ORNL/TM-2016/224

Vehicle Technologies Fact of the Week 2015

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May 2016

OAK RIDGE NATIONAL LABORATORY
MANAGED BY UT-BATTELLE FOR THE US DEPARTMENT OF ENERGY

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Prepared for the
Vehicle Technologies Office
Office of Energy Efficiency and Renewable Energy
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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 (back to 2009) are archived and still available at: http://energy.gov/eere/vehicles/current-and-past-years-facts-week.

Each Fact of the Week website page includes a link to an Excel file. That file contains the data from the Supporting Information section of the page so that researchers can easily use data from the Fact of the Week in their work.

Beginning in August of 2015, a subscription list is available on the DOE website so that those interested can sign up for an email to be sent each Monday which includes the text and graphic from the current week's Fact.

This report is a compilation of the Facts that were posted during calendar year 2015. The Facts were created, written and prepared by staff in Oak Ridge National Laboratory's Center for Transportation Analysis.

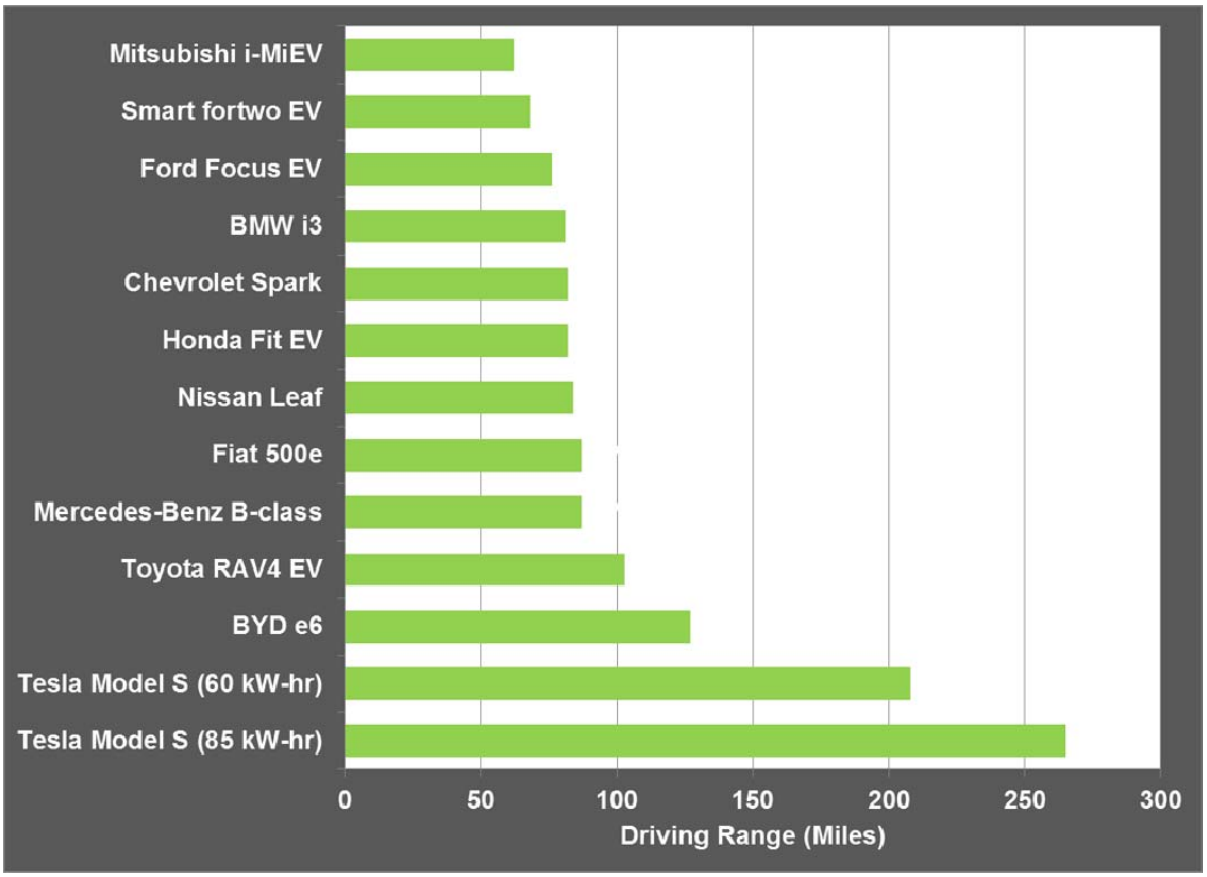
Vehicle Technologies Office

Fact #854: January 5, 2015

Driving Ranges for All-Electric Vehicles in Model Year 2014 Vary from 62 to 265 Miles

Driving ranges for all-electric vehicles vary considerably. Based on the official Environmental Protection Agency (EPA) range values reported on window stickers, the Mitsubishi i-MiEV has the shortest range (62 miles) while the Tesla Model S with an 85 kW-hr battery pack has a range of 265 miles. Of the 13 models offered for 2014, nine had a range of less than 100 miles while four models had ranges of more than 100 miles. Both Tesla models exceed 200 miles of range.

Driving Ranges for Model Year 2014 Electric Vehicle



Supporting Information

Driving Ranges for Model Year 2014 Electric Vehicles

Make and Model	Estimated Driving Range (Miles)
Tesla Model S (85 kW-hr)	265
Tesla Model S (60 kW-hr)	208
BYD e6	127
Toyota RAV4 EV	103
Mercedes-Benz B-class	87
Fiat 500e	87
Nissan Leaf	84
Honda Fit EV	82
Chevrolet Spark	82
BMW i3	81
Ford Focus EV	76
Smart fortwo EV	68
Mitsubishi i-MiEV	62

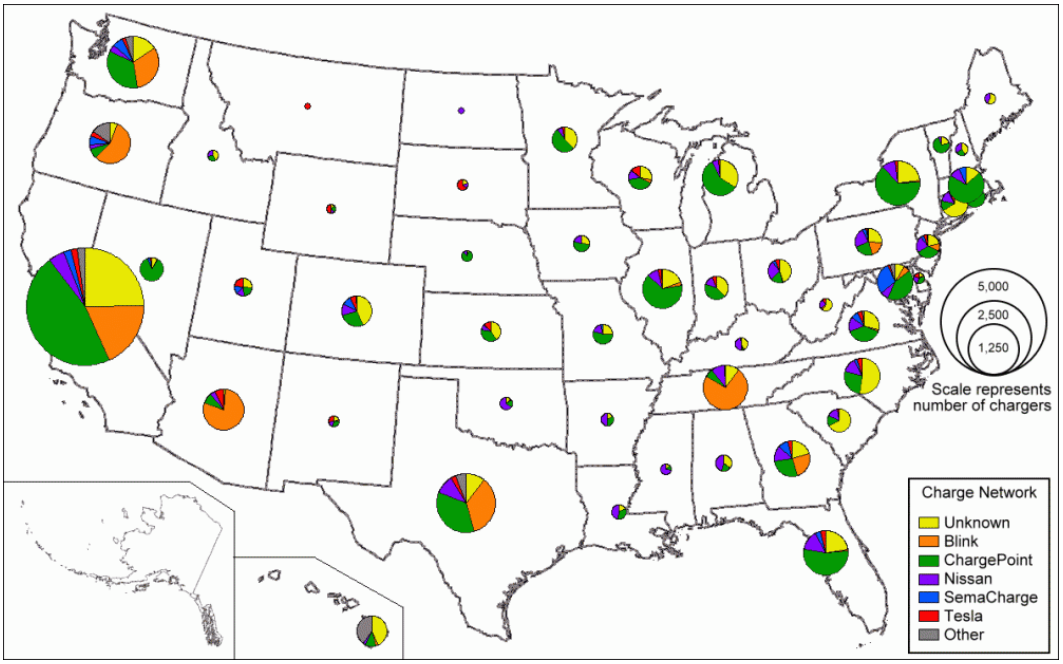
Source:
U. S. Environmental Protection Agency, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2014*, EPA-420-R-14-023, October 2014.

Fact #855: January 12, 2015

Electric Vehicle Chargers by Network and State

The Department of Energy's Alternative Fuels Data Center compiles a database of all electric vehicle (EV) chargers by location and network. As of October 21, 2014 the nationwide total for all level 2 chargers, DC fast chargers, and Superchargers was 21,371. California had by far the most chargers (5,855) although there are a growing number of chargers throughout the United States. Of the charging networks shown, ChargePoint had the most chargers at 39%, followed by Blink with 19%. The Tesla Supercharger network is relatively new with 651 chargers available as of October 21, 2014.

EV Chargers by Network and State (Level 2 chargers, DC fast chargers and Superchargers)



Notes:

- The number of chargers refers to individual charging units not station locations.
- Tesla Superchargers are currently used only by Tesla vehicles.
- Level 1 chargers are not included.

Supporting Information

EV Chargers by Charging Network and State (as of October 21, 2014)

State	Unknown	Blink	ChargePoint	Nissan	SemaCharge	Tesla	Other
AL	29	2	14	39	0	0	0
AR	7	0	12	19	0	0	0
AZ	10	606	61	33	2	52	2
CA	1,444	1,091	2,707	259	129	102	123
CO	172	1	106	50	35	30	3
CT	197	0	35	41	4	20	0
DC	8	8	51	0	20	0	10
DE	3	1	8	6	0	4	0
FL	207	11	505	131	42	34	0
GA	112	135	151	81	48	23	0
HI	185	11	46	13	0	0	169
IA	25	0	46	20	0	0	0
ID	9	0	6	6	0	0	0
IL	133	20	440	69	1	18	4
IN	83	1	91	31	2	12	0
KS	60	1	51	12	2	18	0
KY	23	1	3	26	0	0	1
LA	10	0	20	28	0	0	0
MA	80	0	427	58	42	0	0
MD	47	36	229	40	163	8	26
ME	20	0	0	14	0	0	0
MI	204	3	347	36	0	8	2
MN	103	0	143	17	0	10	0
MO	41	1	89	27	8	0	0
MS	4	0	5	24	0	0	0
MT	0	0	0	0	0	4	0
NC	316	1	161	85	16	28	0
ND	0	0	0	2	0	0	0

NE	2	0	25	4	0	0	0
NH	21	0	13	18	0	0	0
NJ	50	26	80	56	8	14	2
NM	6	1	8	6	0	8	0
NV	19	3	199	0	10	6	0
NY	205	9	565	91	2	14	0
OH	101	3	36	60	10	14	0
OK	5	1	8	26	0	0	0
OR	47	445	61	27	55	31	123
PA	83	61	70	78	12	9	2
RI	17	0	109	6	0	6	0
SC	148	1	31	36	0	6	0
SD	4	0	0	4	0	14	0
TN	89	650	51	89	0	6	0
TX	164	541	540	162	14	31	89
UT	34	0	29	19	18	30	1
VA	125	9	162	68	35	22	8
VT	18	0	63	5	0	0	0
WA	186	373	414	55	74	27	57
WI	61	12	87	28	3	30	0
WV	28	3	0	12	0	4	0
WY	2	0	4	2	0	8	0
Total	4,947	4,068	8,309	2,019	755	651	622

Note: Includes only Level 2 chargers, DC fast chargers and Superchargers. Level 1 chargers are not included.

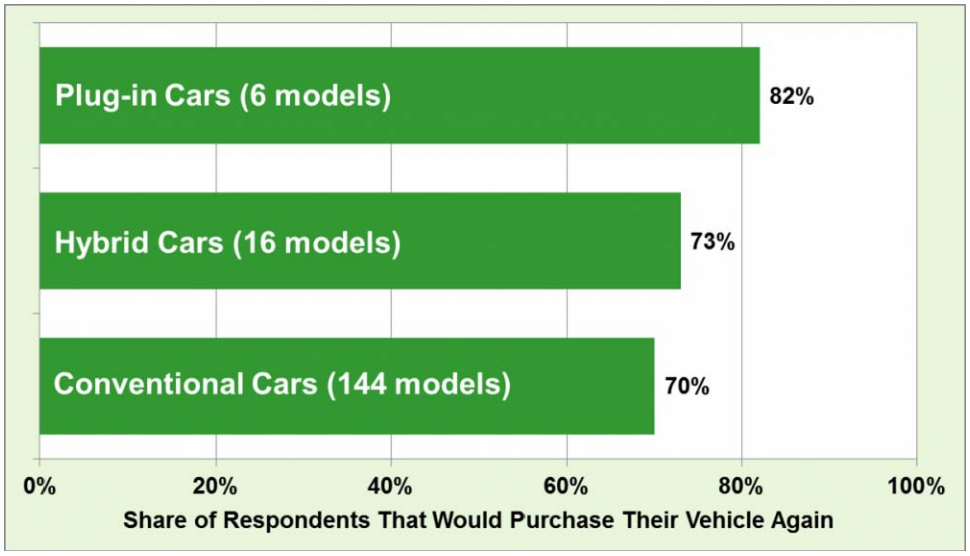
Source:
U.S. Department of Energy, *Alternative Fuels Data Center*. Data are as of October 21, 2014.

Fact #856: January 19, 2015

Plug-In and Hybrid Cars Receive High Scores for Owner Satisfaction

The annual owner-satisfaction survey from Consumer Reports in 2014 covered 350,000 vehicles from one to three years old. They asked subscribers if they would purchase the same vehicle again knowing what they know now. The respondents were asked to consider styling, comfort, features, cargo space, fuel economy, maintenance and repair costs, overall value, and driving dynamics. Comparing plug-in and hybrid cars with conventional cars, hybrids averaged slightly higher scores than conventional cars (for consistency only cars were considered since no hybrid or plug-in light trucks were included in the survey). Plug-in cars including plug-in hybrids and all-electric cars scored 82%, well above conventional cars which averaged 70% responding that they would buy the same car again. The top-rated vehicle on the list was the all-electric Tesla Model S with an owner-satisfaction score of 98%.

Share of Survey Respondents Who WOULD Buy Their Car Again 1-3 Years after Purchase



Note: The survey did not include any hybrid or plug-in electric light trucks. For consistency, the conventional car classification does not include pickups, vans, or sport-utility vehicles.

Supporting Information

Share of Survey Respondents Who WOULD Buy Their Car Again 1-3 Years after Purchase

Vehicle Type	Percent
Plug-in Cars (6 models)	82%
Hybrid Cars (16 models)	73%
Other cars (144 models)	70%

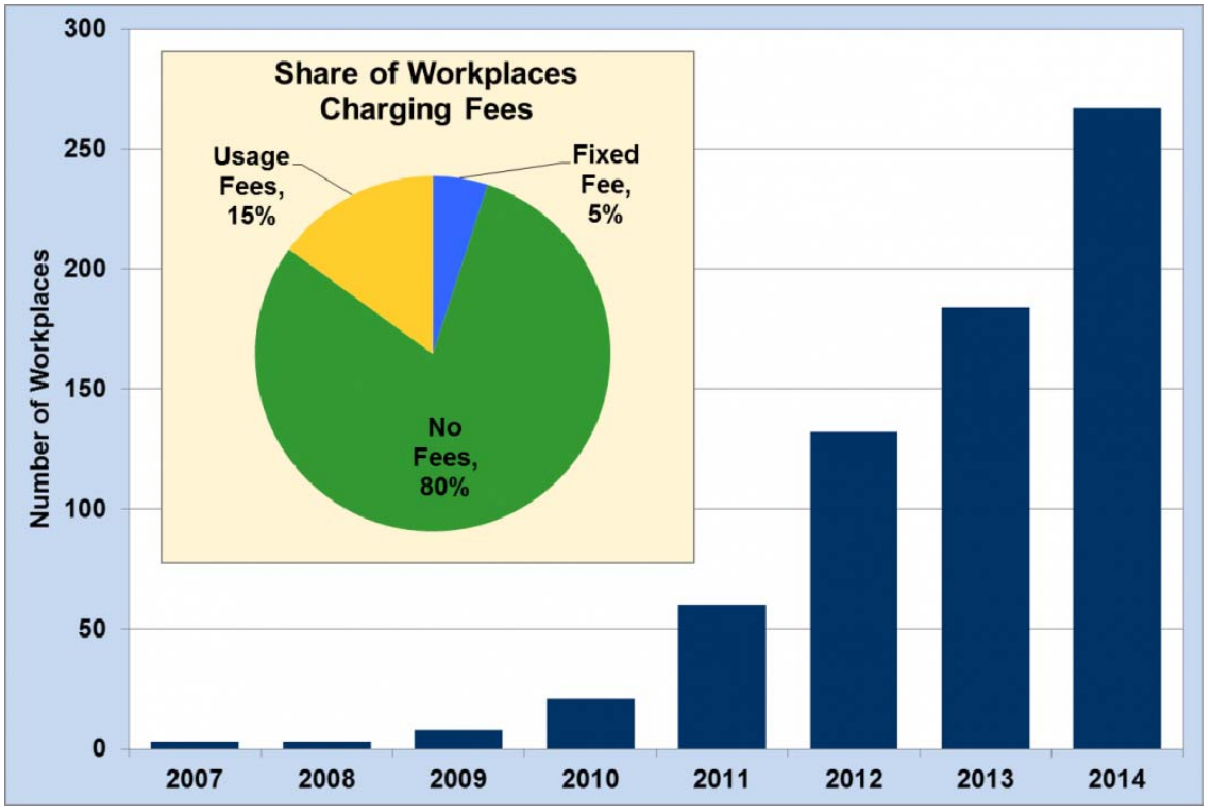
Source:
Consumer Reports, December 2014, website accessed December 3, 2014.

Fact #857: January 26, 2015

Number of Partner Workplaces Offering Electric Vehicle Charging More than Tripled since 2011

The U.S. Department of Energy's Workplace Charging Challenge began in early 2013 and currently has about 150 businesses/universities/organizations that are partners in the Challenge. A survey of these partners in August 2014 showed that the availability of workplace electric vehicle (EV) charging increased to about 275 workplaces in 2014, a 345% growth from 2011. Of those partner companies responding to the survey, 80% provided the EV charging to the employees without any fees, another 15% had fees associated with the amount of charging, and 5% had a fixed fee.

Number of Partner Workplaces with Electric Vehicle Charging Stations, November 2014



Supporting Information

Number of Partner Workplaces with Electric Vehicle Charging Stations and Share of Workplaces Charging Fees, November 2014

Year	Number of Workplaces
2007	3
2008	3
2009	8
2010	21
2011	60
2012	132
2013	184
2014	237
Share of Workplaces Charging Fees	
Fixed Fee	5%
Usage Fees	15%
No Fees	80%

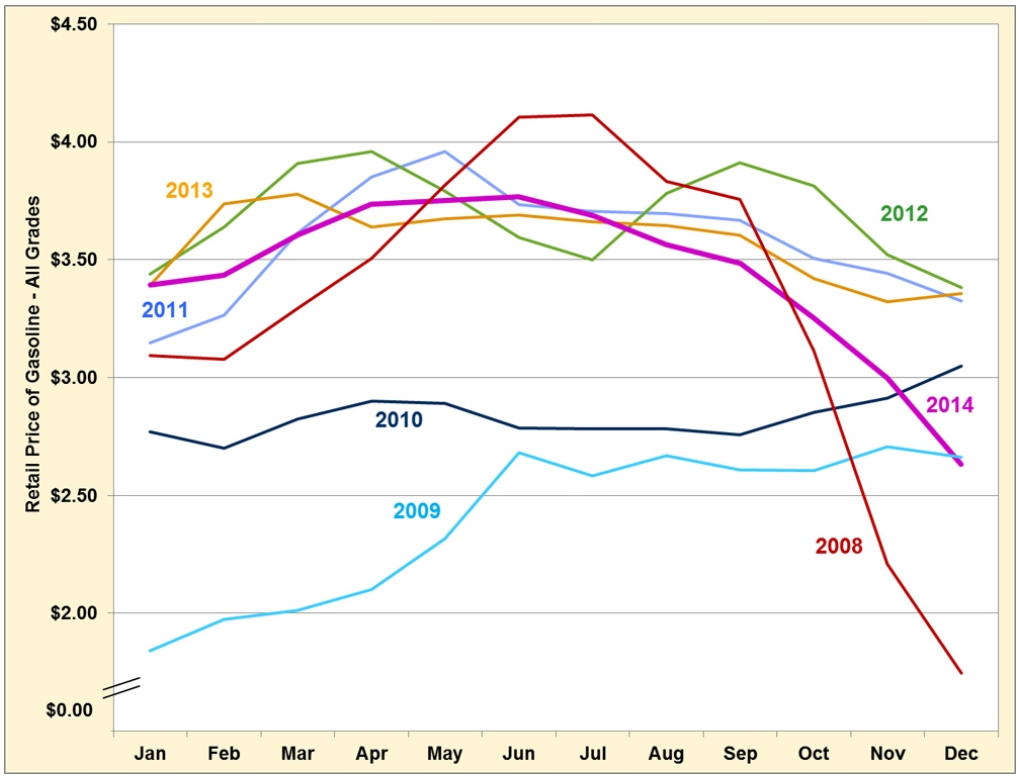
Source:
U.S. Department of Energy's *EV Everywhere: Workplace Charging Challenge Progress Update 2014: Employers Take Charge,* DOE/GO-102014-4561, November 2014. Website accessed December 10, 2014.

Fact #858: February 2, 2015

Retail Gasoline Prices in 2014 Experienced the Largest Decline since 2008

In the second half of 2014, the national average retail price per gallon of gasoline (all grades) fell from a high of $3.77 in June to a low of $2.63 in December – a difference of $1.14 per gallon. This is the largest price drop since the recession of 2008 where a loss of demand led to collapsing fuel prices. The price of gasoline is highly volatile and often varies substantially throughout any given year. The year 2010 is an exception with a modest price variation and gasoline prices remaining under $3.00 per gallon for almost the entire year.

National Average Retail Price of Gasoline (All Grades) by Month, 2008 – 2014 (Dollars per Gallon)



Supporting Information

National Average Retail Price of Gasoline (All Grades) by Month, 2008-2014 (Dollars per Gallon)

Month	Year						
	2008	2009	2010	2011	2012	2013	2014
Jan	3.10	1.84	2.77	3.15	3.44	3.39	3.39
Feb	3.08	1.98	2.70	3.26	3.64	3.74	3.43
Mar	3.29	2.01	2.82	3.62	3.91	3.78	3.61
Apr	3.51	2.10	2.90	3.85	3.96	3.64	3.74
May	3.82	2.32	2.89	3.96	3.79	3.68	3.75
Jun	4.11	2.68	2.79	3.74	3.60	3.69	3.77
Jul	4.11	2.58	2.78	3.71	3.50	3.66	3.69
Aug	3.83	2.67	2.78	3.70	3.78	3.65	3.57
Sep	3.76	2.61	2.76	3.67	3.91	3.60	3.48
Oct	3.11	2.61	2.85	3.51	3.81	3.42	3.26
Nov	2.21	2.71	2.91	3.44	3.52	3.32	3.00
Dec	1.75	2.66	3.05	3.33	3.38	3.36	2.63

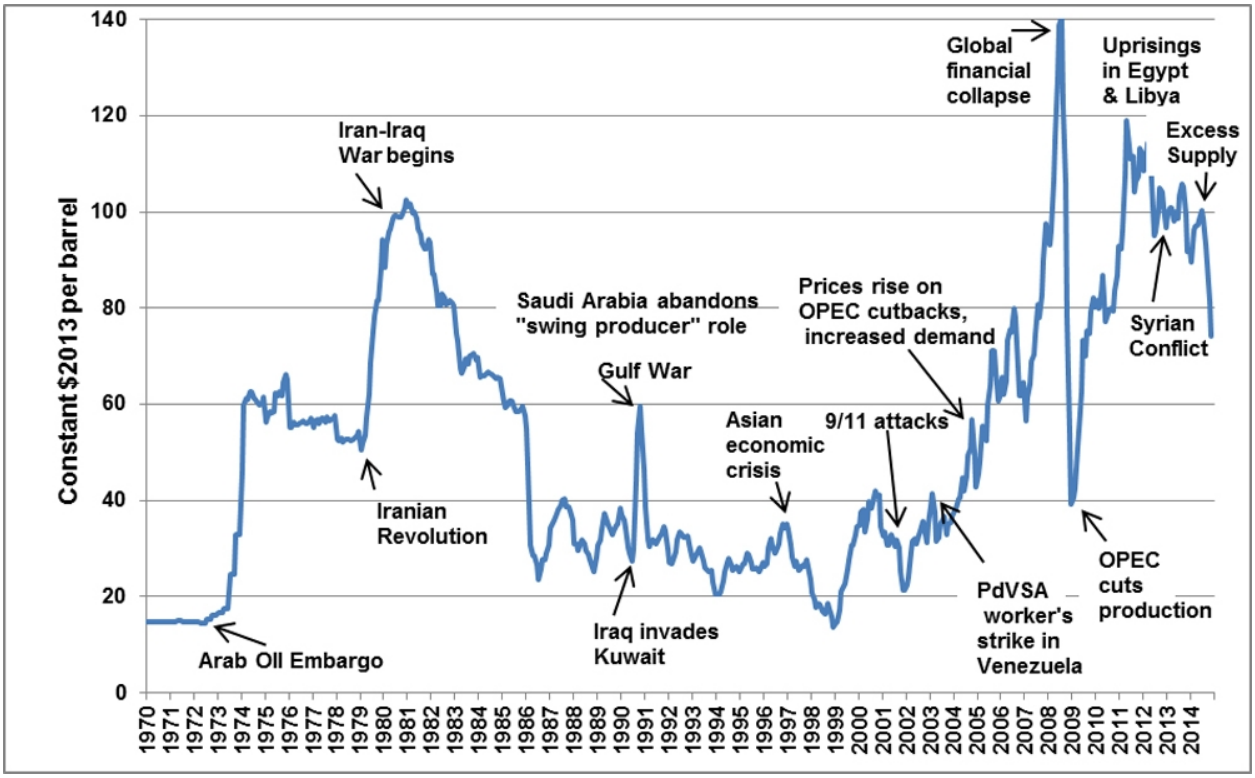
Source:
Energy Information Administration, *U.S. All Grades All Formulations Retail Gasoline Prices (Dollars per Gallon)*, accessed 01/22/2015.

