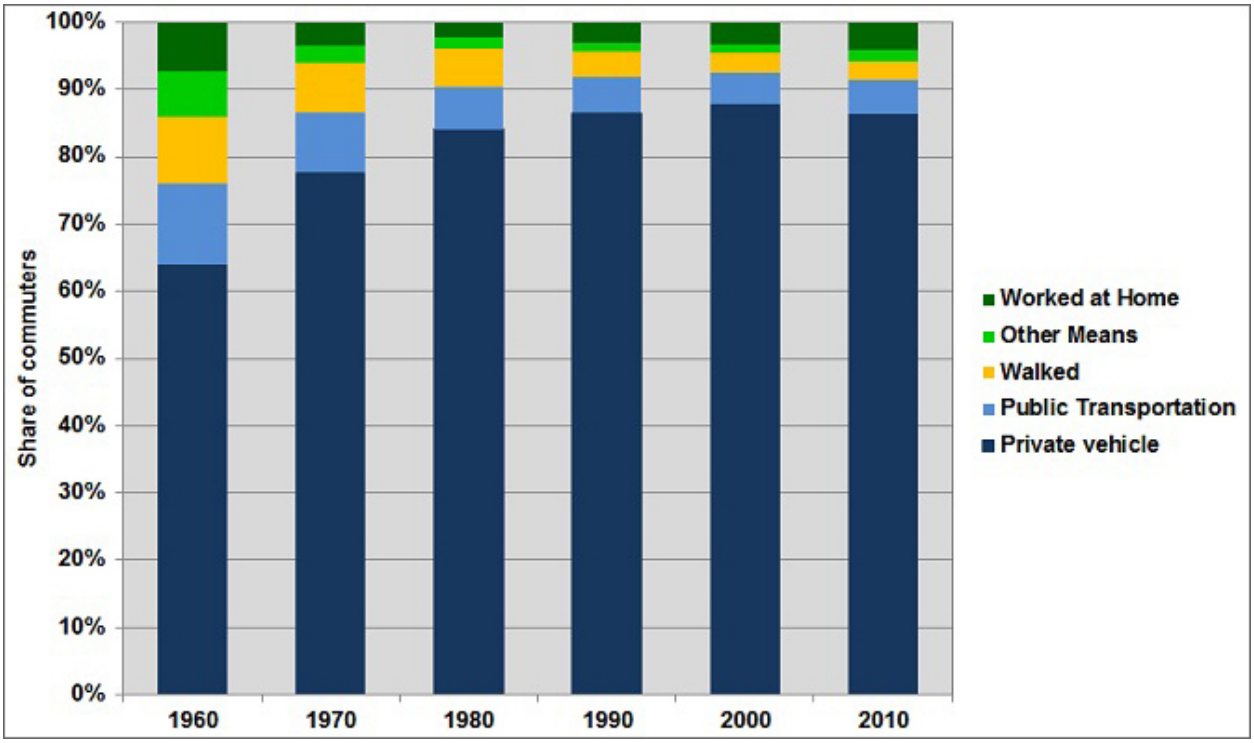
Average Daily Miles Driven (per Driver), 2001 and 2009			
	Miles		
Area	2001	2009	Percent Change 2001 - 2009
Center City	30.3	26.1	-14%
Suburban	33.7	28.7	-15%
Rural	40.0	36.6	-9%
All	**32.9**	**29.0**	**-12%**
Source: National Household Travel Survey			

Fact #760: December 31, 2012

Commuting to Work, 1960–2010

The share of workers who commute to work in private vehicles rose from 64% in 1960 to a high of 87.9% in 2000, but dropped slightly to 86.4% in 2010. The number of people who worked at home continued gaining in share in 2010 to 4.1%. However this number is still less than that reported in 1960.

Share of Commuters by Travel Type, 1960–2010



Supporting Information

Share of Commuters by Travel Type, 1960-2010

Travel Type	1960	1970	1980	1990	2000	2010
Private vehicle	64.0%	77.7%	84.1%	86.5%	87.9%	86.4%
Public Transportation	12.1%	8.9%	6.4%	5.3%	4.7%	5.1%
Walked	9.9%	7.4%	5.6%	3.9%	2.9%	2.8%
Other Means	6.8%	2.5%	1.6%	1.3%	1.2%	1.6%
Worked at Home	7.2%	3.5%	2.3%	3.0%	3.3%	4.1%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Sources:
1980-1990 data – Provided by the Journey-to-Work and Migration Statistics Branch, Population Division, U.S. Bureau of the Census.
2000 data – U.S. Bureau of the Census, Journey to Work: 2000, Tables 1 and 2, 1990-2000, March 2004.
2010 data – U.S. Bureau of the Census, 2010 American Community Survey, Tables B08301 and S0802.
(Additional resources: U.S. Bureau of the Census)