Fact #859: February 9, 2015

Excess Supply Is the Most Recent Event to Affect Crude Oil Prices

Crude oil prices have been extremely volatile over the past few decades. World events can disrupt the flow of oil to the market or cause uncertainty about future supply or demand for oil, leading to volatility in prices. Supply disruption caused by political events, such as the Arab Oil Embargo of 1973-74, the Iranian revolution in the late 1970's, and the Persian Gulf War in 1990, were accompanied by major oil price shocks. An excess of supply in 2014 caused the most recent decline in crude oil prices.

World Crude Oil Price and Associated Events, 1970-2014



Note: Refiner acquisition cost of imported crude oil.

Supporting Information

Refiner Acquisition Cost of Imported Crude Oil by Month, 1970-2014

Month-Year	Constant 2013 Dollars per Barrel	Month-Year	Constant 2013 Dollars per Barrel	Month-Year	Constant 2013 Dollars per Barrel
Jan-70	14.65	Jan-85	60.48	Jan-00	34.77
Feb-70	14.65	Feb-85	59.38	Feb-00	37.66
Mar-70	14.65	Mar-85	59.84	Mar-00	38.08
Apr-70	14.65	Apr-85	60.70	Apr-00	33.39
May-70	14.65	May-85	60.72	May-00	36.23
Jun-70	14.65	Jun-85	59.95	Jun-00	39.74
Jul-70	14.78	Jul-85	58.46	Jul-00	38.49
Aug-70	14.78	Aug-85	58.55	Aug-00	39.59
Sep-70	14.78	Sep-85	58.44	Sep-00	42.01
Oct-70	14.85	Oct-85	58.94	Oct-00	40.84
Nov-70	14.85	Nov-85	59.67	Nov-00	41.24
Dec-70	14.85	Dec-85	57.67	Dec-00	34.63
Jan-71	14.88	Jan-86	54.85	Jan-01	32.74
Feb-71	14.88	Feb-86	39.12	Feb-01	33.38
Mar-71	14.88	Mar-86	30.72	Mar-01	30.76
Apr-71	14.93	Apr-86	28.40	Apr-01	30.73
May-71	14.93	May-86	28.45	May-01	32.92
Jun-71	14.93	Jun-86	26.46	Jun-01	32.01
Jul-71	14.87	Jul-86	23.57	Jul-01	30.42
Aug-71	14.87	Aug-86	25.64	Aug-01	31.77
Sep-71	14.87	Sep-86	27.76	Sep-01	30.09
Oct-71	14.81	Oct-86	27.60	Oct-01	25.08
Nov-71	14.81	Nov-86	29.07	Nov-01	21.47
Dec-71	14.81	Dec-86	30.61	Dec-01	21.32
Jan-72	14.65	Jan-87	34.28	Jan-02	22.42
Feb-72	14.65	Feb-87	35.39	Feb-02	24.00
Mar-72	14.65	Mar-87	35.97	Mar-02	29.33

Apr-72	14.61	Apr-87	37.28	Apr-02	31.56
May-72	14.61	May-87	38.03	May-02	32.16
Jun-72	14.61	Jun-87	38.99	Jun-02	30.86
Jul-72	15.28	Jul-87	40.14	Jul-02	32.89
Aug-72	15.28	Aug-87	40.26	Aug-02	33.79
Sep-72	15.28	Sep-87	38.70	Sep-02	35.71
Oct-72	16.05	Oct-87	38.62	Oct-02	34.20
Nov-72	16.05	Nov-87	37.80	Nov-02	31.16
Dec-72	16.05	Dec-87	35.84	Dec-02	35.11
Jan-73	16.81	Jan-88	30.92	Jan-03	38.98
Feb-73	16.81	Feb-88	30.88	Feb-03	41.47
Mar-73	16.81	Mar-88	29.48	Mar-03	37.61
Apr-73	17.46	Apr-88	31.26	Apr-03	31.50
May-73	17.46	May-88	31.88	May-03	32.36
Jun-73	17.46	Jun-88	31.02	Jun-03	35.02
Jul-73	24.64	Jul-88	29.64	Jul-03	35.96
Aug-73	24.64	Aug-88	28.66	Aug-03	36.67
Sep-73	24.64	Sep-88	27.70	Sep-03	33.01
Oct-73	33.00	Oct-88	26.12	Oct-03	35.15
Nov-73	33.00	Nov-88	25.33	Nov-03	35.34
Dec-73	33.00	Dec-88	28.24	Dec-03	36.84
Jan-74	46.05	Jan-89	30.62	Jan-04	37.73
Feb-74	59.78	Feb-89	31.71	Feb-04	38.46
Mar-74	61.13	Mar-89	33.93	Mar-04	40.30
Apr-74	61.08	Apr-89	37.40	Apr-04	40.53
May-74	62.52	May-89	36.37	May-04	44.72
Jun-74	62.71	Jun-89	34.88	Jun-04	41.92
Jul-74	61.22	Jul-89	34.35	Jul-04	44.98
Aug-74	60.89	Aug-89	32.89	Aug-04	49.45
Sep-74	60.17	Sep-89	33.64	Sep-04	50.66
Oct-74	59.74	Oct-89	34.92	Oct-04	56.85
Nov-74	60.17	Nov-89	34.98	Nov-04	49.99

Dec-74	61.56	Dec-89	38.28	Dec-04	42.70
Jan-75	56.19	Jan-90	37.15	Jan-05	45.53
Feb-75	57.42	Feb-90	35.83	Feb-05	48.15
Mar-75	58.44	Mar-90	34.31	Mar-05	55.43
Apr-75	58.35	Apr-90	30.18	Apr-05	54.85
May-75	58.39	May-90	29.11	May-05	52.35
Jun-75	62.26	Jun-90	27.44	Jun-05	59.74
Jul-75	61.74	Jul-90	29.96	Jul-05	63.99
Aug-75	62.70	Aug-90	43.94	Aug-05	71.12
Sep-75	61.78	Sep-90	54.12	Sep-05	71.26
Oct-75	64.51	Oct-90	59.56	Oct-05	67.04
Nov-75	66.18	Nov-90	54.68	Nov-05	60.57
Dec-75	65.17	Dec-90	46.30	Dec-05	61.64
Jan-76	55.21	Jan-91	38.76	Jan-06	65.58
Feb-76	55.17	Feb-91	31.81	Feb-06	62.00
Mar-76	56.21	Mar-91	30.56	Mar-06	64.95
Apr-76	55.71	Apr-91	31.84	Apr-06	73.29
May-76	55.79	May-91	31.91	May-06	75.61
Jun-76	56.08	Jun-91	30.90	Jun-06	74.91
Jul-76	56.21	Jul-91	31.53	Jul-06	79.84
Aug-76	56.50	Aug-91	32.52	Aug-06	78.03
Sep-76	56.04	Sep-91	33.02	Sep-06	67.27
Oct-76	56.13	Oct-91	34.52	Oct-06	61.88
Nov-76	56.50	Nov-91	33.63	Nov-06	61.88
Dec-76	57.04	Dec-91	29.84	Dec-06	64.55
Jan-77	55.12	Jan-92	27.17	Jan-07	56.60
Feb-77	56.64	Feb-92	27.00	Feb-07	61.39
Mar-77	56.80	Mar-92	27.61	Mar-07	64.29
Apr-77	56.10	Apr-92	29.31	Apr-07	69.02
May-77	57.11	May-92	31.71	May-07	70.28
Jun-77	57.15	Jun-92	33.46	Jun-07	74.49
Jul-77	56.41	Jul-92	33.31	Jul-07	80.78

Aug-77	57.35	Aug-92	32.48	Aug-07	77.96
Sep-77	56.64	Sep-92	32.50	Sep-07	82.60
Oct-77	56.88	Oct-92	32.63	Oct-07	89.75
Nov-77	57.07	Nov-92	31.05	Nov-07	97.66
Dec-77	57.66	Dec-92	28.58	Dec-07	95.01
Jan-78	52.72	Jan-93	27.52	Jan-08	93.26
Feb-78	52.32	Feb-93	28.52	Feb-08	96.11
Mar-78	52.90	Mar-93	29.19	Mar-08	106.61
Apr-78	52.29	Apr-93	30.06	Apr-08	115.14
May-78	52.68	May-93	29.31	May-08	128.15
Jun-78	52.79	Jun-93	27.52	Jun-08	138.78
Jul-78	52.61	Jul-93	25.90	Jul-08	140.49
Aug-78	52.50	Aug-93	25.62	Aug-08	122.26
Sep-78	52.76	Sep-93	25.10	Sep-08	105.97
Oct-78	53.12	Oct-93	25.54	Oct-08	77.89
Nov-78	53.52	Nov-93	23.02	Nov-08	53.99
Dec-78	54.25	Dec-93	20.58	Dec-08	39.13
Jan-79	50.54	Jan-94	20.65	Jan-09	40.65
Feb-79	51.78	Feb-94	20.61	Feb-09	42.55
Mar-79	53.51	Mar-94	21.05	Mar-09	50.72
Apr-79	57.33	Apr-94	23.23	Apr-09	54.71
May-79	61.96	May-94	25.14	May-09	62.64
Jun-79	68.58	Jun-94	27.22	Jun-09	73.24
Jul-79	75.29	Jul-94	27.99	Jul-09	70.03
Aug-79	78.19	Aug-94	26.61	Aug-09	75.14
Sep-79	81.72	Sep-94	25.41	Sep-09	74.65
Oct-79	81.68	Oct-94	25.99	Oct-09	79.52
Nov-79	88.11	Nov-94	26.29	Nov-09	82.10
Dec-79	94.27	Dec-94	25.21	Dec-09	80.19
Jan-80	88.35	Jan-95	25.72	Jan-10	81.50
Feb-80	93.09	Feb-95	26.73	Feb-10	80.05
Mar-80	96.02	Mar-95	26.73	Mar-10	83.35

Apr-80	96.36	Apr-95	29.05	Apr-10	86.89
May-80	98.63	May-95	28.83	May-10	77.25
Jun-80	99.06	Jun-95	27.08	Jun-10	78.07
Jul-80	99.15	Jul-95	25.63	Jul-10	79.55
Aug-80	98.95	Aug-95	25.69	Aug-10	79.82
Sep-80	99.00	Sep-95	25.96	Sep-10	79.42
Oct-80	99.49	Oct-95	25.30	Oct-10	83.49
Nov-80	100.81	Nov-95	25.66	Nov-10	86.77
Dec-80	102.37	Dec-95	27.23	Dec-10	92.92
Jan-81	101.18	Jan-96	26.37	Jan-11	92.20
Feb-81	101.57	Feb-96	26.81	Feb-11	96.21
Mar-81	99.77	Mar-96	30.03	Mar-11	107.80
Apr-81	100.03	Apr-96	32.18	Apr-11	118.95
May-81	98.55	May-96	30.36	May-11	113.64
Jun-81	96.44	Jun-96	29.15	Jun-11	110.91
Jul-81	95.27	Jul-96	29.57	Jul-11	111.50
Aug-81	93.29	Aug-96	30.98	Aug-11	104.19
Sep-81	92.30	Sep-96	33.25	Sep-11	106.35
Oct-81	92.27	Oct-96	35.04	Oct-11	107.34
Nov-81	94.30	Nov-96	34.19	Nov-11	113.32
Dec-81	93.63	Dec-96	35.04	Dec-11	112.11
Jan-82	87.19	Jan-97	33.95	Jan-12	108.52
Feb-82	87.04	Feb-97	30.80	Feb-12	111.44
Mar-82	83.58	Mar-97	28.26	Mar-12	114.45
Apr-82	80.51	Apr-97	26.30	Apr-12	111.92
May-82	80.42	May-97	27.36	May-12	106.47
Jun-82	82.89	Jun-97	25.59	Jun-12	95.05
Jul-82	82.04	Jul-97	25.80	Jul-12	95.88
Aug-82	80.83	Aug-97	26.49	Aug-12	100.06
Sep-82	81.03	Sep-97	26.33	Sep-12	104.99
Oct-82	81.64	Oct-97	27.63	Oct-12	104.06
Nov-82	81.18	Nov-97	26.37	Nov-12	101.12

Dec-82	80.59	Dec-97	23.53	Dec-12	96.61
Jan-83	74.63	Jan-98	20.81	Jan-13	99.50
Feb-83	73.11	Feb-98	19.35	Feb-13	100.84
Mar-83	67.57	Mar-98	17.92	Mar-13	100.72
Apr-83	66.43	Apr-98	18.60	Apr-13	98.01
May-83	67.81	May-98	18.31	May-13	100.10
Jun-83	69.48	Jun-98	16.86	Jun-13	98.75
Jul-83	68.36	Jul-98	16.77	Jul-13	103.21
Aug-83	70.12	Aug-98	16.47	Aug-13	105.85
Sep-83	70.21	Sep-98	18.55	Sep-13	105.17
Oct-83	70.52	Oct-98	17.59	Oct-13	99.43
Nov-83	69.14	Nov-98	15.96	Nov-13	91.83
Dec-83	69.64	Dec-98	13.64	Dec-13	92.04
Jan-84	65.62	Jan-99	14.44	Jan-14	89.63
Feb-84	65.87	Feb-99	14.68	Feb-14	96.04
Mar-84	65.96	Mar-99	17.19	Mar-14	97.04
Apr-84	66.33	Apr-99	21.06	Apr-14	97.30
May-84	66.67	May-99	22.12	May-14	98.44
Jun-84	66.51	Jun-99	22.61	Jun-14	100.17
Jul-84	66.08	Jul-99	25.65	Jul-14	98.66
Aug-84	65.89	Aug-99	27.79	Aug-14	93.24
Sep-84	65.39	Sep-99	30.75	Sep-14	89.39
Oct-84	65.60	Oct-99	30.72	Oct-14	81.27
Nov-84	65.48	Nov-99	32.88	Nov-14	74.29
Dec-84	63.84	Dec-99	34.60		

Sources:

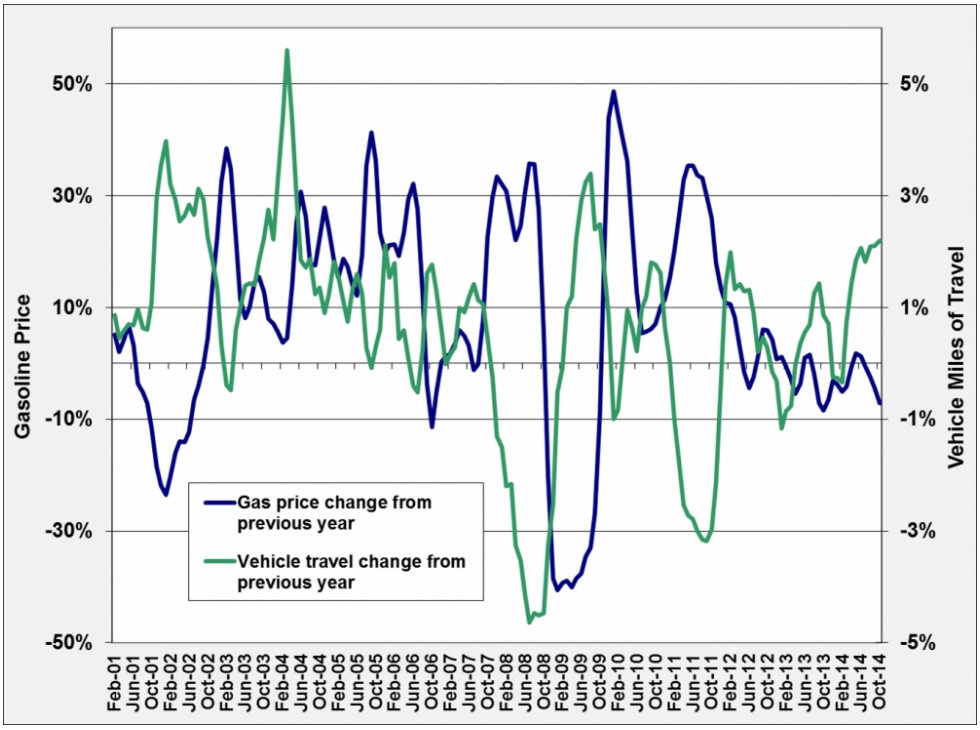
Energy Information Administration, "*What Drives Crude Oil Prices*?" January 2015.
Pew Center on Global Climate Change, *Reducing Greenhouse Gas Emissions from U.S. Transportation*, January 2011.

Fact #860: February 16, 2015

Relationship of Vehicle Miles of Travel and the Price of Gasoline

The prices of gasoline and diesel fuel affect the transportation sector in many ways. For example, fuel prices can impact the number of miles driven and affect the choices consumers make when purchasing vehicles. The graph below shows a three-month moving average of the percentage change of monthly data from one year to the next (i.e., February 2001 data were compared with February 2000 data). The change in vehicle travel often mirrors the change in the price of gasoline – when the price of gasoline rises, the vehicle travel declines and when the price of gasoline declines, the vehicle travel rises. Still, the price of gasoline is just one of the many factors influencing vehicle travel. At the beginning of 2014, the vehicle miles of travel increased even as gasoline prices were increasing.

Relationship of Vehicle Miles of Travel and the Price of Gasoline, 2001-2014



Supporting Information

Percent Change from Previous Year's Monthly Total and Average

	3-month moving average	
Month-Year	Gas price change from previous year	Vehicle travel change from previous year
Feb-01	5.1%	0.9%
Mar-01	2.1%	0.4%
Apr-01	4.4%	0.6%
May-01	6.9%	0.7%
Jun-01	3.3%	0.7%
Jul-01	-3.7%	1.0%
Aug-01	-5.2%	0.6%
Sep-01	-7.1%	0.6%
Oct-01	-11.5%	1.1%
Nov-01	-18.5%	3.0%
Dec-01	-21.8%	3.5%
Jan-02	-23.5%	4.0%
Feb-02	-20.2%	3.2%
Mar-02	-16.0%	2.9%
Apr-02	-14.0%	2.5%
May-02	-14.1%	2.6%
Jun-02	-12.3%	2.8%
Jul-02	-6.5%	2.7%
Aug-02	-4.0%	3.1%
Sep-02	-0.3%	2.9%
Oct-02	4.6%	2.2%
Nov-02	14.8%	1.8%
Dec-02	22.4%	1.4%
Jan-03	32.6%	0.3%
Feb-03	38.5%	-0.4%
Mar-03	34.7%	-0.5%

Apr-03	22.4%	0.6%
May-03	11.4%	1.0%
Jun-03	8.1%	1.4%
Jul-03	10.1%	1.4%
Aug-03	14.6%	1.4%
Sep-03	15.5%	1.8%
Oct-03	12.7%	2.2%
Nov-03	7.9%	2.7%
Dec-03	7.1%	2.2%
Jan-04	5.7%	3.3%
Feb-04	3.7%	4.4%
Mar-04	4.5%	5.6%
Apr-04	13.9%	4.4%
May-04	25.2%	3.0%
Jun-04	30.8%	1.8%
Jul-04	26.2%	1.7%
Aug-04	17.7%	1.9%
Sep-04	17.5%	1.2%
Oct-04	22.3%	1.4%
Nov-04	27.8%	0.9%
Dec-04	23.8%	1.2%
Jan-05	18.4%	1.8%
Feb-05	15.4%	1.6%
Mar-05	18.7%	1.1%
Apr-05	17.3%	0.7%
May-05	13.8%	1.3%
Jun-05	12.1%	1.6%
Jul-05	19.4%	1.3%
Aug-05	35.4%	0.3%
Sep-05	41.4%	-0.1%
Oct-05	36.2%	0.3%
Nov-05	23.3%	0.6%
Dec-05	19.9%	2.1%

Jan-06	21.2%	1.5%
Feb-06	21.2%	1.8%
Mar-06	19.2%	0.4%
Apr-06	23.3%	0.6%
May-06	29.3%	0.1%
Jun-06	32.2%	-0.4%
Jul-06	27.6%	-0.5%
Aug-06	12.4%	0.2%
Sep-06	-3.6%	1.6%
Oct-06	-11.4%	1.8%
Nov-06	-5.3%	1.3%
Dec-06	0.2%	0.6%
Jan-07	1.3%	0.0%
Feb-07	1.7%	0.1%
Mar-07	3.5%	0.3%
Apr-07	6.0%	1.0%
May-07	4.9%	0.9%
Jun-07	3.2%	1.2%
Jul-07	-1.1%	1.4%
Aug-07	-0.1%	1.1%
Sep-07	8.0%	1.1%
Oct-07	22.5%	0.5%
Nov-07	29.8%	-0.3%
Dec-07	33.4%	-1.3%
Jan-08	32.0%	-1.5%
Feb-08	30.8%	-2.2%
Mar-08	26.2%	-2.2%
Apr-08	22.1%	-3.3%
May-08	24.6%	-3.5%
Jun-08	30.5%	-4.1%
Jul-08	35.8%	-4.6%
Aug-08	35.6%	-4.5%
Sep-08	27.4%	-4.5%

Oct-08	5.4%	-4.5%
Nov-08	-20.1%	-3.3%
Dec-08	-38.4%	-2.5%
Jan-09	-40.6%	-0.5%
Feb-09	-39.3%	-0.1%
Mar-09	-39.0%	1.0%
Apr-09	-40.1%	1.2%
May-09	-38.5%	2.2%
Jun-09	-37.6%	2.9%
Jul-09	-34.6%	3.2%
Aug-09	-32.9%	3.4%
Sep-09	-26.8%	2.4%
Oct-09	-8.7%	2.5%
Nov-09	19.9%	1.7%
Dec-09	43.9%	0.8%
Jan-10	48.6%	-1.0%
Feb-10	44.5%	-0.8%
Mar-10	39.9%	0.2%
Apr-10	36.1%	1.0%
May-10	23.2%	0.6%
Jun-10	12.7%	0.2%
Jul-10	5.4%	1.0%
Aug-10	5.7%	1.2%
Sep-10	6.2%	1.8%
Oct-10	7.1%	1.8%
Nov-10	10.1%	1.6%
Dec-10	11.4%	0.6%
Jan-11	15.4%	0.0%
Feb-11	19.9%	-1.0%
Mar-11	26.7%	-1.8%
Apr-11	32.7%	-2.5%
May-11	35.3%	-2.7%
Jun-11	35.3%	-2.8%

Jul-11	33.7%	-3.0%
Aug-11	33.1%	-3.2%
Sep-11	30.0%	-3.2%
Oct-11	25.9%	-3.0%
Nov-11	18.0%	-2.1%
Dec-11	13.3%	-0.3%
Jan-12	10.9%	1.4%
Feb-12	10.6%	2.0%
Mar-12	8.3%	1.3%
Apr-12	2.8%	1.4%
May-12	-1.6%	1.3%
Jun-12	-4.4%	1.3%
Jul-12	-2.5%	0.9%
Aug-12	1.1%	0.2%
Sep-12	6.0%	0.5%
Oct-12	5.9%	0.3%
Nov-12	4.2%	-0.2%
Dec-12	0.7%	-0.3%
Jan-13	1.2%	-1.2%
Feb-13	-0.5%	-0.9%
Mar-13	-2.9%	-0.8%
Apr-13	-5.5%	0.0%
May-13	-3.6%	0.4%
Jun-13	1.0%	0.6%
Jul-13	1.5%	0.7%
Aug-13	-1.8%	1.2%
Sep-13	-7.2%	1.4%
Oct-13	-8.5%	0.9%
Nov-13	-6.4%	0.7%
Dec-13	-3.1%	-0.3%
Jan-14	-3.8%	-0.3%
Feb-14	-5.1%	-0.3%
Mar-14	-4.1%	0.7%

Apr-14	-0.5%	1.4%
May-14	1.8%	1.8%
Jun-14	1.2%	2.1%
Jul-14	-0.5%	1.8%
Aug-14	-2.5%	2.1%
Sep-14	-4.4%	2.1%
Oct-14	-7.1%	2.2%

Sources:

Federal Highway Administration, *November 2014 Traffic Volume Trends*, and previous monthly editions.

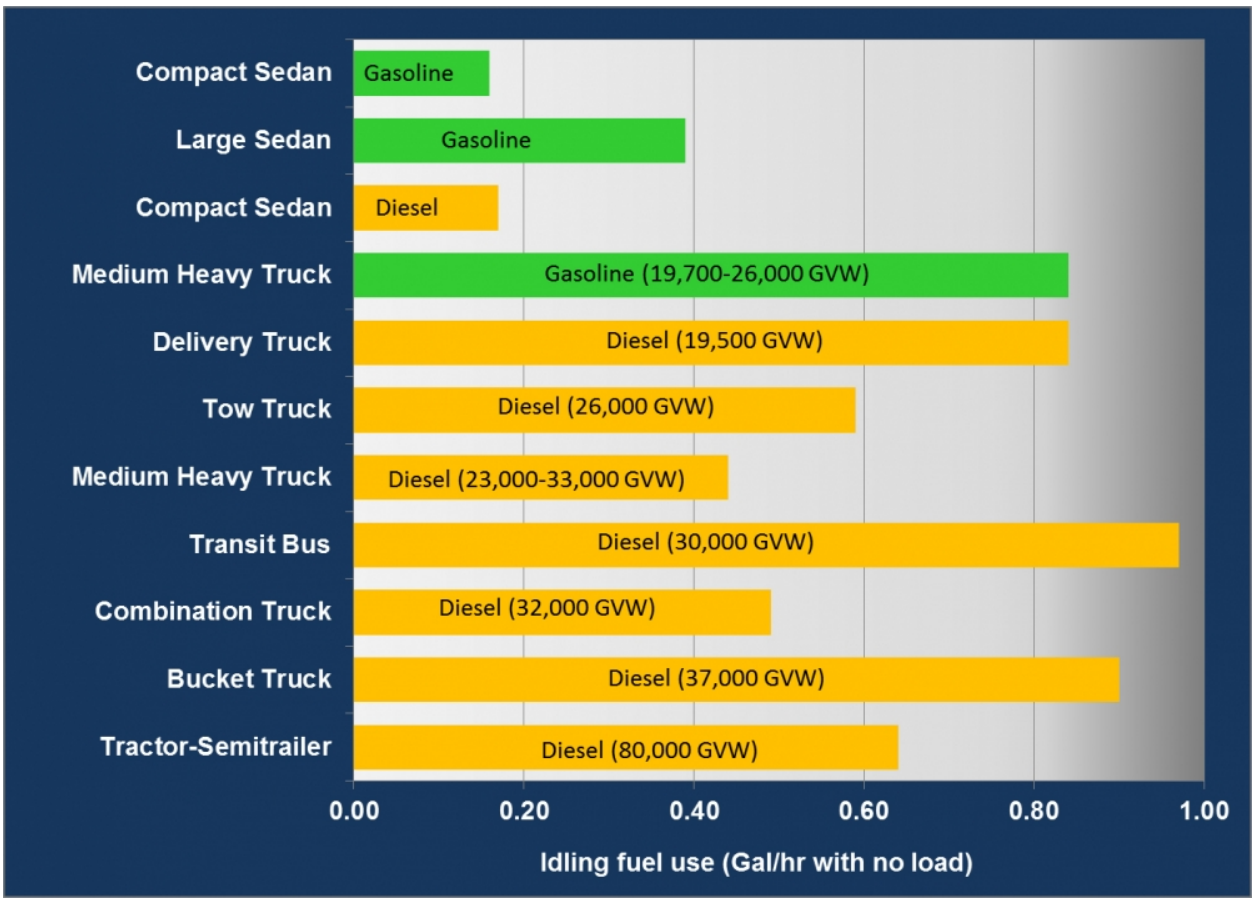
Energy Information Administration, *Monthly Energy Review, December 2014*, Table 9.4.

Fact #861: February 23, 2015

Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles

Based on a worksheet developed by Argonne National Laboratory, the idle fuel consumption rate for selected gasoline and diesel vehicles with no load (no use of accessories such as air conditioners, fans, etc.) varies widely. Both compact sedans with 2.0 liter engines each consume about the same amount of fuel at idle (0.16 and 0.17 gallons per hour respectively), despite differing fuel types. By comparison, the large sedan with a 4.6 liter engine consumes just over twice as much fuel at idle. Of the remaining vehicle types listed, the transit bus consumed the most fuel while idling at nearly 1 gallon per hour (gal/hr). The gasoline medium heavy truck category with a gross vehicle weight (GVW) of 19,700-26,000 lbs. consumed more fuel at idle than the diesel medium heavy truck category at 23,000-33,000 lbs. GVW.

Fuel Consumption at Idle for Selected Gasoline and Diesel Vehicles



Note: The passenger car results are from a study by Argonne National Laboratory; the delivery truck results are from a study by the National Renewable Energy Laboratory; the tow truck, transit bus, combination truck and bucket truck results are from a study by Oak Ridge National Laboratory; the tractor-semitrailer results were from a study by the American Trucking Associations; both of the medium heavy truck results were from a study published in the *Journal of the Air & Waste Management Association*. For details on these results, please see the individual studies referenced by the source.

Supporting Information

Fuel Consumption at Idle for Selected Gasoline and Diesel Vehicles

Vehicle Type	Fuel Type	Engine Size (liter)	Gross Vehicle Weight (GVW) (lbs)	Idling Fuel Use (Gal/hr with no load)
Compact Sedan	Gas	2	-	0.16
Large Sedan	Gas	4.6	-	0.39
Compact Sedan	Diesel	2	-	0.17
Medium Heavy Truck	Gas	5-7	19,700-26,000	0.84
Delivery Truck	Diesel	-	19,500	0.84
Tow Truck	Diesel	-	26,000	0.59
Medium Heavy Truck	Diesel	6-10	23,000-33,000	0.44
Transit Bus	Diesel	-	30,000	0.97
Combination Truck	Diesel	-	32,000	0.49
Bucket Truck	Diesel	-	37,000	0.90
Tractor-Semitrailer	Diesel	-	80,000	0.64

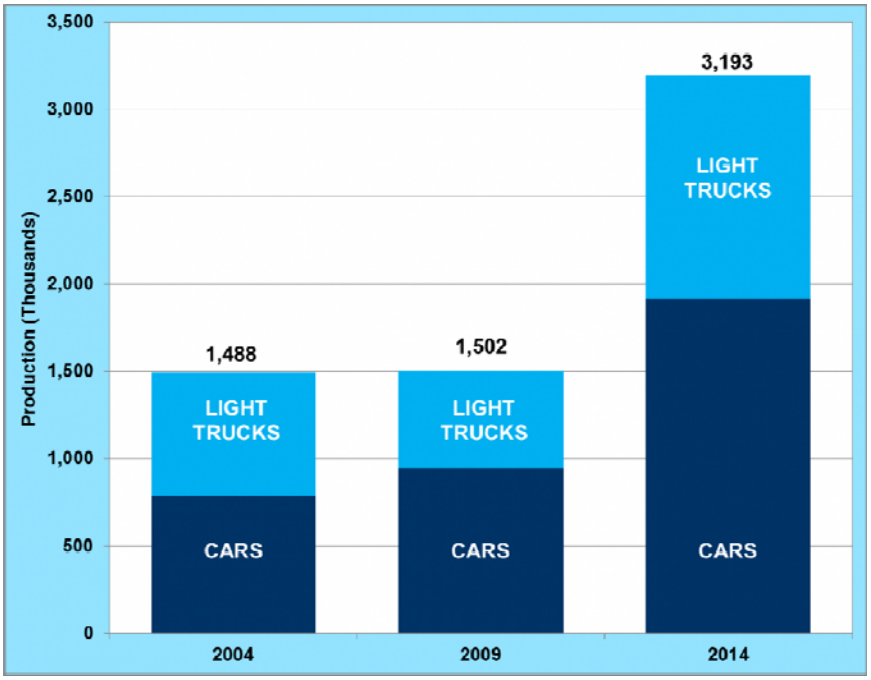
Source:
Argonne National Laboratory, *Idling Reduction Savings Calculator*, accessed December 2014.

Fact #862: March 2, 2015

Light Vehicle Production in Mexico More than Doubled in Last Five Years

Total production of light vehicles in Mexico remained nearly flat between 2004 and 2009 but in the following five-year span from 2009 to 2014, production more than doubled. In 2004, cars and light trucks made up an almost equal share of that production but since then the number of cars produced has increased significantly. Cars represented about 60 percent of Mexico's light vehicle production in 2014. Auto manufacturers have invested heavily in Mexico for a variety of reasons including low cost labor, favorable trade agreements between Mexico and key markets, and proximity to both North American and South American markets. For Japanese automakers, the strength of the Yen versus the U.S. dollar has also increased pressure to produce vehicles outside of Japan to maintain competitive pricing for their vehicles in the U.S.

Production of Light Vehicles in Mexico by Vehicle Type, 2004, 2009, and 2014



Note: The portion of Mexico-produced vehicles that are sold in the United States is not available. Mexico light vehicle production serves a global market.

Supporting Information

Production of Light Vehicles in Mexico by Vehicle Type, 2004, 2009, and 2014 (Thousands)

Vehicle Type	Calendar Year		
	2004	**2009**	**2014**
Cars	782	943	1,916
Light Trucks	706	559	1,277
All Light Vehicles	1,488	1,502	3,193

Source:
Ward's AutoInfoBank, accessed January 22, 2015.

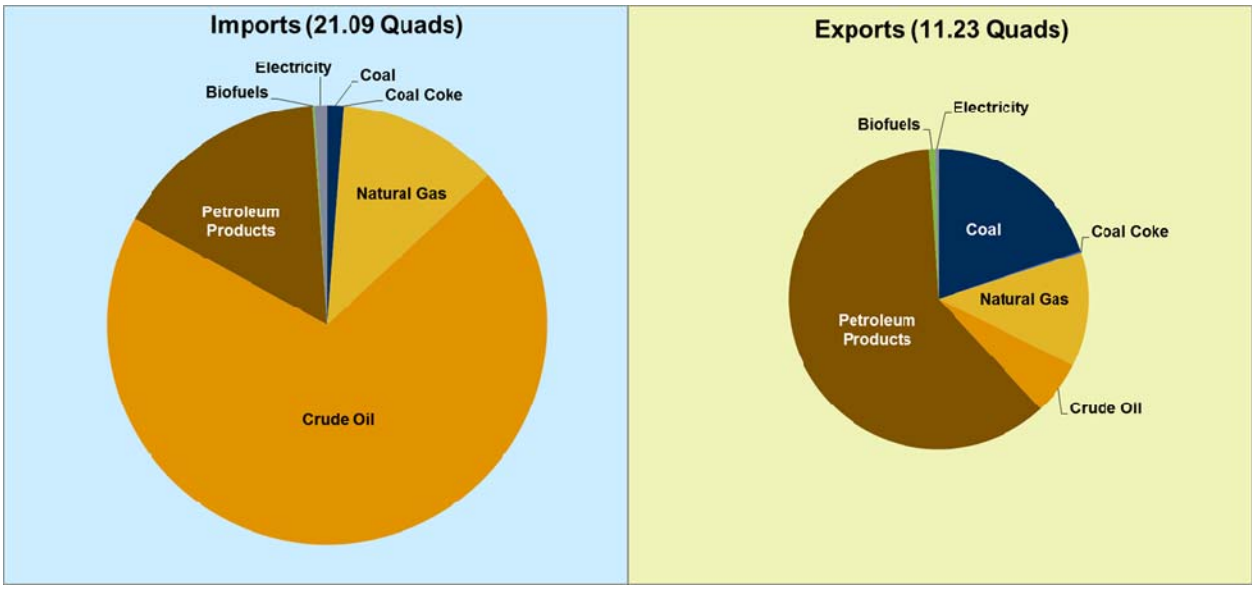
Fact #863: March 9, 2015

Crude Oil Accounts for the Majority of Primary Energy Imports While Exports Are Mostly Petroleum Products

In 2014, seventy percent of the primary energy imports were crude oil, followed by petroleum products (16%) and natural gas (12%). The remaining sources of primary energy imports: coal, coal coke, biofuels, and electricity only made up about 2% of all imports. Primary energy exports are about half of imports but of the exports, 61% were petroleum products. Coal, natural gas and crude oil accounted for 38% of exports.

There are a variety of reasons that the U.S. imports and exports the very same energy products. Often, it comes down to regional logistics and transport costs. For example, it may be less expensive for northern states to import natural gas from Canada than it is to transport natural gas over great distances from where it is produced domestically. For U.S. producers of energy products, foreign markets can also provide stability for demand of their products as domestic demand rises and falls.

Primary Energy Imports and Exports, 2014



Note: Based on data for 11 months of 2014.

Supporting Information

Primary Energy Imports and Exports, 2014 (Quadrillion Btu)

	Coal	Coal Coke	Natural Gas	Crude Oil	Petroleum Products	Biofuels	Electricity	Total
Imports	0.25	0.00	2.50	14.75	3.37	0.03	0.19	21.09
	1.2%	*0.0%*	*11.9%*	*69.9%*	*16.0%*	*0.1%*	*0.9%*	*100%*
Exports	2.22	0.02	1.38	0.65	6.83	0.07	0.04	11.23
	19.8%	*0.2%*	*12.3%*	*5.8%*	*60.9%*	*0.7%*	*0.4%*	*100%*

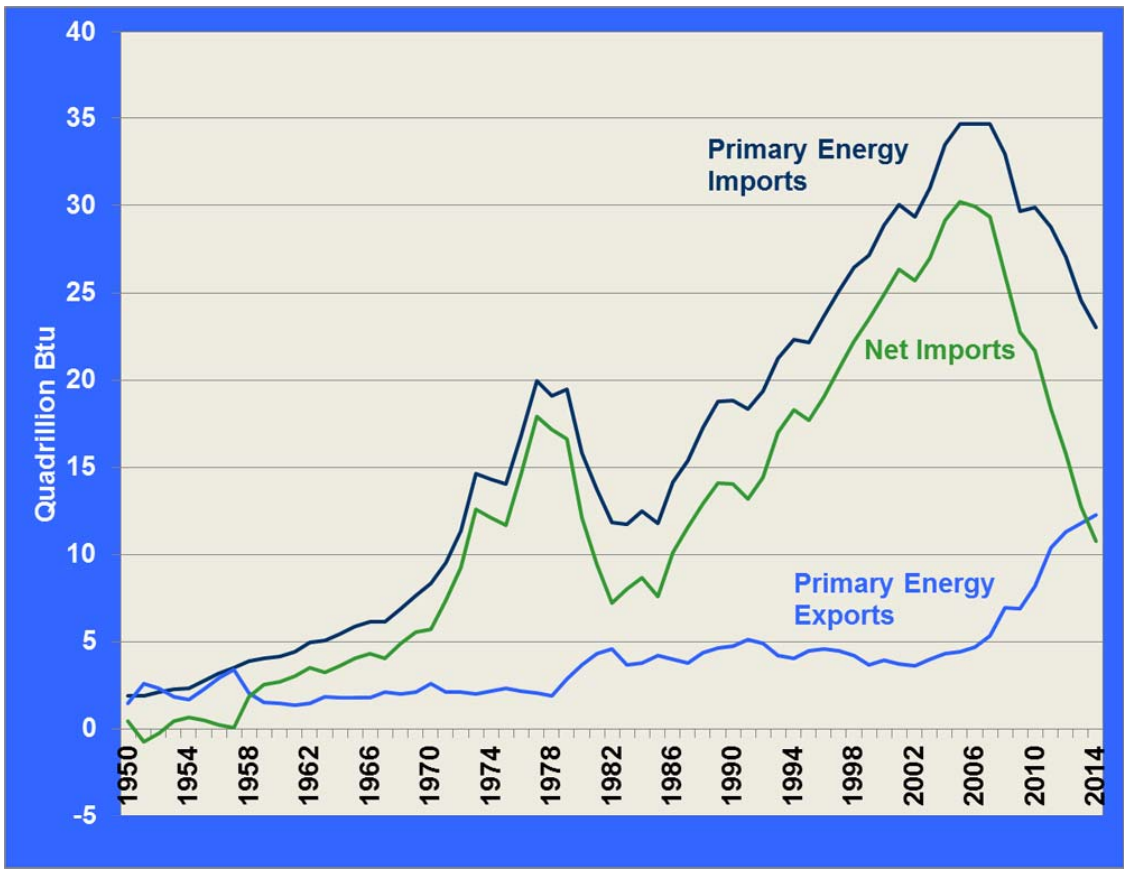
Source:
U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, February 2015, Tables 1.4a and 1.4b.

Fact #864: March 16, 2015

Imports of Primary Energy Have Declined Sharply since the Peak Reached in 2007

Primary energy imports have declined by about 34% since the peak reached in 2007. During this same period, exports of primary energy have more than doubled. The combination of decreasing imports and rising exports of primary energy have resulted in the lowest net imports (difference between imports and exports) since 1986.

Primary Energy Imports and Exports, 1950-2014



Note: Primary energy includes coal, coal coke, petroleum, natural gas, biofuels and electricity. To see imports of petroleum only, see *Fact #837*.

Supporting Information

Imports and Exports of Primary Energy, 1950-2014
(Quadrillion Btu)

Year	Primary Energy Imports	Primary Energy Exports	Net Energy Imports
1950	1.91	1.47	0.45
1951	1.89	2.62	-0.73
1952	2.15	2.37	-0.22
1953	2.31	1.87	0.45
1954	2.35	1.70	0.65
1955	2.79	2.29	0.50
1956	3.21	2.95	0.26
1957	3.53	3.44	0.09
1958	3.88	2.05	1.83
1959	4.08	1.53	2.54
1960	4.19	1.48	2.71
1961	4.44	1.38	3.06
1962	4.99	1.47	3.52
1963	5.09	1.84	3.25
1964	5.45	1.81	3.63
1965	5.89	1.83	4.06
1966	6.15	1.83	4.32
1967	6.16	2.12	4.04
1968	6.91	2.00	4.91
1969	7.68	2.13	5.55
1970	8.34	2.63	5.71
1971	9.53	2.15	7.38
1972	11.39	2.12	9.27
1973	14.61	2.03	12.58
1974	14.30	2.20	12.10
1975	14.03	2.32	11.71
1976	16.76	2.17	14.59

1977	19.95	2.05	17.90
1978	19.11	1.92	17.19
1979	19.46	2.86	16.60
1980	15.80	3.69	12.10
1981	13.72	4.31	9.41
1982	11.86	4.61	7.25
1983	11.75	3.69	8.06
1984	12.47	3.79	8.68
1985	11.78	4.20	7.58
1986	14.15	4.02	10.13
1987	15.40	3.81	11.59
1988	17.30	4.37	12.93
1989	18.77	4.66	14.11
1990	18.82	4.75	14.06
1991	18.33	5.14	13.19
1992	19.37	4.94	14.44
1993	21.22	4.23	16.99
1994	22.31	4.04	18.27
1995	22.18	4.50	17.68
1996	23.63	4.61	19.02
1997	25.12	4.49	20.63
1998	26.47	4.24	22.24
1999	27.15	3.67	23.48
2000	28.87	3.96	24.90
2001	30.05	3.73	26.32
2002	29.33	3.61	25.72
2003	31.01	4.01	26.99
2004	33.49	4.35	29.14
2005	34.66	4.46	30.20
2006	34.65	4.73	29.92
2007	34.68	5.34	29.34
2008	32.97	6.95	26.02

2009	29.69	6.92	22.77
2010	29.87	8.18	21.69
2011	28.75	10.38	18.37
2012	27.06	11.28	15.78
2013	24.59	11.81	12.77
2014	23.01	12.25	10.76

Note*:* December 2014 data were estimated.

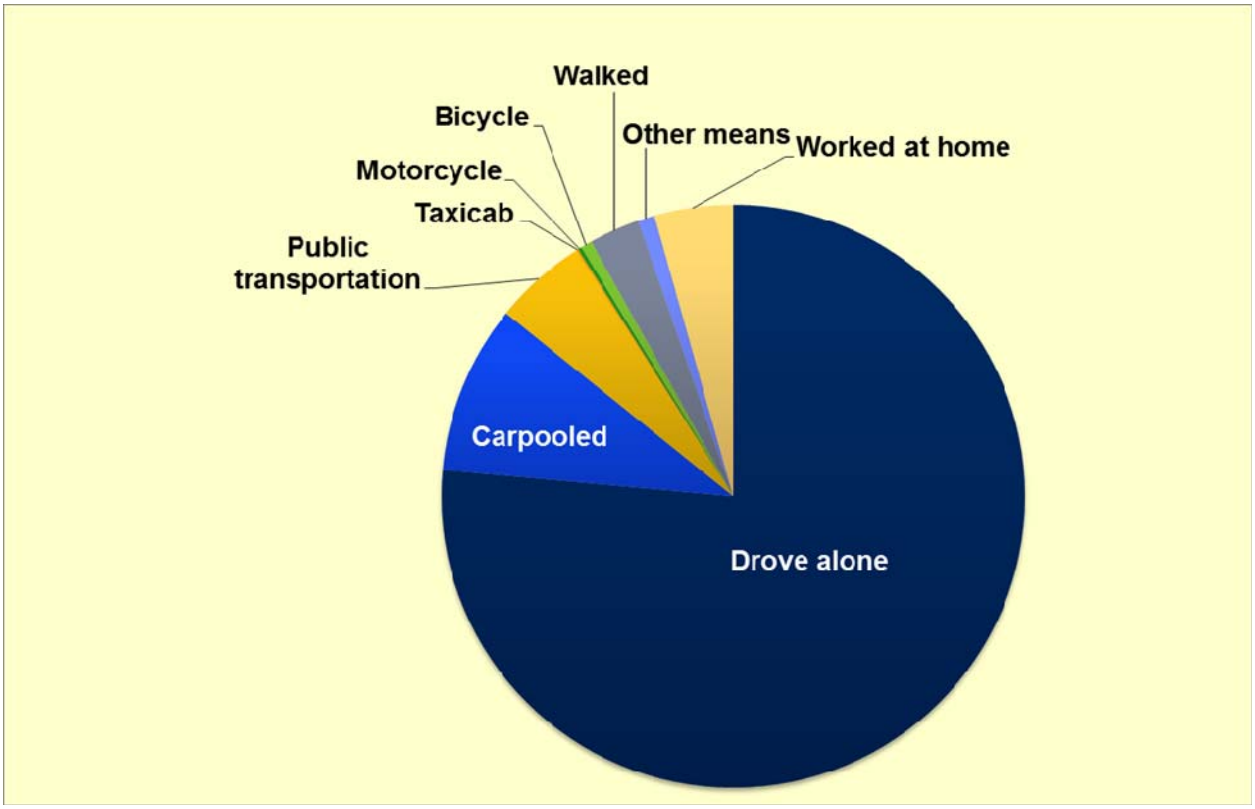
Source:
U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, February 2015, Tables 1.4a and 1.4b.

Fact #865: March 23, 2015

Over Three-Fourths of All Commuters Drove to Work Alone in 2013

The 2013 American Community Survey which included nearly 143 million respondents revealed that 76.4% of those commuting to work drove alone. Of the remaining means of transportation to work, 9.4% carpooled, 5.2% used public transportation while 4.4% worked from home, and 2.8% walked. All other means of transportation accounted for less than 2%.

Means of Transportation to Work, 2013



Supporting Information

Means of Transportation to Work, 2013

Means of transportation	Number of respondents	Percent
Drove alone	109,277,215	76.4%
Carpooled	13,387,020	9.4%
Public transportation	7,393,159	5.2%
Taxicab	160,975	0.1%
Motorcycle	295,733	0.2%
Bicycle	882,198	0.6%
Walked	4,000,459	2.8%
Other means	1,336,608	0.9%
Worked at home	6,229,012	4.4%
Total	142,962,379	100%

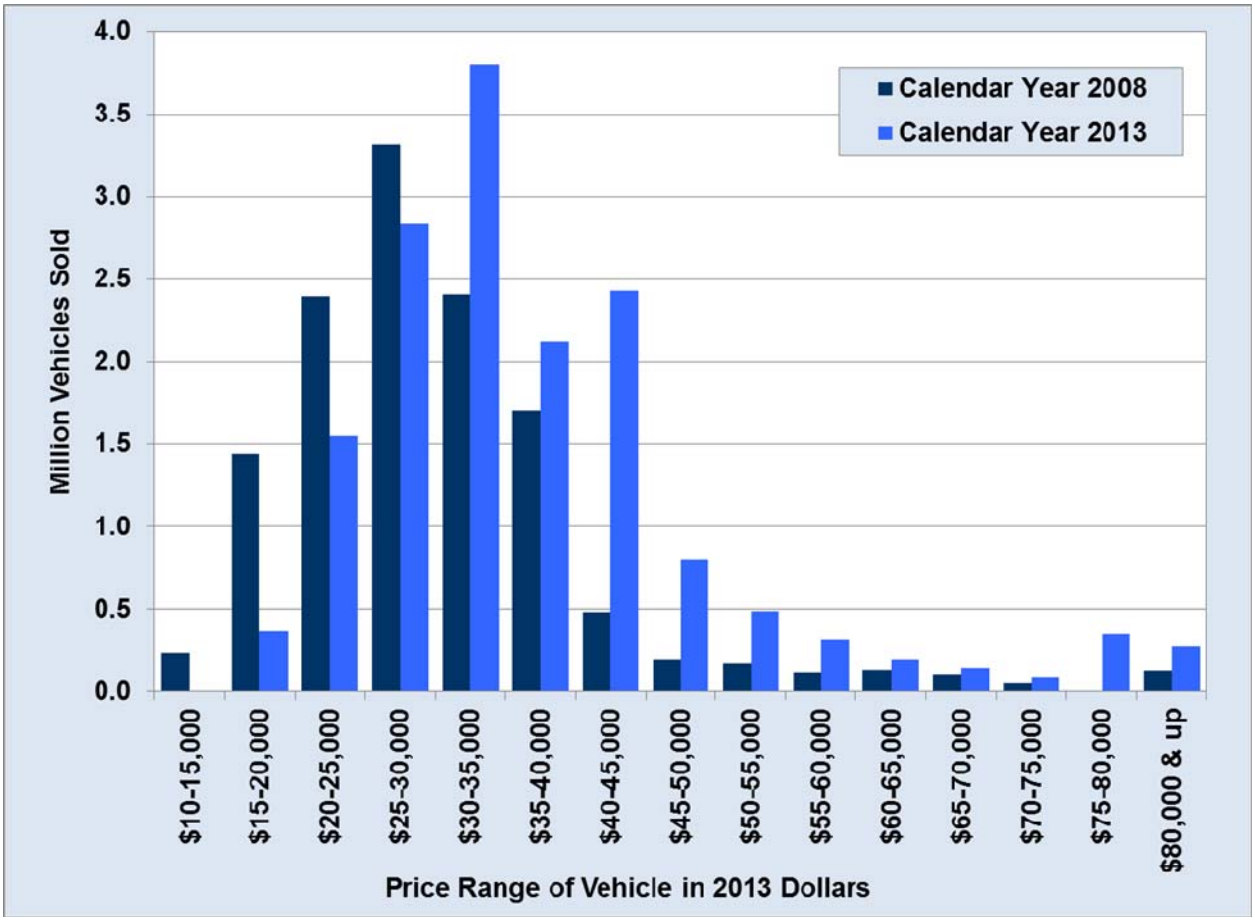
Source:
U.S. Bureau of the Census, *2013 American Community Survey*, Table B08301, 1-year estimates.

Fact #866: March 30, 2015

Light Vehicles Priced from $30-35,000 Are the Biggest Sellers in 2013

In 2013, there were about 3.8 million light vehicles sold with prices ranging from $30-35,000, which was the category with the highest sales volume. In contrast to 2013, the highest sales volume in 2008 was in the $25-30,000 range. About 3 million more vehicles were sold overall in 2013 compared to 2008. There were more high-priced vehicles sold in 2013, particularly in the $40-45,000 price range.

Light Vehicle Sales by Price Range, Calendar Years 2008 and 2013



Note: Prices based on Manufacturers Suggested Retail Price (MSRP).

Supporting Information

Light Vehicle Sales by Price Range, Calendar Years 2008 and 2013

Price Range of Vehicle in 2013 Dollars	Calendar Year 2008	Calendar Year 2013
$10-15,000	237,272	0
$15-20,000	1,440,082	361,213
$20-25,000	2,392,629	1,549,078
$25-30,000	3,314,387	2,835,153
$30-35,000	2,405,499	3,803,957
$35-40,000	1,703,401	2,120,369
$40-45,000	480,756	2,428,428
$45-50,000	192,922	804,159
$50-55,000	175,623	486,179
$55-60,000	109,474	310,866
$60-65,000	132,277	193,538
$65-70,000	98,754	144,400
$70-75,000	50,544	80,503
$75-80,000	0	347,659
$80,000 & up	123,867	275,937
All	**12,857,487**	**15,741,439**

Source:
Oak Ridge National Laboratory, *2014 Vehicle Technologies Market Report*, ORNL/TM-2015/85, March 2015.

Fact #867: April 6, 2015

Car-Sharing and Ride-Summoning Are a Growing Phenomenon

Car-sharing programs are not new to the United States, but have grown significantly over the last five years in an effort to provide an alternative to car ownership. Typically, car-sharing programs have membership requirements and hourly rates, unlike the rental-car business. Car-sharing programs may have a common vehicle fleet owned by the company or share members' vehicles. In addition, ride-summoning programs are also being used as an alternative to car ownership.

1. Car-sharing typically falls into two categories:
   - Fleet vehicles provided by the company can be rented by the hour. Examples include:
   - Enterprise CarShare
   - ZipCar
   - UHaulCarShare
   - Car2Go

2. Fleet vehicles owned by members can be rented by other members. Examples include:
   - FlightCar
   - RelayRides

Ride-Summoning programs Uber and Lyft are the leading ride-summoning companies. Members use a mobile app to request transportation from a background-checked driver.

National Car-Sharing and Ride-Summoning Companies by State of Operation

State of Operation	Car-Sharing Company-Owned Vehicles					Car-Sharing Member-Owned Vehicles		Ride-Summoning	
	Enterprise CarShare	ZipCar	UHaul CarShare	Hertz 24/7	Car2Go	FlightCar	RelayRides	Uber	Lyft
Alabama	●	●	●				●	●	
Alaska							●	●	
Arizona	●		●				●	●	●
Arkansas		●					●	●	
California	●	●	●	●	●	●	●	●	●
Colorado	●	●	●	●	●		●	●	●
Connecticut			●				●	●	●
Delaware							●		
Dist. of Columbia	●	●			●		●	●	●
Florida	●	●	●	●	●		●	●	●
Georgia	●	●					●	●	●
Hawaii	●						●	●	●
Idaho	●	●					●	●	
Illinois	●	●	●				●	●	●
Indiana	●						●	●	●
Iowa	●		●				●	●	
Kansas	●	●					●	●	
Kentucky	●	●		●			●	●	●
Louisiana	●						●	●	
Maine			●				●	●	
Maryland		●		●			●	●	●
Massachusetts	●	●	●			●	●	●	●
Michigan	●	●	●	●			●	●	●
Minnesota	●	●			●		●	●	●
Mississippi							●	●	
Missouri	●	●					●	●	
Montana							●		
Nebraska		●	●				●	●	●
Nevada				●			●	●	
New Hampshire		●					●	●	
New Jersey	●	●					●	●	●
New Mexico	●	●					●	●	●
New York	●	●		●	●			●	●
North Carolina	●	●	●	●			●	●	●
North Dakota							●		
Ohio	●	●	●	●	●		●	●	●
Oklahoma	●			●			●	●	●
Oregon	●	●	●		●		●	●	
Pennsylvania	●	●	●				●	●	●
Rhode Island		●					●	●	●
South Carolina	●						●	●	
South Dakota							●		
Tennessee	●	●					●	●	●
Texas	●	●	●	●	●	●	●	●	●
Utah	●	●	●	●			●	●	●
Vermont							●		
Virginia	●	●					●	●	●
Washington	●	●			●	●	●	●	●
West Virginia	●						●		
Wisconsin	●	●	●				●	●	●
Wyoming							●		
Total locations	**159**	**55**	**34**	**19**	**11**	**5**	**Unknown**	**128**	**62**

Note: RelayRides cannot operate in the state of New York due to insurance laws.

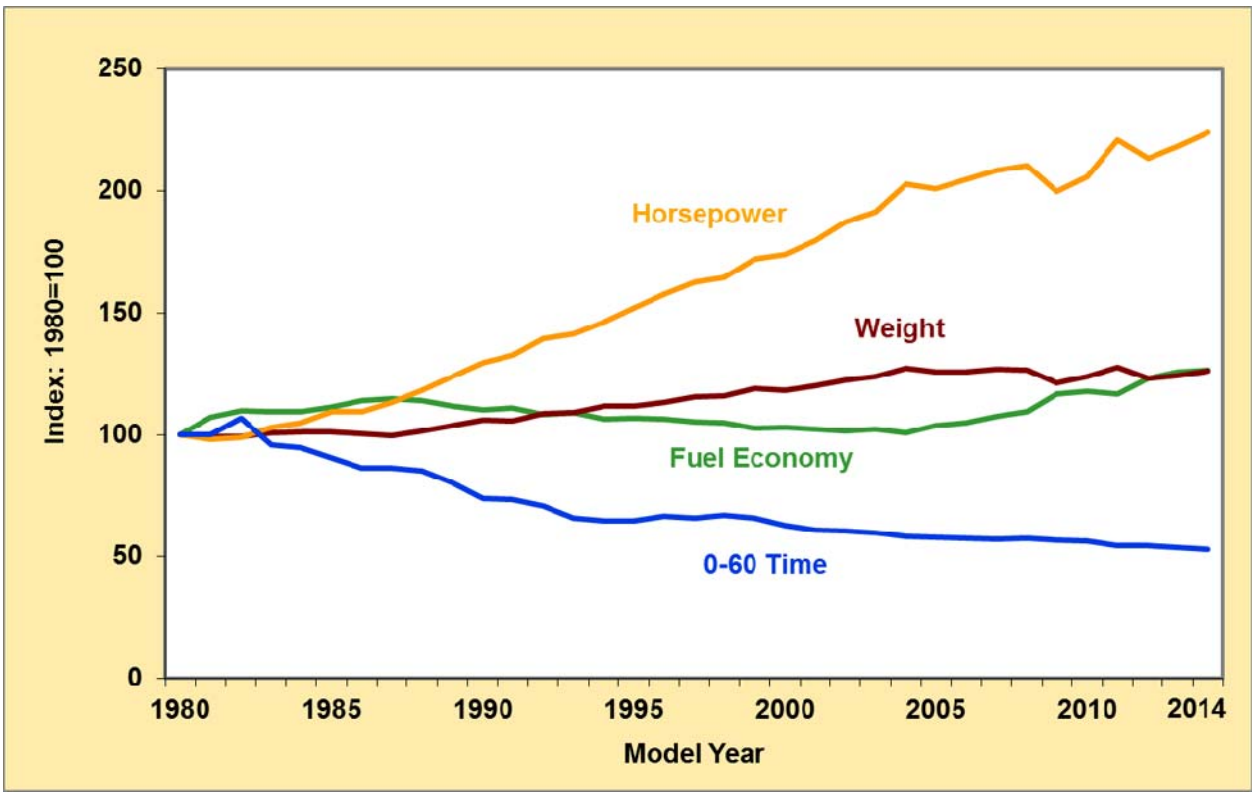
Source:
Oak Ridge National Laboratory, *2014 Vehicle Technologies Market Report*, ORNL/TM-2015/85, March 2015.

Fact #868: April 13, 2015

Automotive Technology Has Improved Performance and Fuel Economy of New Light Vehicles

Despite a 124% increase in horsepower and 47% decrease in 0-60 time from 1980 to 2014, the fuel economy of vehicles improved 27%. All of these data series are sales-weighted averages. The weight of the vehicle appears to have an inverse relationship with fuel economy thus many manufacturers are working to reduce vehicle weight.

Characteristics of Light Vehicles Sold, Model Years 1980-2014



Note: Data are sales-weighted.

Supporting Information

Characteristics of Light Vehicles Sold, Model Years 1980-2014 (Index: 1980=100)

Model Year	Fuel Economy	Weight	Horsepower	0-60 Time
1980	100	100	100	100
1981	107	99	98	100
1982	110	99	99	107
1983	109	101	103	96
1984	110	101	105	95
1985	111	101	110	90
1986	114	100	110	86
1987	115	100	113	86
1988	114	102	118	85
1989	112	104	124	80
1990	110	106	130	74
1991	111	106	133	74
1992	108	109	139	71
1993	109	109	141	66
1994	106	112	146	65
1995	107	112	152	65
1996	107	113	158	66
1997	105	115	163	66
1998	105	116	164	67
1999	103	119	172	66
2000	103	118	174	63
2001	102	120	180	61
2002	102	122	188	61
2003	102	124	191	60
2004	101	127	203	58
2005	104	126	201	58
2006	105	126	205	57

2007	108	127	209	57
2008	109	127	211	57
2009	117	121	200	57
2010	118	124	206	56
2011	117	128	221	55
2012	123	123	213	55
2013	126	124	218	54

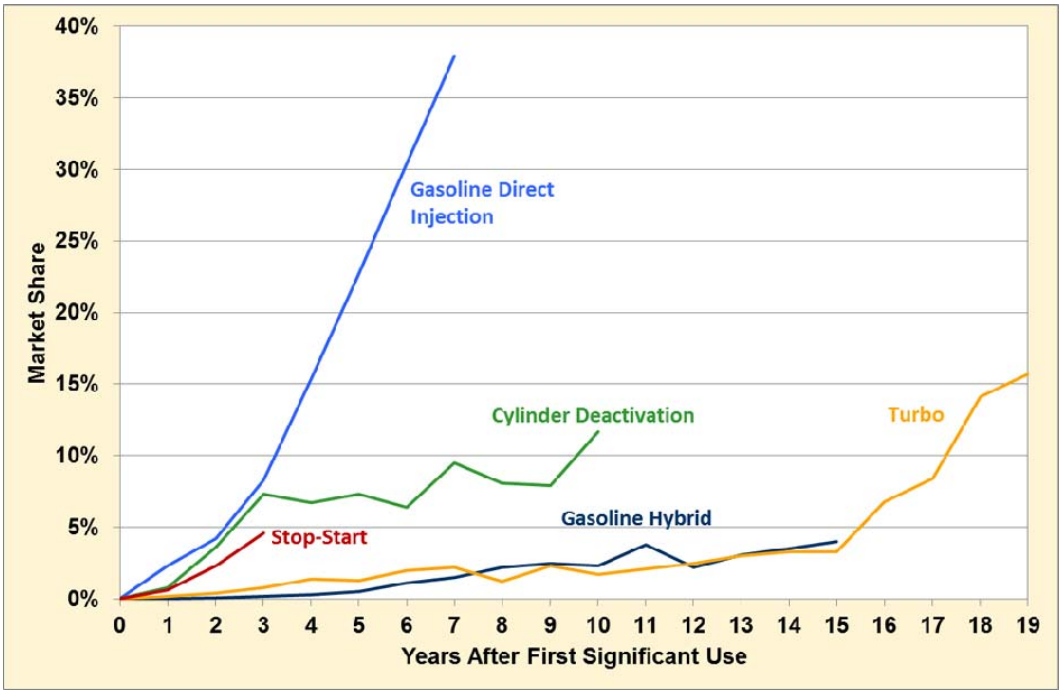
Source:
Oak Ridge National Laboratory, *2014 Vehicle Technologies Market Report*, ORNL/TM-2015/85, March 2015.

Fact #869: April 20, 2015

Gasoline Direct Injection Captures 38% Market Share in Just Seven Years from First Significant Use

Gasoline direct injection (GDI) has seen rapid adoption since its first significant use. As automakers strive for improved fuel economy, many have turned to the combined benefits of GDI and turbo charging for increasing power output from downsized engines. This is evident in the rapid rise of turbo- charged engines in the last four years shown. Cylinder deactivation, which is seen mostly in 6 and 8- cylinder applications, has also seen greater use particularly in the last year, reaching nearly 12% market share. Stop-start technology in non-hybrid vehicles is relatively new in the U.S. market and has only been around for three years since its first significant use. However, in just three years, stop-start has reached 5% market share while gasoline hybrids have only grown to 4% market share in the past 15 years.

New Technology Penetration in Light Vehicles



Note: Stop-start technology data are for non-hybrid vehicles.

Supporting Information

New Technology Penetration in Light Vehicles

Years After First Significant Use	Gasoline Hybrid	GDI	CD	Turbo	Non-Hybrid Stop/Start
0	0.0%	0.0%	0.0%	0.0%	0.0%
1	0.0%	2.3%	0.8%	0.2%	0.6%
2	0.1%	4.2%	3.6%	0.4%	2.3%
3	0.2%	8.3%	7.3%	0.8%	*4.6%*
4	0.3%	15.4%	6.7%	1.4%	
5	0.5%	22.7%	7.3%	1.3%	
6	1.1%	30.4%	6.4%	2.0%	
7	1.5%	*37.9%*	9.5%	2.2%	
8	2.2%		8.1%	1.2%	
9	2.5%		7.9%	2.3%	
10	2.3%		*11.7%*	1.7%	
11	3.8%			2.1%	
12	2.2%			2.5%	
13	3.1%			3.0%	
14	3.5%			3.3%	
15	*4.0%*			3.3%	
16				6.8%	
17				8.4%	
18				14.1%	
19				*15.7%*	

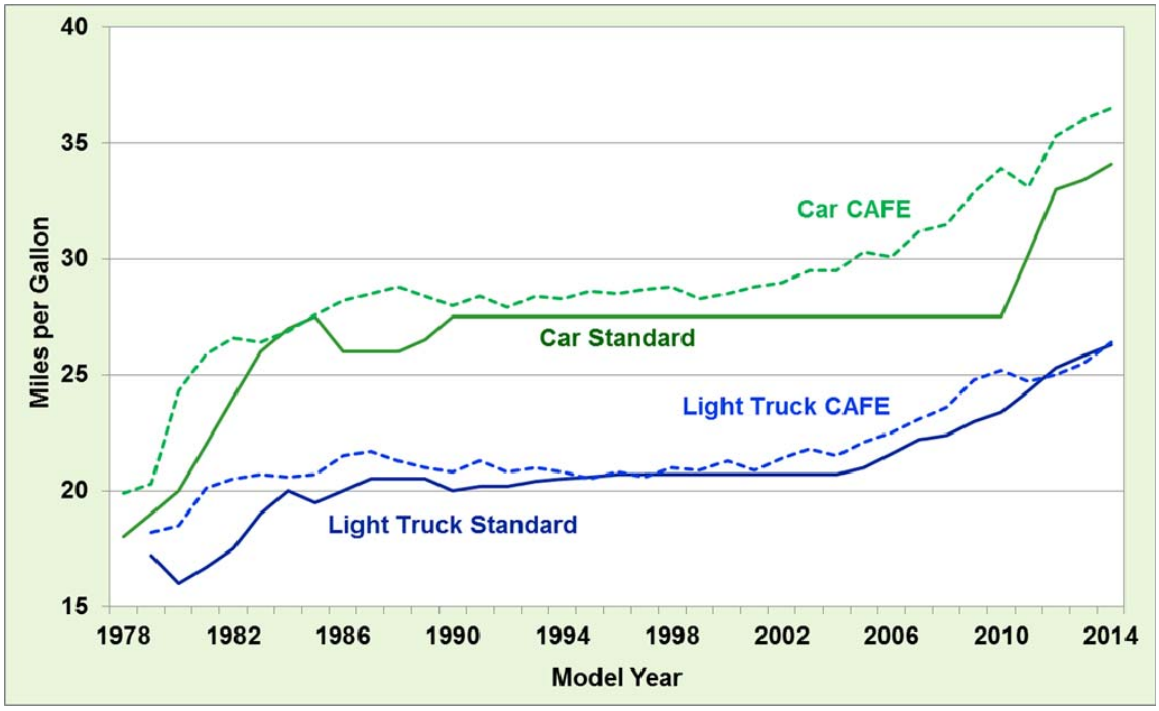
Source:
Oak Ridge National Laboratory, *2014 Vehicle Technologies Market Report*, ORNL/TM-2015/85, March 2015.

Fact #870: April 27, 2015

Corporate Average Fuel Economy Progress, 1978-2014

The Corporate Average Fuel Economy (CAFE) is the sales-weighted harmonic mean fuel economy of a manufacturer's fleet of new cars or light trucks in a certain model year (MY). First enacted by Congress in 1975, the standards for cars began in MY 1978 and for light trucks in MY 1979. In general, the average of all cars has met or exceeded the standards each year; light trucks' averages have mostly exceeded the standards as well. However, standards must be met on a manufacturer level – some manufacturers fall short of the standards while others exceed them. Legislation passed in December 2007 raised the CAFE standards beginning in MY 2011 – for cars, this was the first increase since 1990.

CAFE and CAFE Standards for Cars and Light Trucks, MY 1978-2014



Note: Light truck standards for MY 2008-2010 are based on "unreformed" standards. MY 2013 and 2014 data are estimates based on product plans.

Supporting Information

CAFE and CAFE Standards for Cars and Light Trucks, MY 1978-2014

Model Year	Cars Standard	Light Trucks Standard	Cars CAFE	Light Trucks CAFE
1978	18		19.9	
1979	19	17.2	20.3	18.2
1980	20	16	24.3	18.5
1981	22	16.7	25.9	20.1
1982	24	17.5	26.6	20.5
1983	26	19	26.4	20.7
1984	27	20	26.9	20.6
1985	27.5	19.5	27.6	20.7
1986	26	20	28.2	21.5
1987	26	20.5	28.5	21.7
1988	26	20.5	28.8	21.3
1989	26.5	20.5	28.4	21
1990	27.5	20	28	20.8
1991	27.5	20.2	28.4	21.3
1992	27.5	20.2	27.9	20.8
1993	27.5	20.4	28.4	21
1994	27.5	20.5	28.3	20.8
1995	27.5	20.6	28.6	20.5
1996	27.5	20.7	28.5	20.8
1997	27.5	20.7	28.7	20.6
1998	27.5	20.7	28.8	21
1999	27.5	20.7	28.3	20.9
2000	27.5	20.7	28.5	21.3
2001	27.5	20.7	28.8	20.9
2002	27.5	20.7	29.0	21.4
2003	27.5	20.7	29.5	21.8
2004	27.5	20.7	29.5	21.5

2005	27.5	21.0	30.3	22.1
2006	27.5	21.6	30.1	22.5
2007	27.5	22.2	31.2	23.1
2008	27.5	22.4	31.5	23.6
2009	27.5	23.0	32.9	24.8
2010	27.5	23.4	33.9	25.2
2011	30.2	24.3	33.1	24.7
2012	33.0	25.3	35.3	25.0
2013	33.4	25.8	36.0	25.5
2014	34.1	26.3	36.5	26.4

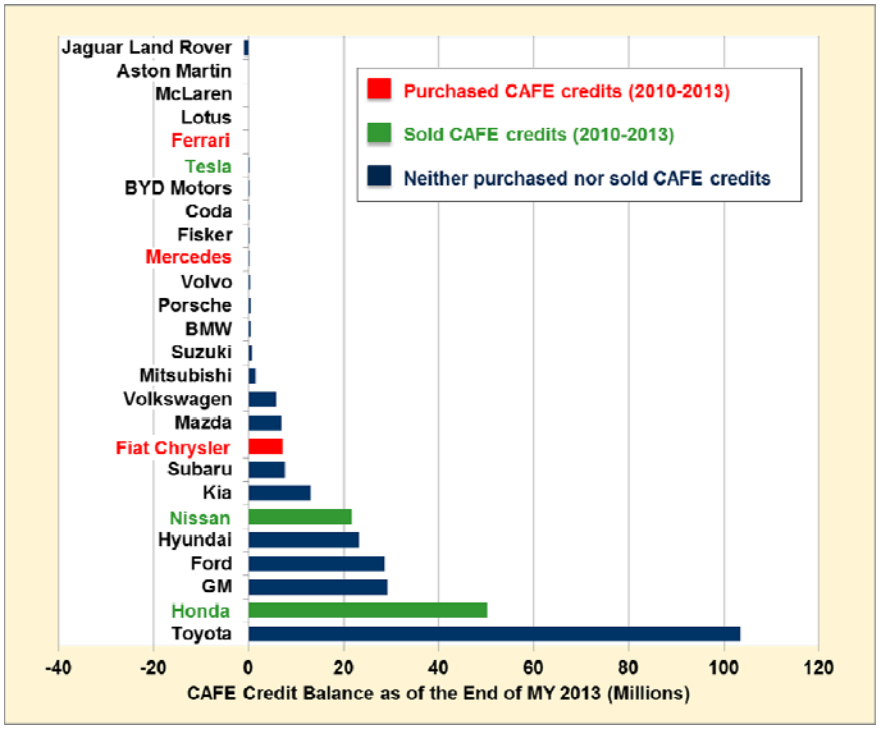
Source:
Oak Ridge National Laboratory, *2014 Vehicle Technologies Market Report*, ORNL/TM-2015/85, March 2015.

Fact #871: May 4, 2015

Most Manufacturers Have Positive CAFE Credit Balances at the End of Model Year 2013

At the end of the 2013 model year (MY), Toyota, which neither bought nor sold credits between 2010 and 2013, had by far the highest balance of Corporate Average Fuel Economy (CAFE) credits at more than 100 million credits. Tesla produces electric vehicles exclusively and therefore does not need to retain credits as an off-set. Tesla sold nearly all their credits and ended the model year with a balance of just 1,271 credits. Fiat Chrysler, Mercedes, and Ferrari purchased credits during the period from 2010 to 2013. By the end of MY 2013, only five manufacturers (Jaguar LandRover, Aston Martin, McLaren, and Lotus) had a deficit of CAFE credits. This does not, however, mean any manufacturer is out of compliance, as the regulation allows for a deficit to be carried over for up to three model years.

Cumulative CAFE Credit Balances by Manufacturer as of the End of MY 2013



Supporting Information

Cumulative CAFE Credit Balances by Manufacturer as of the End of MY 2013

Manufacturer	Credits
Jaguar Land Rover	-927,143
Aston Martin	-4,783
McLaren	-3,620
Lotus	-763
Ferrari	-653
Tesla	1,271
BYD Motors	2,276
Coda	7,251
Fisker	46,694
Mercedes	129,312
Volvo	268,157
Porsche	426,439
BMW	456,812
Suzuki	693,553
Mitsubishi	1,565,382
Volkswagen	5,789,961
Mazda	7,003,960
Fiat Chrysler	7,279,810
Subaru	7,597,337
Kia	13,016,497
Nissan	21,641,784
Hyundai	23,186,604
Ford	28,546,438
GM	29,185,540
Honda	50,234,560
Toyota	103,484,295

Reported Credits Sold and Purchased, MY 2010-2013

	Manufacturer	Model Year				Total
		2010	2011	2012	2013	
Credits Sold	Honda	-434,383				-434,383
	Nissan	-200,000	-500,000	-250,000		-950,000
	Tesla	-35,580	-14,192	-177,941	-1,048,689	-1,276,402
Credits Purchased	Fiat Chrysler	144,383	500,000		1,048,689	1,693,072
	Ferrari	90,000				90,000
	Mercedes	435,580	14,192	427,941		877,713

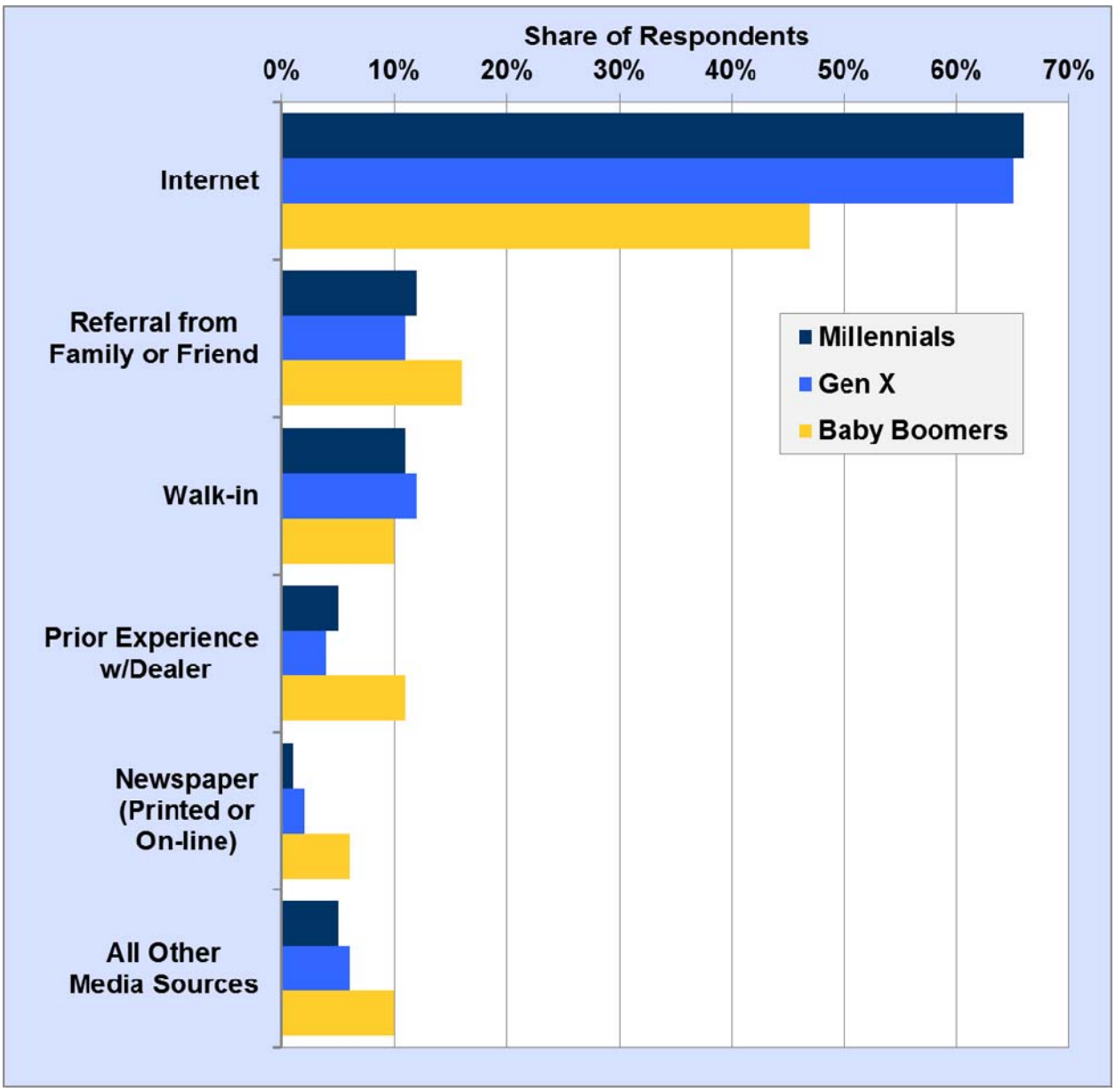
Source:
U.S. Environmental Protection Agency, *Greenhouse Gas Emission Standards for Light-Duty Vehicles: Manufacturer Performance Report for the 2013 Model Year*, EPA-420-R-15-008a, Table 5-2 and Table 4-1, March 2015.

Fact #872: May 11, 2015

Study Finds More than 60% of Millennials and Generation Xers Use the Internet to Find a Car Dealer While Less than Half of Baby Boomers Did

According to an AutoTrader-commissioned study of people who purchased vehicles within the past 12 months, the Internet is the source most used when finding a car dealer. However, the study revealed generational differences among vehicle buyers. Baby boomers were more likely than Millennials or Generation Xers to use a referral from family or friends, a newspaper or other media sources, or have prior experience with a dealer. Millennials and Generation Xers were more likely to use the Internet or simply walk into a dealership than Baby Boomers.

Most Influential Sources Leading to a Car Dealer, 2014



Notes: Internet category includes on-line news sites. All Other Media Sources category includes television, direct mailings, outdoor ads, radio, and magazines. Although the original study did not specify exact definitions, Baby Boomers are those born from 1946 to 1964; Generation Xers are those born from 1964 to about 1980; and Millennials are those born from about 1980 to the mid-2000's. Sample size was about 1,900 buyers.

Supporting Information

Most Influential Sources Leading to a Car Dealer, 2014

	Millennials	Gen X	Baby Boomers
Internet	66%	65%	47%
Referral from Family or Friend	12%	11%	16%
Walk-in	11%	12%	10%
Prior Experience w/Dealer	5%	4%	11%
Newspaper (Printed or On-line)	1%	2%	6%
All Other Media Sources	5%	6%	10%

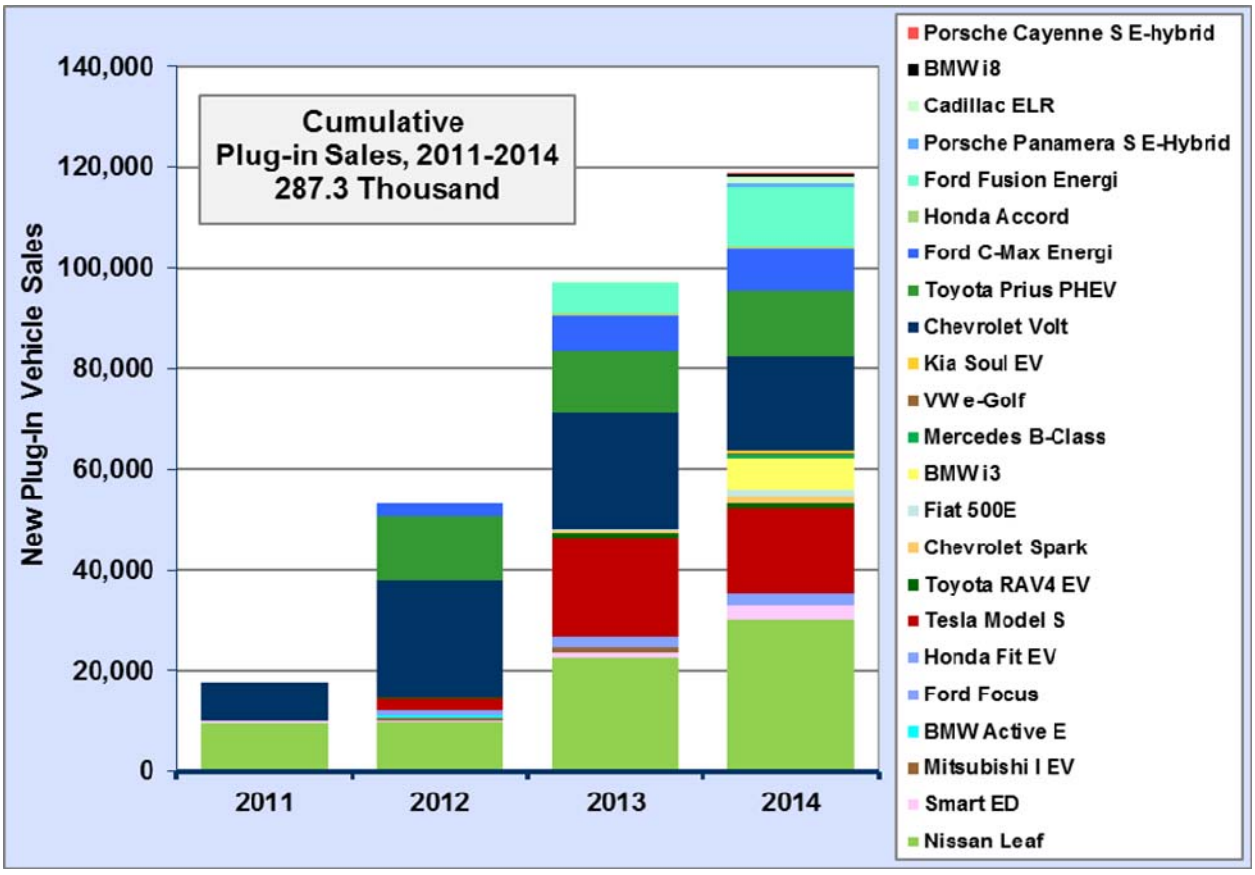
Source:
Oak Ridge National Laboratory, *2014 Vehicle Technologies Market Report*, ORNL/TM-2015/85, March 2015.

Fact #873: May 18, 2015

Plug-In Vehicle Sales Total Nearly 120,000 Units in 2014

The number of plug-in vehicles sold in the United States in 2014 grew to nearly 120,000, up from 97,000 the year before. Nissan and Chevrolet had the best sellers in 2011 with the Leaf and the Volt, but were joined by several other manufacturers in 2012. There were 23 different plug-in models available in 2014, many selling less than 5,000 units. The biggest plug-in sellers in 2014 were the Nissan Leaf, Chevrolet Volt, Tesla Model S, Toyota Prius PHEV, and Ford Fusion Energi. From the first plug-in vehicle sales in 2011 to 2014 about 287 million vehicles have been sold.

Plug-In Vehicle Sales, 2011-2014



Supporting Information

Plug-In Vehicle Sales, 2011-2014

Make and Model	2010	2011	2012	2013	2014
Porsche Cayenne S E-hybrid	0	0	0	0	112
BMW i8	0	0	0	0	555
Cadillac ELR	0	0	0	6	1,310
Porsche Panamera S E-Hybrid	0	0	0	51	879
Ford Fusion Energi	0	0	0	6,089	11,550
Honda Accord	0	0	0	526	449
Ford C-Max Energi	0	0	2,374	7,154	8,433
Toyota Prius PHEV	0	0	12,749	12,088	13,264
Chevrolet Volt	326	7,671	23,461	23,094	18,805
Kia Soul EV	0	0	0	0	359
VW e-Golf	0	0	0	0	357
Mercedes B-Class	0	0	0	0	774
BMW i3	0	0	0	0	6,092
Fiat 500E	0	0	0	260	1,503
Chevrolet Spark	0	0	0	560	1,145
Toyota RAV4 EV	0	0	192	1,005	1,184
Tesla Model S	0	0	2,400	19,400	16,750
Honda Fit EV	0	0	93	569	407
Ford Focus	0	0	683	1,738	1,964
BMW Active E	0	0	671	0	0
Mitsubishi I EV	0	76	588	1,029	196
Smart ED	0	342	139	923	2,594
Nissan Leaf	19	9,674	9,819	22,610	30,200
Total	345	17,763	53,169	97,102	118,882

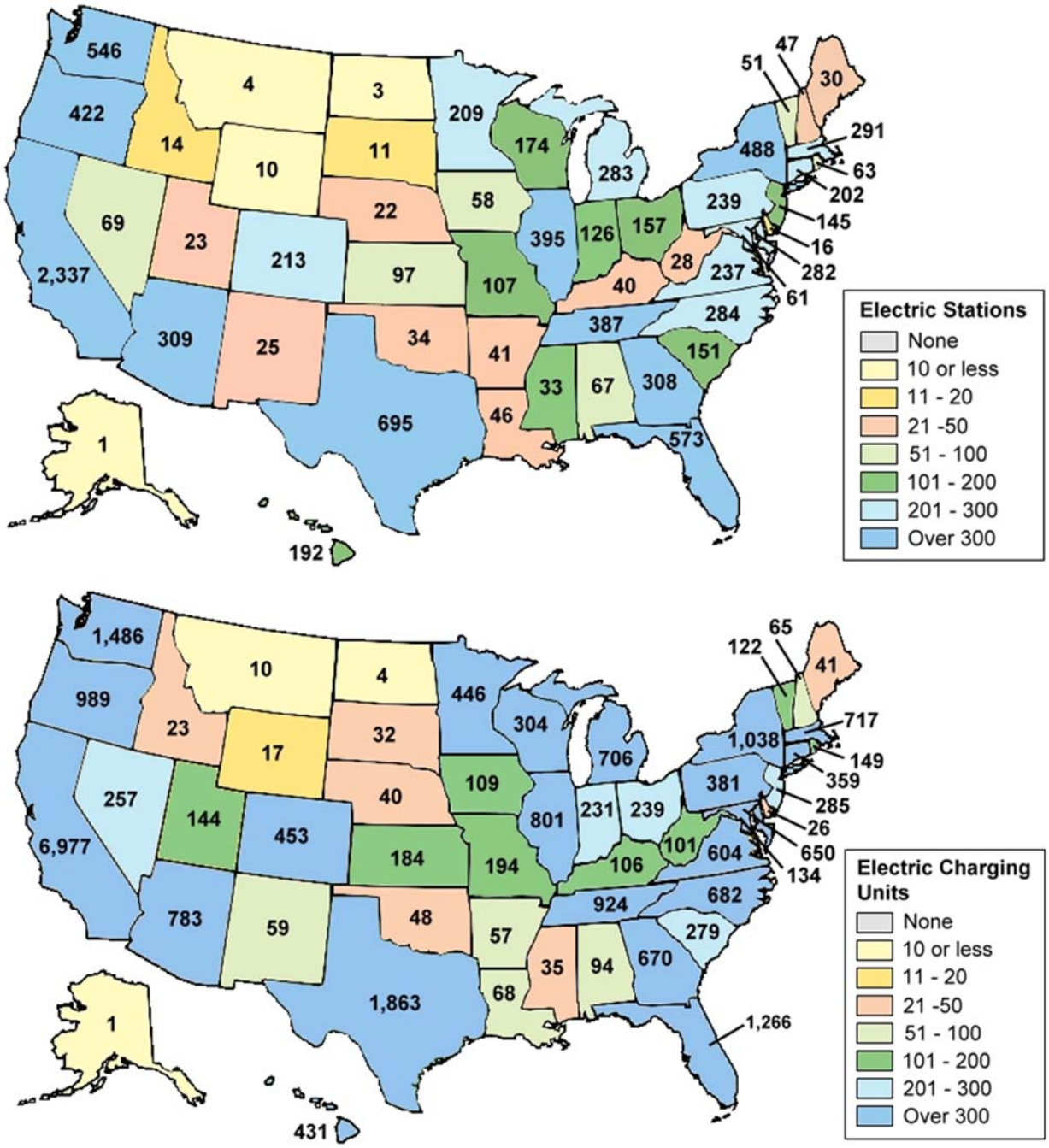
Source:
Oak Ridge National Laboratory, *2014 Vehicle Technologies Market Report*, ORNL/TM-2015/85, March 2015.

Fact #874: May 25, 2015

Number of Electric Stations and Electric Charging Units Increasing

There are more electric stations than any other alternative fuel (10,710 stations). The number of charging units is of particular importance for electric vehicles due to the length of time it takes vehicles to charge compared to other types of fueling stations. While most refueling is completed in a matter of minutes, electric vehicles may occupy a charging unit for hours so it is important to know the total number of available charging units. Data are as of December 31, 2014.

Number of Electric Stations (top) and Electric Charging Units by State, 2014



Supporting Information

Number of Electric Stations (top) and Electric Charging Units by State, 2014

State	Electric Stations (top)	Electric Charging Units (bottom)
Alabama	67	94
Alaska	1	1
Arizona	309	783
Arkansas	41	57
California	2,337	6,977
Colorado	213	453
Connecticut	202	359
Delaware	16	26
District of Columbia	61	134
Florida	573	1,266
Georgia	308	670
Hawaii	192	431
Idaho	14	23
Illinois	395	801
Indiana	126	231
Iowa	58	109
Kansas	97	184
Kentucky	40	106
Louisiana	46	68
Maine	30	41
Maryland	282	650
Massachusetts	291	717
Michigan	283	706
Minnesota	209	446
Mississippi	33	35
Missouri	107	194

Montana	4	10
Nebraska	22	40
Nevada	87	257
New Hampshire	47	65
New Jersey	145	285
New Mexico	25	59
New York	488	1,038
North Carolina	284	682
North Dakota	3	4
Ohio	157	239
Oklahoma	34	48
Oregon	422	989
Pennsylvania	239	381
Rhode Island	63	149
South Carolina	151	247
South Dakota	11	32
Tennessee	387	924
Texas	695	1,863
Utah	69	144
Vermont	51	122
Virginia	237	604
Washington	546	1,486
West Virginia	28	101
Wisconsin	174	304
Wyoming	10	17
TOTAL	10,710	25,652

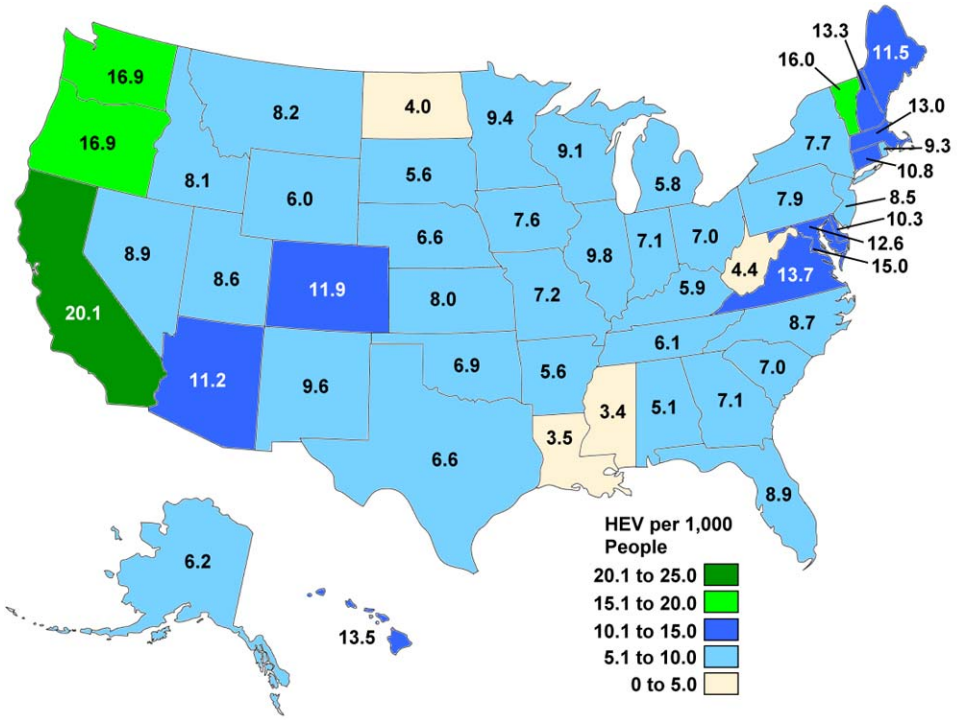
Source:
Oak Ridge National Laboratory, *2014 Vehicle Technologies Market Report*, ORNL/TM-2015/85, March 2015.

Fact #875: June 1, 2015

Hybrid Electric Vehicle Penetration by State, 2014

Hybrid electric vehicles (HEVs) are conventional hybrid vehicles that use a gasoline engine with a hybrid electric drive for superior efficiency; they do not plug-in. This type of hybrid vehicle was introduced to the U.S. market in 1999 with the Honda Insight and followed by the Toyota Prius in 2000. After about 15 years of sales, HEVs have been adopted at varying rates across the United States. California has the highest concentration of HEV registrations with 20.1 HEVs per thousand people. In general, the West Coast and Northeast have the highest concentrations of HEVs per thousand people. Mississippi, Louisiana, North Dakota, and West Virginia have the lowest number of HEV registrations relative to their population with less than 5 per thousand people.

Hybrid Electric Light Vehicle Registrations per Thousand People by State, 2014



Note: HEV registrations include all HEVs under 10,000 lbs. gross vehicle weight registered in the state in July 2014.

Supporting Information

Hybrid Electric Light Vehicle Registrations and Population by State, 2014

State	HEV Registrations	Population Estimates	HEV Registrations per Thousand People
Alabama	24,955	4,849,377	5.1
Alabama	24,955	4,849,377	5.1
Alaska	4,534	736,732	6.2
Arizona	75,452	6,731,484	11.2
Arkansas	16,750	2,966,369	5.6
California	778,405	38,802,500	20.1
Colorado	63,597	5,355,866	11.9
Connecticut	39,001	3,596,677	10.8
Delaware	9,601	935,614	10.3
District of Columbia	9,915	658,893	15.0
Florida	177,622	19,893,297	8.9
Georgia	71,786	10,097,343	7.1
Hawaii	19,120	1,419,561	13.5
Idaho	13,310	1,634,464	8.1
Illinois	125,714	12,880,580	9.8
Indiana	46,575	6,596,855	7.1
Iowa	23,489	3,107,126	7.6
Kansas	23,113	2,904,021	8.0
Kentucky	26,060	4,413,457	5.9
Louisiana	16,248	4,649,676	3.5
Maine	15,303	1,330,089	11.5
Maryland	75,050	5,976,407	12.6
Massachusetts	87,952	6,745,408	13.0

Michigan	57,053	9,909,877	5.8
Minnesota	51,515	5,457,173	9.4
Mississippi	10,250	2,994,079	3.4
Missouri	43,692	6,063,589	7.2
Montana	8,376	1,023,579	8.2
Nebraska	12,386	1,881,503	6.6
Nevada	25,321	2,839,099	8.9
New Hampshire	17,633	1,326,813	13.3
New Jersey	75,911	8,938,175	8.5
New Mexico	20,026	2,085,572	9.6
New York	151,095	19,746,227	7.7
North Carolina	86,734	9,943,964	8.7
North Dakota	2,964	739,482	4.0
Ohio	80,594	11,594,163	7.0
Oklahoma	26,642	3,878,051	6.9
Oregon	67,180	3,970,239	16.9
Pennsylvania	100,914	12,787,209	7.9
Rhode Island	9,837	1,055,173	9.3
South Carolina	33,835	4,832,482	7.0
South Dakota	4,790	853,175	5.6
Tennessee	40,082	6,549,352	6.1
Texas	177,585	26,956,958	6.6
Utah	25,232	2,942,902	8.6
Vermont	10,028	626,562	16.0
Virginia	113,924	8,326,289	13.7
Washington	119,534	7,061,530	16.9
West Virginia	8,165	1,850,326	4.4
Wisconsin	52,544	5,757,564	9.1

Wyoming	3,498	584,153	6.0
All	3,180,892	318,857,056	10.0

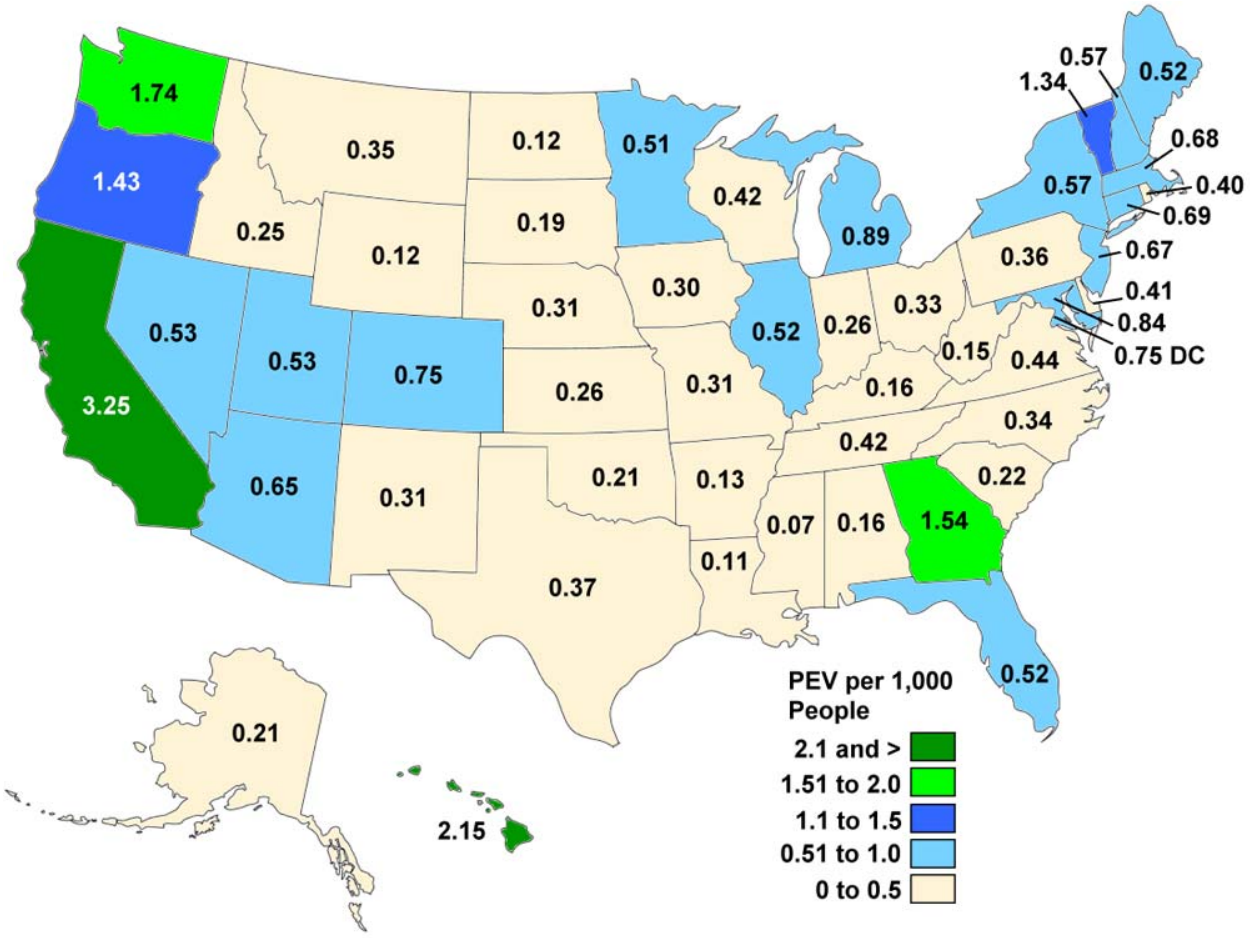
Source:
HEV registrations - National Renewable Energy Laboratory analysis, R.L. Polk, POLK_VIO_DETAIL_2014, May 2015.
Population - U.S. Census Bureau, Population Estimates, State Totals: Vintage 2014. Argonne National Laboratory estimated population through July 2014 to match the registration data.

Fact #876: June 8, 2015

Plug-In Electric Vehicle Penetration by State, 2014

Plug-in electric vehicles (PEVs) include battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). The first mass marketed PEVs were introduced in 2010 with the Nissan Leaf, which is a BEV, and the Chevrolet Volt, which is a PHEV. After four years of sales, California had the most PEV registrations of any state with 3.25 PEVs per thousand people. Hawaii had the second highest concentration of PEVs followed by Washington and Georgia. Georgia is noteworthy because it had the fourth highest concentration of PEVs in a region where neighboring states had significantly fewer PEVs relative to their populations. Georgia's higher number of PEV registrations is likely a reflection of generous state incentives for the purchase of electric vehicles. Mississippi had the fewest PEV registrations of any state relative to population.

Plug-In Electric Vehicle Registrations per Thousand People by State, 2014



Notes:

- PEV – Plug-in electric vehicle (Includes BEV and PHEV).
- BEV – Battery electric vehicle (Also referred to as an all-electric vehicle).
  PHEV – Plug-in hybrid electric vehicle (Has a gasoline engine as a backup for when the battery is depleted).
- PEV registrations include all PEVs under 10,000 lbs. gross vehicle weight registered in the state in July 2014.

Supporting Information

Plug-In Electric Light Vehicle Registrations and Population by State, 2014

State	PEV Registrations	Population Estimates	PEV Registrations per Thousand People
Alabama	773	4,849,377	0.16
Alaska	155	736,732	0.21
Arizona	4,361	6,731,484	0.65
Arkansas	374	2,966,369	0.13
California	126,283	38,802,500	3.25
Colorado	4,001	5,355,866	0.75
Connecticut	2,476	3,596,677	0.69
Delaware	383	935,614	0.41
District of Columbia	493	658,893	0.75
Florida	10,383	19,893,297	0.52
Georgia	15,551	10,097,343	1.54
Hawaii	3,050	1,419,561	2.15
Idaho	409	1,634,464	0.25
Illinois	6,694	12,880,580	0.52
Indiana	1,697	6,596,855	0.26
Iowa	928	3,107,126	0.30
Kansas	750	2,904,021	0.26
Kentucky	701	4,413,457	0.16
Louisiana	527	4,649,676	0.11
Maine	695	1,330,089	0.52
Maryland	5,028	5,976,407	0.84
Massachusetts	4,612	6,745,408	0.68
Michigan	8,844	9,909,877	0.89
Minnesota	2,775	5,457,173	0.51
Mississippi	201	2,994,079	0.07
Missouri	1,859	6,063,589	0.31
Montana	362	1,023,579	0.35

Nebraska	579	1,881,503	0.31
Nevada	1,509	2,839,099	0.53
New Hampshire	761	1,326,813	0.57
New Jersey	6,021	8,938,175	0.67
New Mexico	637	2,085,572	0.31
New York	11,278	19,746,227	0.57
North Carolina	3,384	9,943,964	0.34
North Dakota	91	739,482	0.12
Ohio	3,814	11,594,163	0.33
Oklahoma	806	3,878,051	0.21
Oregon	5,681	3,970,239	1.43
Pennsylvania	4,540	12,787,209	0.36
Rhode Island	417	1,055,173	0.40
South Carolina	1,056	4,832,482	0.22
South Dakota	160	853,175	0.19
Tennessee	2,730	6,549,352	0.42
Texas	9,925	26,956,958	0.37
Utah	1,565	2,942,902	0.53
Vermont	840	626,562	1.34
Virginia	3,628	8,326,289	0.44
Washington	12,291	7,061,530	1.74
West Virginia	271	1,850,326	0.15
Wisconsin	2,429	5,757,564	0.42
Wyoming	73	584,153	0.12
All	278,851	318,857,056	0.87

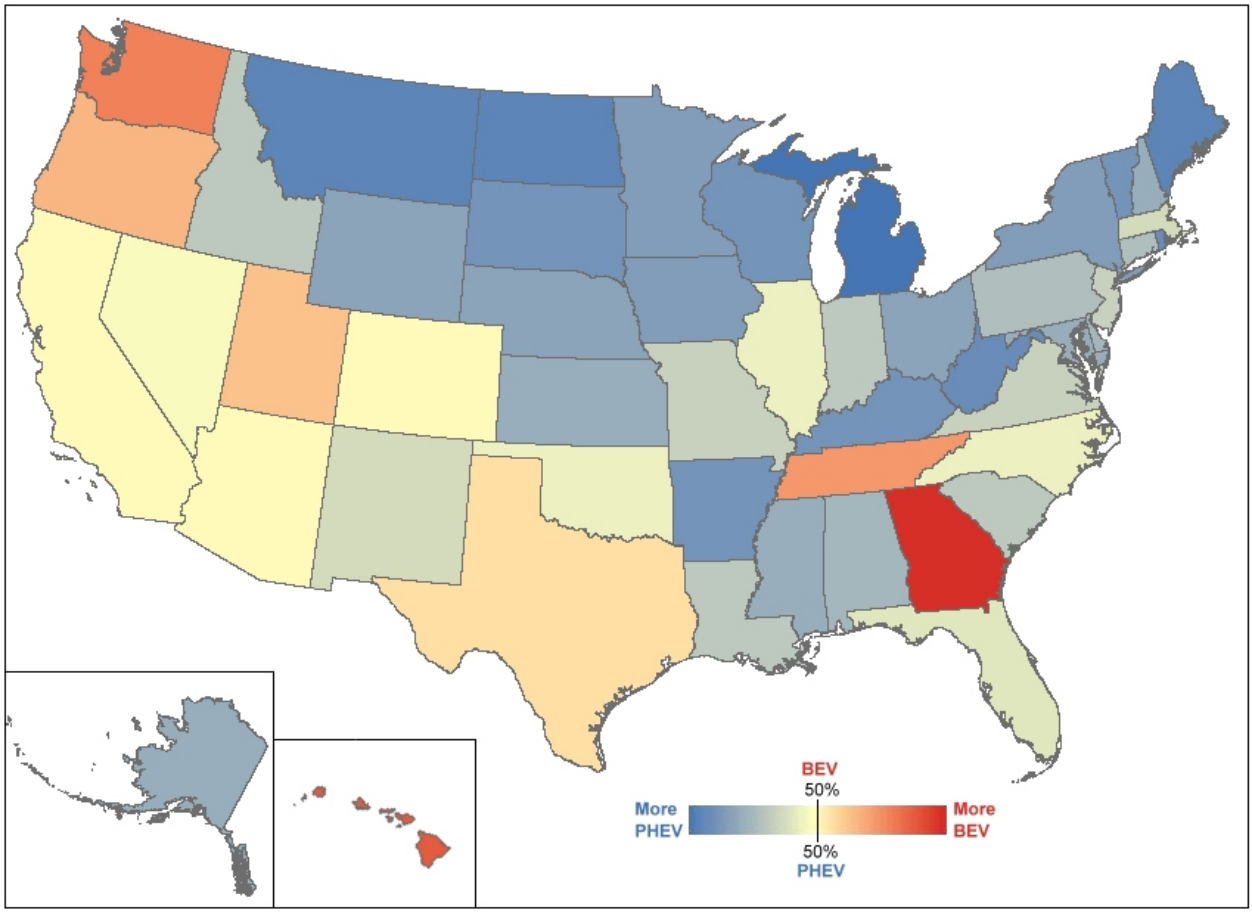
Sources:
PEV registrations - National Renewable Energy Laboratory analysis, R.L. Polk, POLK_VIO_DETAIL_2014, May 2015.
Population - *U.S. Census Bureau, Population Estimates, State Totals: Vintage 2014*. Argonne National Laboratory estimated population through July 2014 to match the registration data.

Fact #877: June 15, 2015

Which States Have More Battery Electric Vehicles than Plug-In Hybrids?

Plug-in electric vehicles (PEVs) include both battery electric vehicles (BEVs) which run only on electricity, and plug-in hybrid electric vehicles (PHEVs) which run on electricity and/or gasoline. Considering all PEVs within a state in 2014, the map below shows states with a greater share of BEVs in red and states with a greater share of PHEVs in blue. Those states where the BEVs and PHEVs are near 50/50 are a neutral color. Georgia had by far the highest percentage of BEVs (84%) of total PEVs. Generous state incentives for purchasing a BEV in Georgia likely account for this high percentage. Hawaii had the next highest share, followed by Washington, Tennessee, Oregon, Utah, and Texas – all with more than 50% BEVs of all plug-ins registered in the State. States such as Michigan, Montana, North Dakota, Wyoming, and Maine had higher shares of PHEV registrations. For these states and a number of others, PHEVs, which can run on gasoline if necessary, are the most common type of PEV.

Share of BEVs and PHEVs by State, 2014



Notes:

- PEV – Plug-in electric vehicle (includes BEV and PHEV)
- BEV – Battery electric vehicle (also referred to as an all-electric vehicle)
- PHEV – Plug-in hybrid electric vehicle (has a gasoline engine as a backup for when the battery is depleted.)
- PEV and BEV registrations include all PEVs and BEVs under 10,000 lbs. gross vehicle weight registered in the state in July 2014.

Supporting Information

Share of BEVs and PHEVs by State, 2014

	All PEVs	
State	**BEV Share**	**PHEV Share**
Alabama	32%	68%
Alaska	28%	72%
Arizona	49%	51%
Arkansas	21%	79%
California	49%	51%
Colorado	48%	52%
Connecticut	33%	67%
Delaware	31%	69%
District of Columbia	38%	62%
Florida	43%	57%
Georgia	84%	16%
Hawaii	76%	24%
Idaho	35%	65%
Illinois	44%	56%
Indiana	35%	65%
Iowa	24%	76%
Kansas	29%	71%
Kentucky	23%	77%
Louisiana	36%	64%
Maine	18%	82%
Maryland	29%	71%
Massachusetts	39%	61%
Michigan	12%	88%
Minnesota	23%	77%
Mississippi	29%	71%
Missouri	38%	62%
Montana	18%	82%

Nebraska	27%	73%
Nevada	47%	53%
New Hampshire	30%	70%
New Jersey	38%	62%
New Mexico	41%	59%
New York	25%	75%
North Carolina	45%	55%
North Dakota	18%	82%
Ohio	27%	73%
Oklahoma	45%	55%
Oregon	60%	40%
Pennsylvania	33%	67%
Rhode Island	20%	80%
South Carolina	37%	63%
South Dakota	23%	78%
Tennessee	66%	34%
Texas	53%	47%
Utah	58%	42%
Vermont	23%	77%
Virginia	37%	63%
Washington	70%	30%
West Virginia	19%	81%
Wisconsin	23%	77%
Wyoming	27%	73%
All	47%	53%

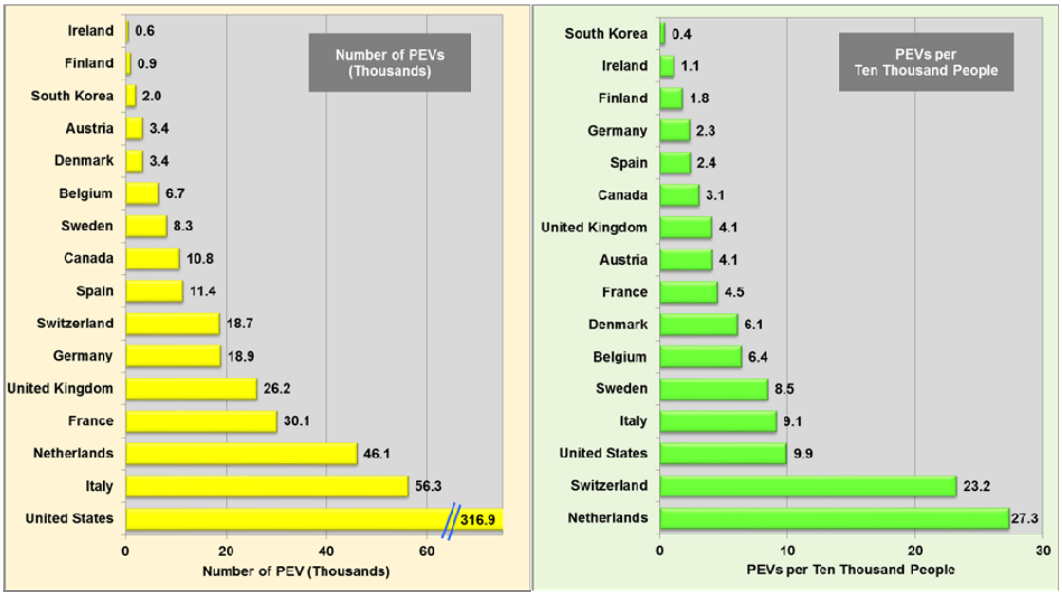
Source:
National Renewable Energy Laboratory analysis, R.L. Polk, POLK_VIO_DETAIL_2014, May 2015.

Fact #878: June 22, 2015

Plug-In Vehicle Penetration in Selected Countries, 2014

The International Energy Agency released the 2015 report *Hybrid and Electric Vehicles, The Electric Drive Delivers* which shows the total number of plug-in electric vehicles (PEVs) in selected countries. PEVs include both battery electric vehicles (BEVs) and plug-in hybrid electric vehicles or PHEVs. The United States had by far the most PEVs with nearly 317,000 while Italy had the second highest number of PEVs with 56,300 – less than one fifth of the United States total. However, if you view the number of PEVs relative to the size of each country's population, the United States comes in a distant third among the selected countries with 9.9 PEVs per ten thousand people. The Netherlands and Switzerland had 27.3 and 23.2 PEVs per ten thousand people, respectively.

Number of PEVs and PEVs per Ten Thousand People for Selected Countries, 2014



Notes:

- These countries reported their vehicle totals in different ways; some countries reported registrations through 2014 while others used cumulative sales through 2014.
- PEVs include both BEVs and PHEVs.
- Austria and Germany data do not include PHEVs, but only BEVs.
- Austria, Canada, France, and Germany include only passenger cars.

Supporting Information

Number of PEVs and PEVs per Ten Thousand People for Selected Countries, 2014

Country	Number of PEVs (Thousands)	PEVs per Ten Thousand People
United States	316.9	9.9
Italy	56.2	9.1
Netherlands	46.1	27.3
France	30.1	4.5
United Kingdom	26.1	4.1
Germany	18.9	2.3
Switzerland	18.7	23.2
Spain	11.4	2.4
Canada	10.7	3.1
Sweden	8.2	8.5
Belgium	6.7	6.4
Denmark	3.3	6.1
Austria	3.3	4.1
South Korea	2.0	0.4
Finland	0.9	1.8
Ireland	0.6	1.1

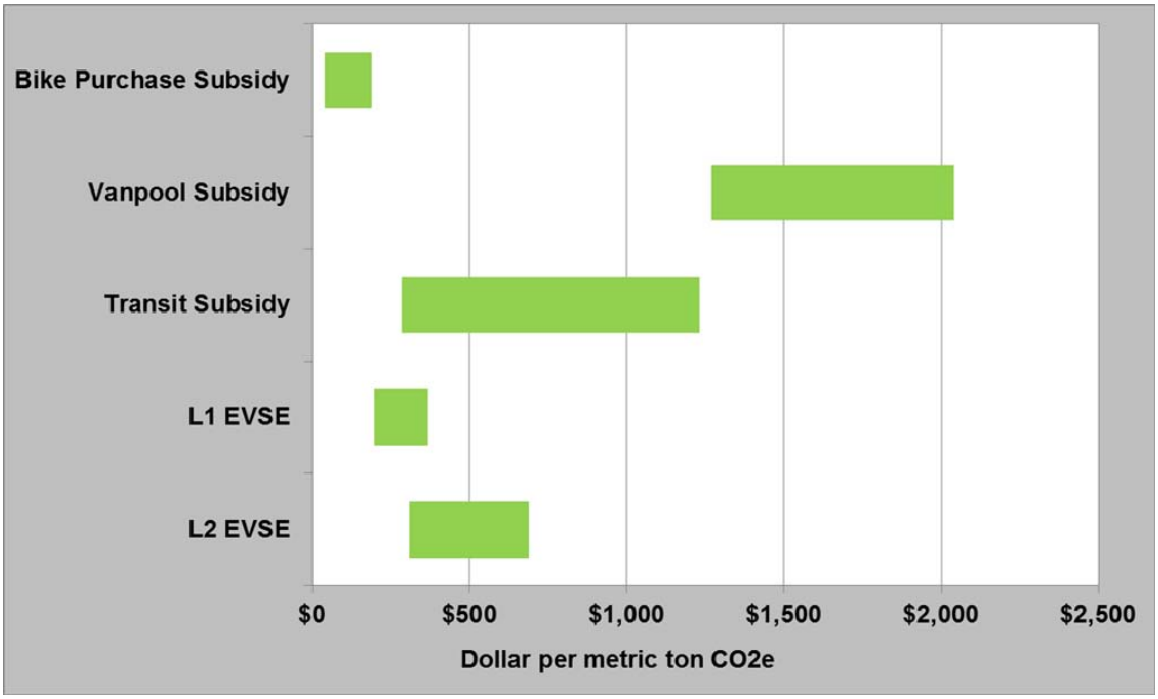
Source:
International Energy Agency, Implementing Agreement for Co-operation on Hybrid and Electric Vehicle Technologies and Programmes, *Hybrid and Electric Vehicles, The Electric Drive Delivers*, Annual Report, April 2015, Table 1, pg. 120.

Fact #879: June 29, 2015

Greenhouse Gas Abatement Costs for Employer-Subsidized Commuting Options

Providing workplace charging is one of the more effective ways for businesses to reduce the greenhouse gas emissions of their employees' daily commute. Offering a bike purchase subsidy can be even more cost effective but may not be suitable for all employees. Transit subsidies may be a good option but there is a wide range of potential costs from $284 to $1,231 per metric ton of carbon dioxide equivalent (CO2e). The vanpool subsidy has the highest cost of the options shown potentially exceeding $2,000 per metric ton of CO2e.

Greenhouse Gas Abatement Costs for Selected Commuting Options



Notes:
L1 EVSE – Level 1 Electric Vehicle Supply Equipment which supplies 120 volts.
L2 EVSE – Level 2 Electric Vehicle Supply Equipment which supplies 240 volts.
CO2e – Carbon dioxide equivalent.
See source for assumptions relating to these calculations.

Supporting Information

Greenhouse Gas Abatement Costs for Selected Commuting Options (Dollars per Metric Ton of CO2e)

Commuting Options	Low	High
Bike Purchase Subsidy	$39	$189
Vanpool Subsidy	$1,270	$2,040
Transit Subsidy	$284	$1,231
L1 EVSE	$199	$369
L2 EVSE	$309	$688

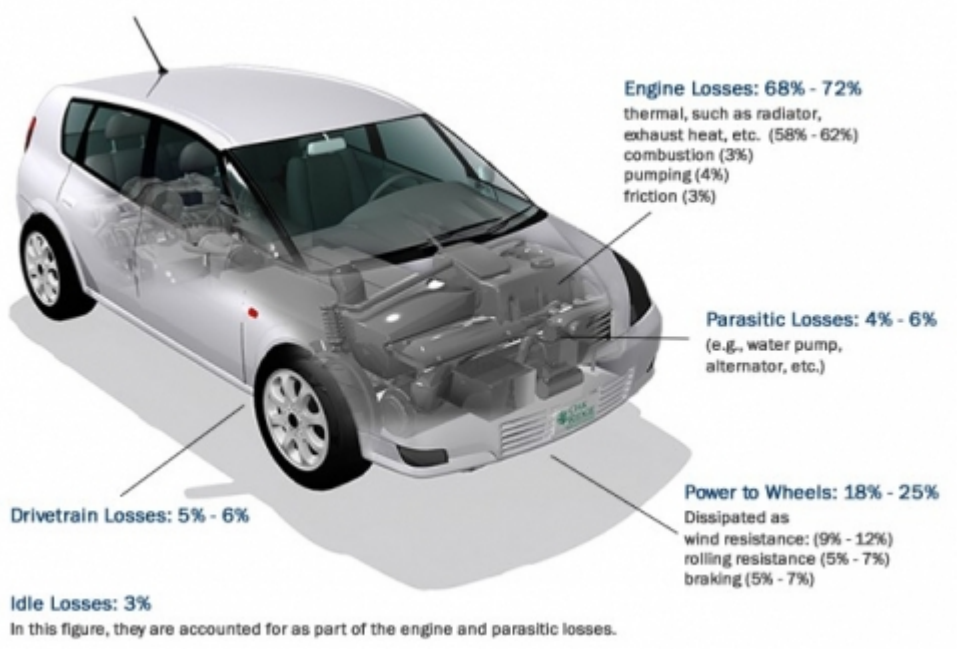
Source:
U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, "Greenhouse Gas Emissions Reduction Benefits of Workplace Charging," accessed April 15, 2015.

Fact #880: July 6, 2015

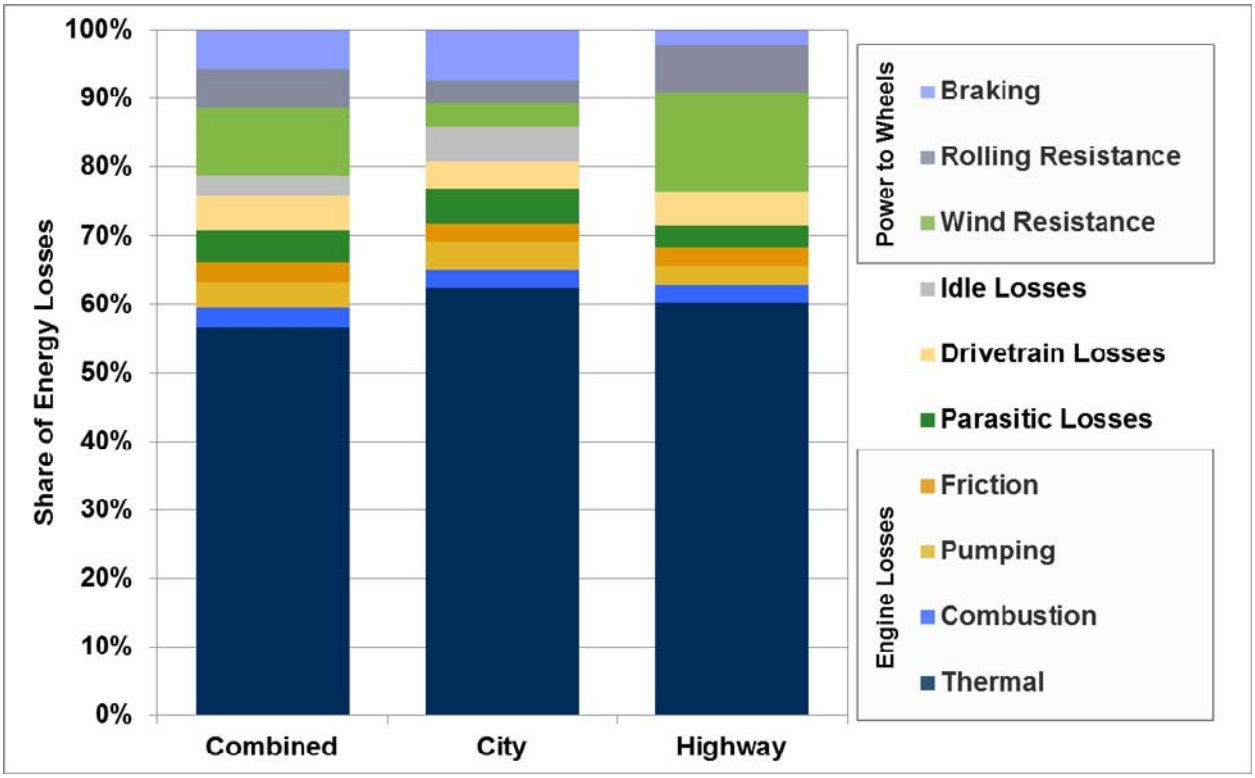
Conventional Vehicle Energy Use: Where Does the Energy Go?

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 14-30% of the energy put into a conventional car 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.

Energy Losses for a Conventional Vehicle for Combined City and Highway Driving



Energy Losses for a Conventional Vehicle for City, Highway, and Combined Driving



Supporting Information

Energy Losses for a Conventional Vehicle for City, Highway, and Combined Driving

Types of Losses	Types of Driving		
	Combined	**City**	**Highway**
Engine Losses	68-72%	71-75%	64-69%
Thermal - radiator, exhaust heat, etc.	58-62%	60-64%	56-60%
Combustion	3%	3%	3%
Pumping	4%	5%	3%
Friction	3%	3%	3%
Parasitic Losses, e.g. water pump, alternator, etc.	4-6%	5-7%	3-4%
Power to Wheels, dissipated as:	18-25%	14-20%	22-30%
Wind Resistance	9-12%	3-5%	13-19%
Rolling Resistance	5-7%	3-5%	6-9%
Braking	5-7%	7-10%	2-3%
Drivetrain Losses	5-6%	4-5%	4-7%
Idle Losses	3%	6%	0%

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

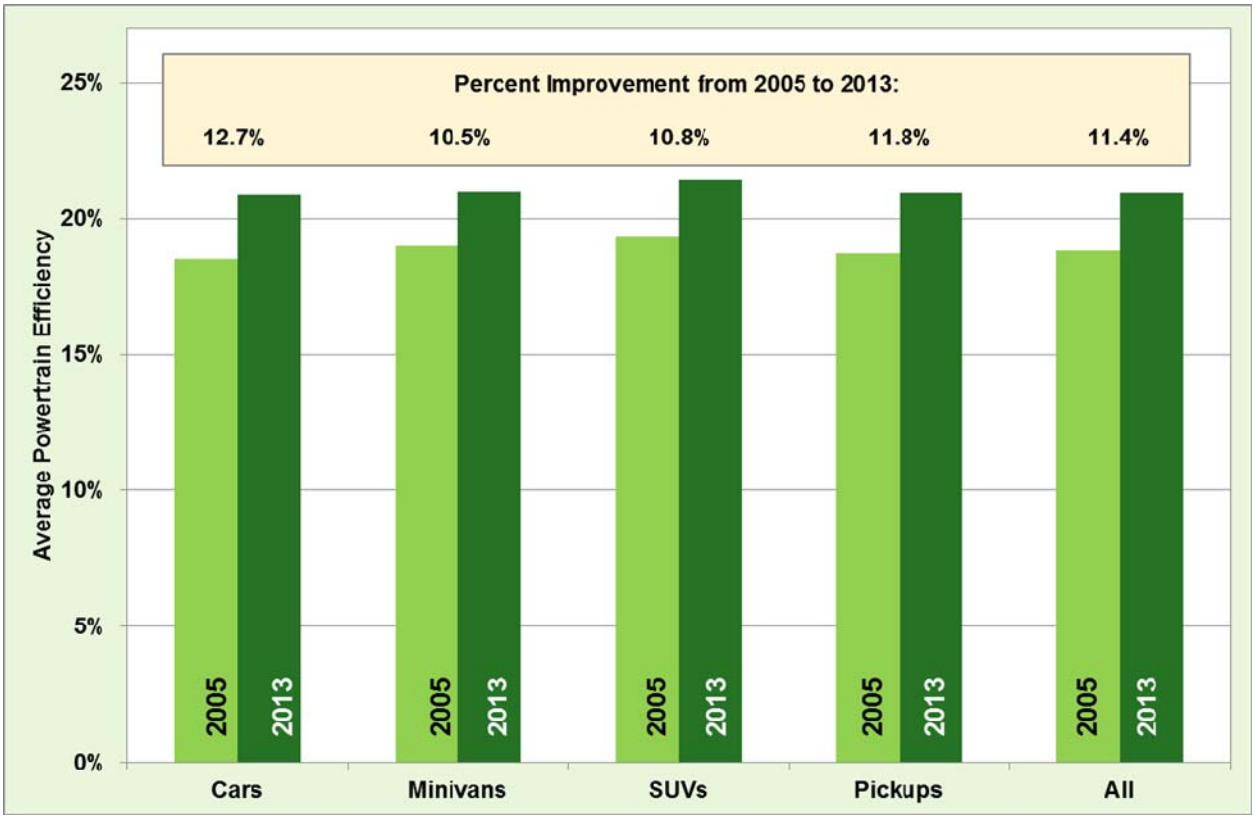
Fact #881: July 13, 2015

Powertrain Efficiency Improvements, 2005 to 2013

Powertrain efficiency in a recent study was defined as the ratio of tractive work (integrated power) needed for a vehicle to complete a drive cycle divided by the fuel energy consumed. In short, this is a measure of how good the powertrain is at getting fuel energy to the road. Many cars have a fuel economy advantage over light trucks due to weight and aerodynamics, but there is not a lot of difference in the powertrain efficiencies by vehicle class.

Much of the improvement in conventional vehicle fuel economy over the last few years is due to the vehicle powertrains becoming more efficient. A recent study compared powertrain efficiency for 37 pairs of same-model vehicles for MY2005 and MY2013. The vehicle pairs: (1) included many of the most-popular models sold; (2) had the same vehicle model name in MY2005 & MY2013; (3) had the same or greater horsepower for the MY2013 version; and (4) had similar vehicle weight. The values for powertrain efficiency for the 2013 vehicles were compared to their 2005 counterparts. Results from the individual vehicles ranged from no improvement for a few vehicles (where the powertrain was relatively unchanged) to improvement up to 28%. When the data are averaged by vehicle type, the cars in the study had a 12.7% improvement (from 18.5% efficiency to 20.9% efficiency) and the pickup trucks had an 11.8% improvement. The average improvement of all 37 vehicle pairs was 11.4%.

Average Powertrain Efficiency by Vehicle Type for Selected 2005 and 2013 Vehicles



Notes:
Data includes only conventional vehicle pairs. Eighteen pairs were cars; two pairs were minivans; twelve pairs were sport-utility vehicles (SUVs); and five pairs were pickup trucks.

Supporting Information

Average Powertrain Efficiency by Vehicle Type for Selected 2005 and 2013 Vehicles

Vehicle Type	Average 2005 powertrain efficiency	Average 2013 powertrain efficiency
Cars	18.5%	20.9%
Minivans	19.0%	21.0%
SUVs	19.4%	21.4%
Pickups	18.7%	20.9%
All	18.8%	20.9%

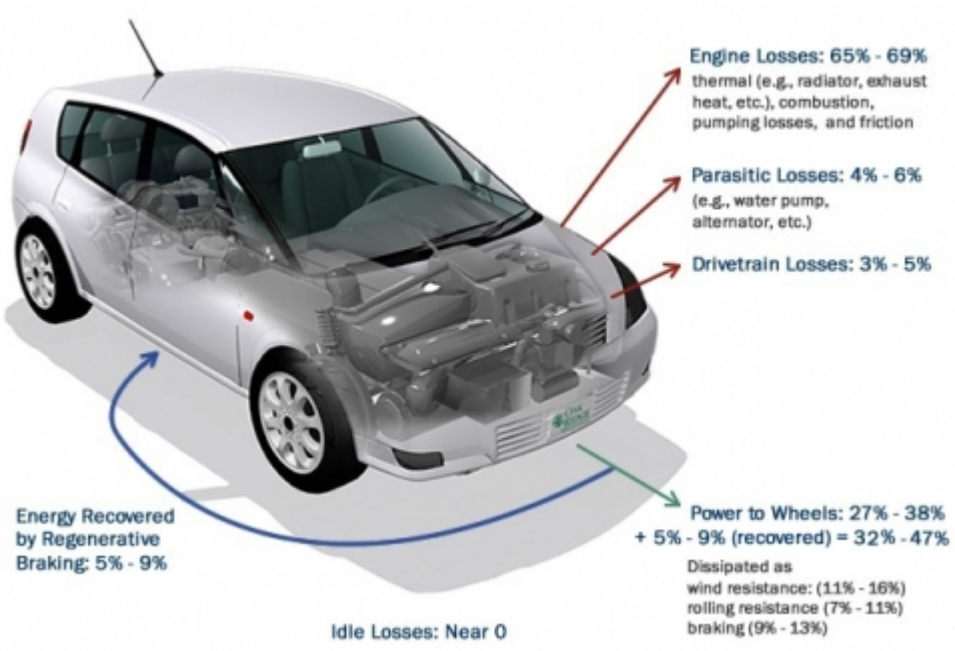
Source:
Thomas, J., "Drive Cycle Powertrain Efficiencies and Trends Derived from EPA Vehicle Dynamometer Results," SAE Int. J. Passenger Cars - Mech. Syst. 7(4):2014, doi:10.4271/2014-01-2562. SAE 2014 International Powertrain, Fuels & Lubricants Meeting, October 20-23, 2014, Birmingham, UK. Based on data from the Environmental Protection Agency, Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends database.

Fact #882: July 20, 2015

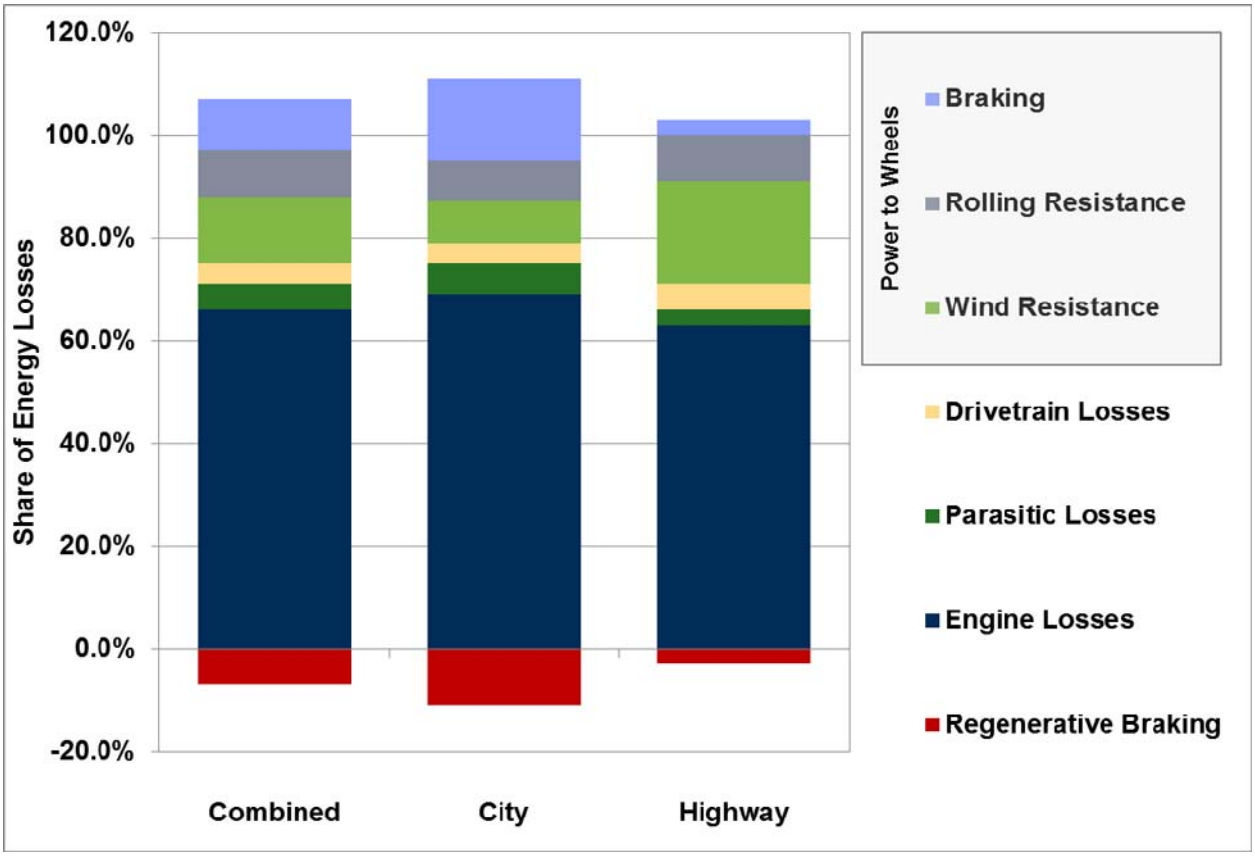
Hybrid Vehicle Energy Use: Where Does the Energy Go?

Hybrids are more efficient than comparable conventional vehicles, especially in stop-and-go driving, due to the use of regenerative braking, electric motor drive/assist, and start/stop technologies. Still, much of the energy is lost to engine and driveline inefficiencies or used to power accessories. About 25%–40% of the energy from the fuel you put in a hybrid is used to move it down the road, depending on the type of driving.

Energy Losses and Gains for a Hybrid Vehicle for Combined City and Highway Driving



Energy Losses and Gains for a Hybrid Vehicle for City, Highway, and Combined Driving



Note: The figure is primarily showing losses, but the regenerative braking gains are shown below 0%, offsetting some of the above losses.

Supporting Information

Energy Losses and Gains for a Hybrid Vehicle for City, Highway, and Combined Driving

	Types of Driving		
	Combined	**City**	**Highway**
Types of Losses	**Energy Losses**		
Engine Losses	65-69%	66-72%	63-66%
Parasitic Losses, e.g. water pump, alternator, etc.	4-6%	5-7%	2-4%
Power to Wheels, dissipated as:	27-38%	25-40%	29-36%
Wind Resistance	11-16%	6-11%	17-23%
Rolling Resistance	7-11%	6-11%	8-11%
Braking	9-13%	13-20%	3-4%
Drivetrain Losses	3-5%	3-5%	3-5%
Idle Losses	0%	0%	0%
Types of Gains	**Energy Gains**		
Regenerative Braking	5-9%	8-14%	2-4%

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

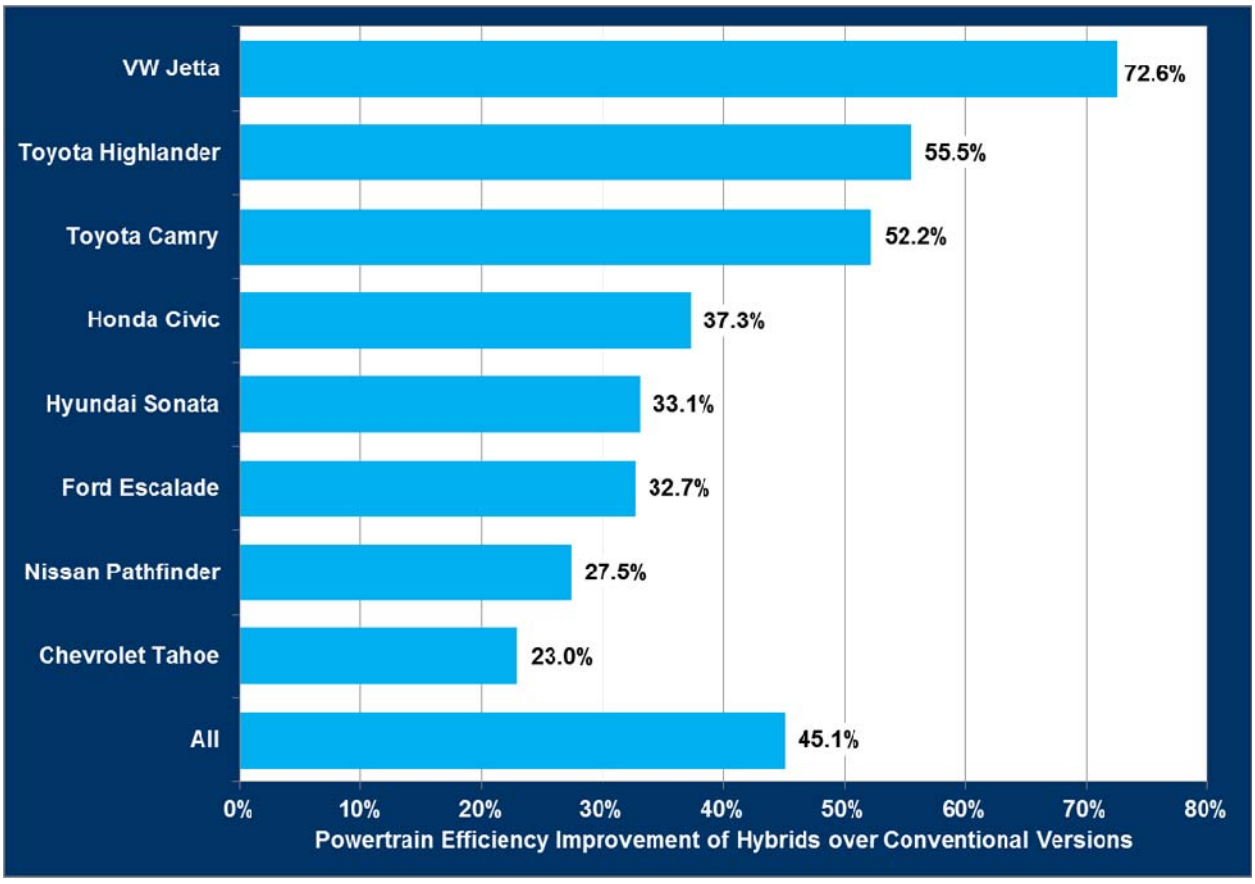
Fact #883: July 27, 2015

Hybrid Powertrains are More Efficient than Conventional Counterparts

Powertrain efficiency in a recent study was defined as the ratio of tractive work (integrated power) needed for a vehicle to complete a drive cycle divided by the fuel energy consumed. In short, this is a measure of how good the powertrain is at getting fuel energy to the road. Many cars have a fuel economy advantage over light trucks due to weight and aerodynamics, but there is not a lot of difference in the powertrain efficiencies by vehicle class. There is a difference, however, in the powertrain efficiency between a hybrid vehicle and its conventional counterpart.

The study compared powertrain efficiency for eight pairs of same-model vehicles for MY2013; the values for powertrain efficiency for conventional vehicles were compared to their hybrid counterparts using data from the Environmental Protection Agency's Office of Transportation and Air Quality. Of the vehicles in the study, the VW Jetta showed the greatest difference between the conventional and hybrid powertrains with the hybrid showing 72.6% improvement. All hybrids in the study had an average efficiency gain of 45.1% over their conventional counterparts. Models that show less improvement with a hybrid powertrain may reflect a more efficient conventional powertrain so caution should be used in comparing the models listed. It is also worth noting that even more modest efficiency improvements for larger vehicles, such as the Chevrolet Tahoe, can have a great impact on overall fuel consumption.

Powertrain Efficiency Improvement for Selected Hybrid vs. Conventional 2013 Counterparts



Supporting Information

Powertrain Efficiency Improvement for Selected Hybrid vs. Conventional 2013 Vehicles

Make and Model	Improvement in Powertrain Efficiency
VW Jetta	72.6%
Toyota Highlander	55.5%
Toyota Camry	52.2%
Honda Civic	37.3%
Hyundai Sonata	33.1%
Ford Escalade	32.7%
Nissan Pathfinder	27.5%
Chevrolet Tahoe	23.0%
All	45.1%

Note: The hybrid Nissan Pathfinder was a 2014 model.

Source:

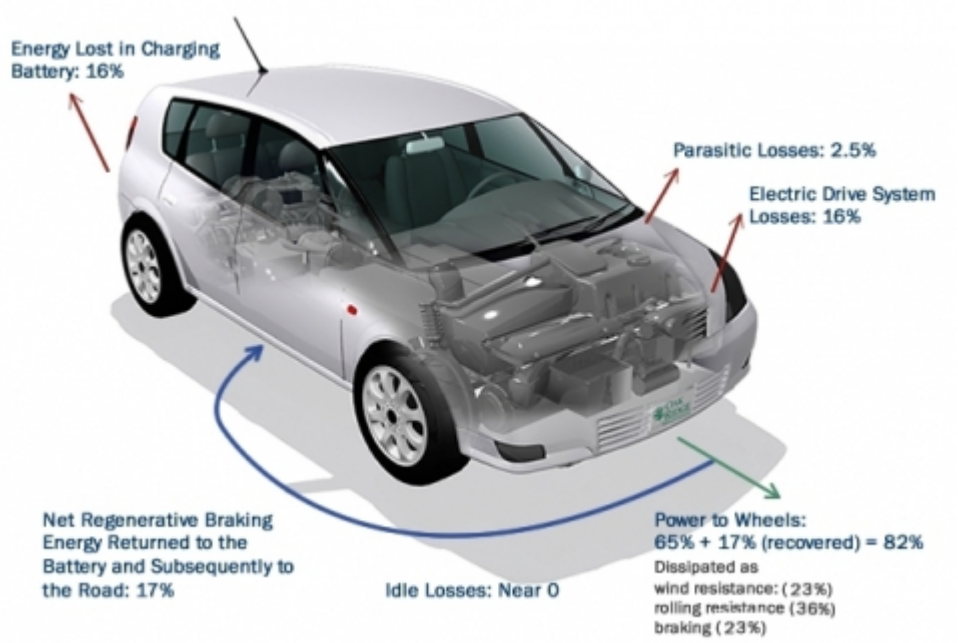
Thomas, J., "Drive Cycle Powertrain Efficiencies and Trends Derived from EPA Vehicle Dynamometer Results," SAE Int. J. Passenger Cars - Mech. Syst. 7(4):2014, doi:10.4271/2014-01-2562. SAE 2014 International Powertrain, Fuels & Lubricants Meeting, October 20-23, 2014, Birmingham, UK. Based on data from the Environmental Protection Agency, Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends database.

Fact #884: August 3, 2015

All-Electric Vehicle: Where Does the Energy Go?

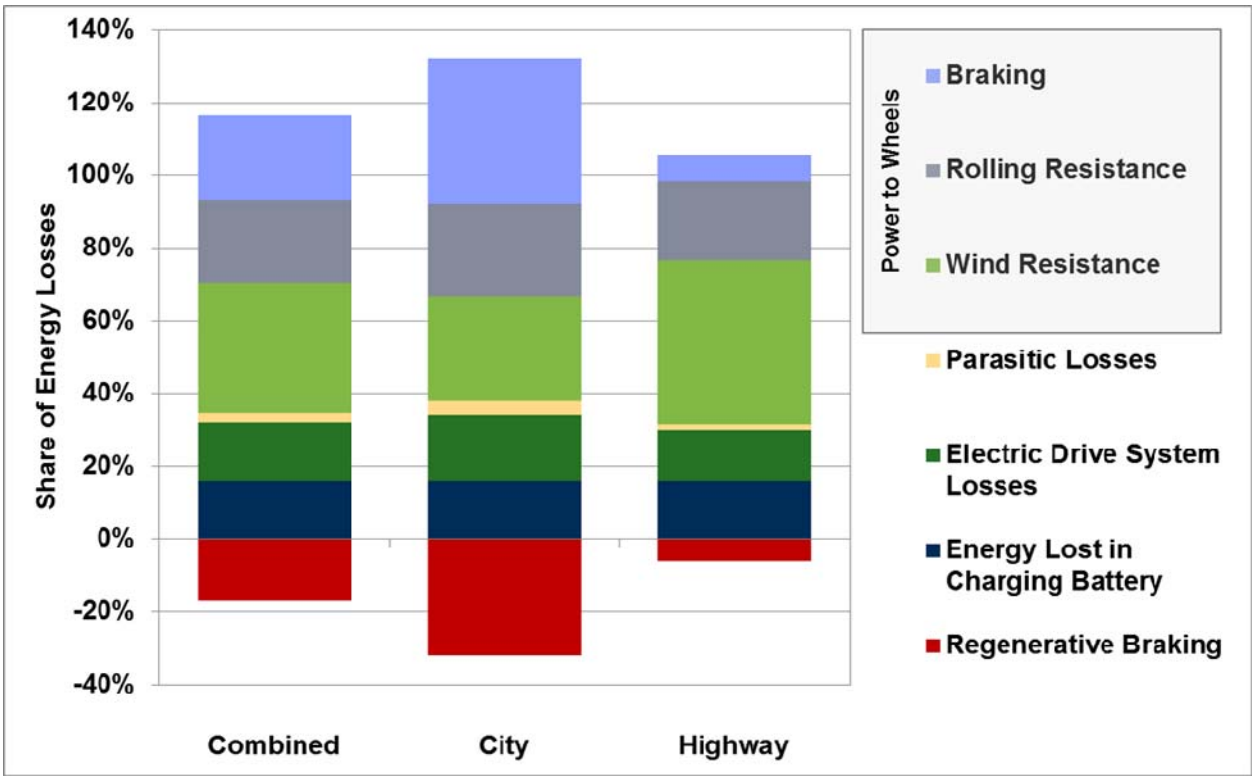
Unlike conventionally fueled vehicles, electric vehicles experience a loss of energy during “refueling,” with an energy loss of about 16% from the wall power to the battery during charging. However, electric vehicles are otherwise highly efficient delivering about 65% of the energy from the wall power to the road even before energy is reclaimed through regenerative braking. When energy gains from regenerative braking are included, the amount of energy used for traveling down the road can rise to more than 80% in the EPA-combined city and highway driving cycle.

Energy Losses and Gains for an All-Electric Vehicle for Combined City and Highway Driving



Notes:
Total energy expenditures don't add to exactly 100% due to rounding. Results shown are for a 2012 Nissan Leaf operating in a temperature of 72 degrees Fahrenheit.
Energy lost in charging battery includes power conversion and internal battery charging losses.

Energy Losses and Gains for an All-Electric Vehicle for Combined, City and Highway Driving



Note: The figure is primarily showing losses, but the regenerative braking gains are shown below 0%, offsetting some of the above losses.

Supporting Information

Energy Losses and Gains for an All-electric Vehicle for City, Highway, and Combined Driving

	Types of Driving		
	Combined	**City**	**Highway**
Types of Losses	**Energy Losses**		
Energy Lost in Charging Battery	16%	16%	16%
Electric Drive System Losses	16%	18%	14%
Parasitic Losses	3%	4%	2%
Power to Wheels, dissipated as:			
Wind Resistance	36%	29%	45%
Rolling Resistance	23%	25%	22%
Braking	23%	40%	7%
Types of Gains	**Energy Gains**		
Regenerative Braking	-17%	-32%	-6%

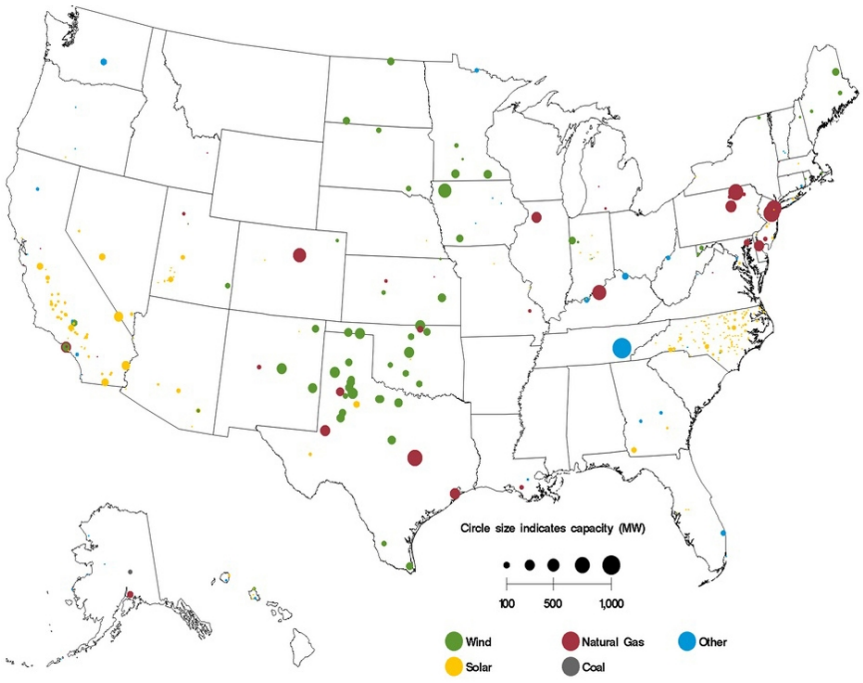
Source:
Argonne National Laboratory data, SAE 2013-01-1462, and presentation.

Fact #885: August 10, 2015

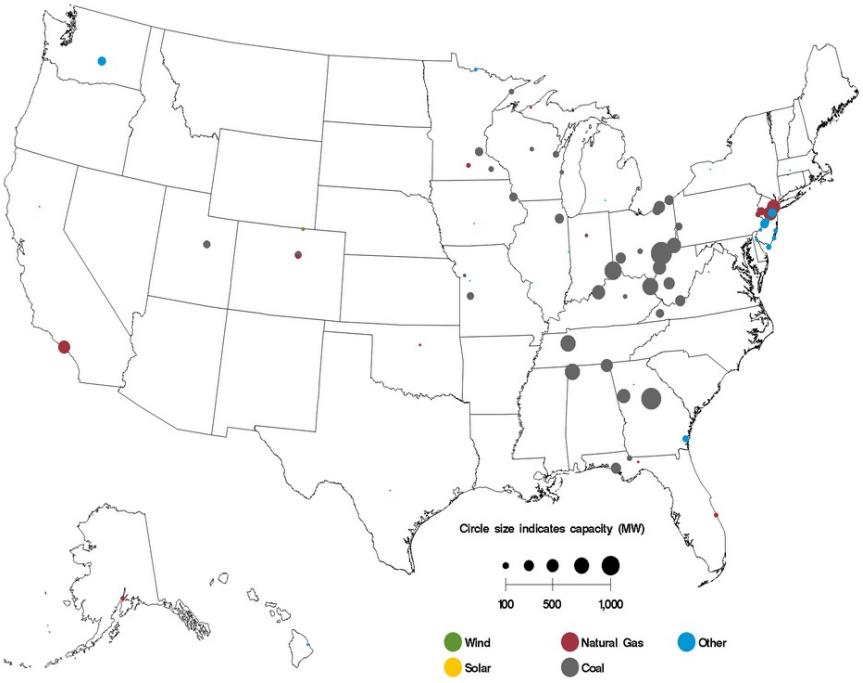
Electricity Generation – Planned Additions and Retirements

Between April 2015 and March 2016, there is a cumulative total of 88,953 megawatts of new electric utility capacity planned. This new capacity will add to the current U.S. capacity of about 1,071,000 megawatts. Over half (53%) of the new capacity that is planned comes from natural gas while 24% comes from wind and 11% from solar. Just 2% of the new planned capacity comes from coal. Most of the planned wind energy is in the mid-section of the United States extending from Texas to North Dakota. Most of the new solar capacity is in the southwest with the exception of North Carolina which also has a lot of new solar planned—1,652 megawatts which is 16% of all new solar capacity planned from April 2015 to March 2016. During this same timeframe, utility generators representing 40,095 megawatts of capacity are set to retire. Nearly three-fourths (73%) of the capacity being retired is from coal, predominantly in the Midwest and Southeast.

Electricity Generating Units Planned to Come Online from April 2015 to March 2016



Electric Generating Units Planned for Retirement from April 2015 to March 2016



Note: Other includes conventional hydroelectric, geothermal, hydrokinetic, landfill gas, municipal solid waste, nuclear, other gases, other waste biomass, petroleum liquids, batteries, and wood/wood waste biomass.

Supporting Information

Electricity Generating Units Planned to Come Online from April 2015 to March 2016
Net Summer Capacity (Megawatts)

State	Fuel Source					
	Coal	Natural Gas	Solar	Wind	All Other	Total
Alaska	67	99			56	222
Alabama					62	62
Arizona		3,875	441	30		4,345
California	413	3,106	4,707	337	438	9,000
Colorado		625	122	228	3	978
Connecticut		90	20		8	118
District of Columbia					10	10
Delaware		309	1			310
Florida		2,500	154		100	2,753
Georgia	850		120		2,250	3,220
Hawaii			58	25	18	101
Iowa		692		692	66	1,450
Idaho		5	40		13	57
Illinois		571		1,341	55	1,967
Indiana		1,286	21	270	5	1,582
Kansas		225		723		947
Kentucky		1,430	10		270	1,710
Louisiana		618			15	633
Massachusetts		681	3	8	44	736
Maryland		1,844	10	230	87	2,171
Maine		55		780		835
Michigan		143		100		243
Minnesota		432	2	646	40	1,120
Missouri		24	4			28
Montana				371		371
North Carolina		460	1,652		8	2,120

North Dakota		192		501		693
Nebraska			4	411		415
New Hampshire				12		12
New Jersey		2,230	27			2,257
New Mexico		80	65	728		873
Nevada			1,368	200	25	1,593
New York	2	1,620	19	567	20	2,228
Ohio		1,991	80	817		2,888
Oklahoma		1,092	3	2,023	3	3,121
Oregon		2,430	5	292	5	2,732
Pennsylvania	1	4,142			100	4,244
Rhode Island				44		44
South Carolina			46		2,200	2,246
South Dakota				178		178
Tennessee		371			1,122	1,493
Texas		10,124	640	6,344	26	17,134
Utah		201	476	182	35	894
Virginia		2,836	20	12	8	2,876
Vermont					33	33
Washington				126	610	736
Wisconsin		700		98		798
West Virginia		355			269	624
Wyoming	625	80		3,050		3,755
Total U.S.	1,958	47,512	10,116	21,364	8,002	88,953

Source:
Energy Information Administration, *Electric Power Monthly March 2015*, Washington, DC, May 2015, Table 6.5.

Electric Generating Units Planned for Retirement from April 2015 to March 2016
Net Summer Capacity (Megawatts)

State	Fuel Source					
	Coal	Natural Gas	Solar	Wind	All Other	Total
Alaska		44				44
Alabama	1,789				56	1,845
Arizona	260					260
California		2,004	2	56	9	2,071
Colorado	336	60		25		421
Connecticut					17	17
Florida	1,568	392			184	2,144
Georgia	2,217	115			124	2,456
Hawaii	180				15	195
Iowa	418	282			62	762
Illinois	859				17	876
Indiana	1,954	15			3	1,972
Kansas	54	12				66
Kentucky	2,951					2,951
Louisiana		95				95
Massachusetts	1,071	19			435	1,525
Maryland	1,196					1,196
Michigan	361	55			2	418
Minnesota	534	493			218	1,244
Missouri	759				5	764
Mississippi		351				351
New Jersey		1,307			1,490	2,797
New Mexico	837	233	1			1,071
Nevada	511	315			6	832
New York					55	55
Ohio	2,820				13	2,833
Oklahoma	942	673				1,615

Oregon	585				5	590
Pennsylvania	146					146
South Carolina	250					250
Tennessee	1,206					1,206
Texas	1,368	844				2,212
Utah	172				1	173
Virginia	878	3				881
Washington	670				415	1,085
Wisconsin	740	164			193	1,096
West Virginia	1,580					1,580
Total U.S.	29,211	7,474	3	82	3,325	40,095

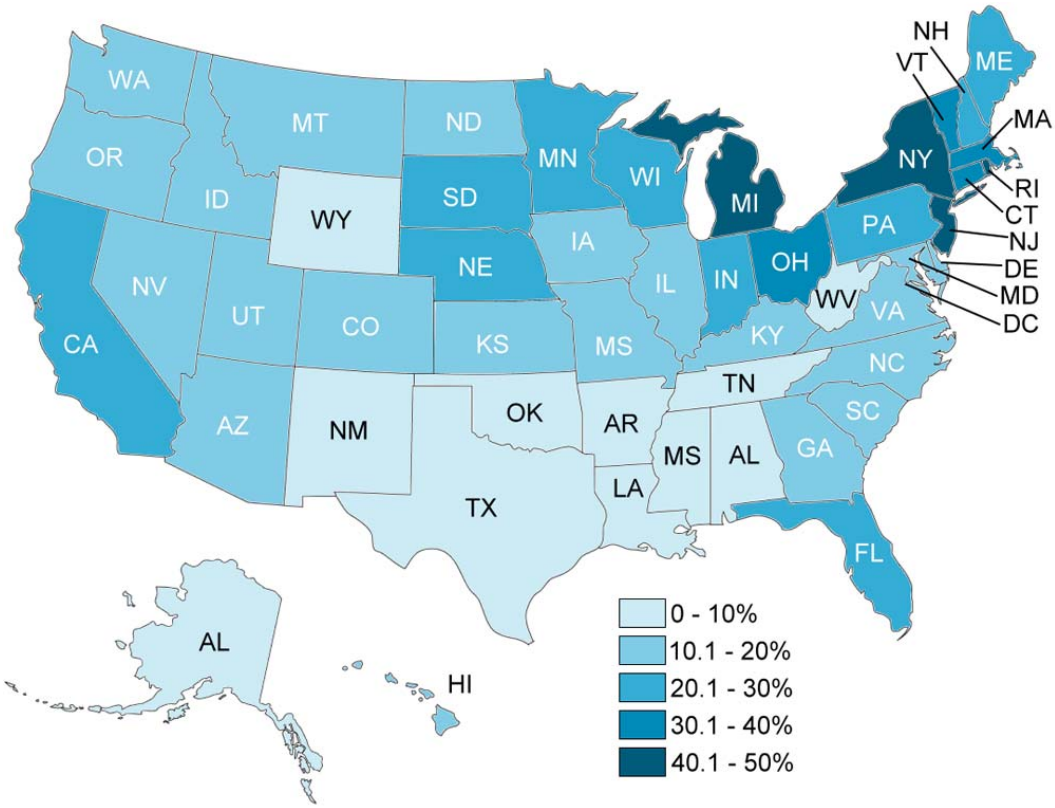
Source:
Energy Information Administration, *Electric Power Monthly March 2015*, Washington, DC, May 2015, Table 6.6.

Fact #886: August 17, 2015

New Light-Vehicle Leasing Penetration for 2014

States in the Northeast had the highest penetration of leases in 2014. New Jersey, New York, and Michigan led the states, each with leases accounting for about 47 percent of all new light vehicle transactions. These top three states were followed by Rhode Island, Connecticut, Massachusetts, and Ohio, all with leasing rates over 30%. In general, the southern states in the mid-section of the U.S. had the lowest percentages of lease transactions with Oklahoma the lowest at just 1%.

Leasing Penetration by State, 2014



Supporting Information

New Light-Vehicle Leasing Penetration for 2014

State	Percent
Alabama	8.7%
Alaska	3.6%
Arizona	11.7%
Arkansas	2.3%
California	28.6%
Colorado	18.7%
Connecticut	37.1%
Delaware	17.6%
District of Columbia	12.6%
Florida	26.0%
Georgia	11.1%
Hawaii	12.5%
Idaho	13.6%
Illinois	14.5%
Indiana	23.1%
Iowa	14.6%
Kansas	11.3%
Kentucky	15.5%
Louisiana	9.6%
Maine	24.3%
Maryland	11.5%
Massachusetts	31.5%
Michigan	47.5%
Minnesota	23.4%
Mississippi	6.6%
Missouri	10.1%
Montana	13.2%
Nebraska	22.1%

Nevada	18.9%
New Hampshire	28.2%
New Jersey	47.6%
New Mexico	6.0%
New York	46.7%
North Carolina	13.6%
North Dakota	17.5%
Ohio	32.8%
Oklahoma	1.0%
Oregon	12.4%
Pennsylvania	27.1%
Rhode Island	40.2%
South Carolina	10.9%
South Dakota	20.9%
Tennessee	8.2%
Texas	9.3%
Utah	18.2%
Vermont	31.9%
Virginia	10.6%
Washington	16.1%
West Virginia	7.2%
Wisconsin	22.1%
Wyoming	7.7%

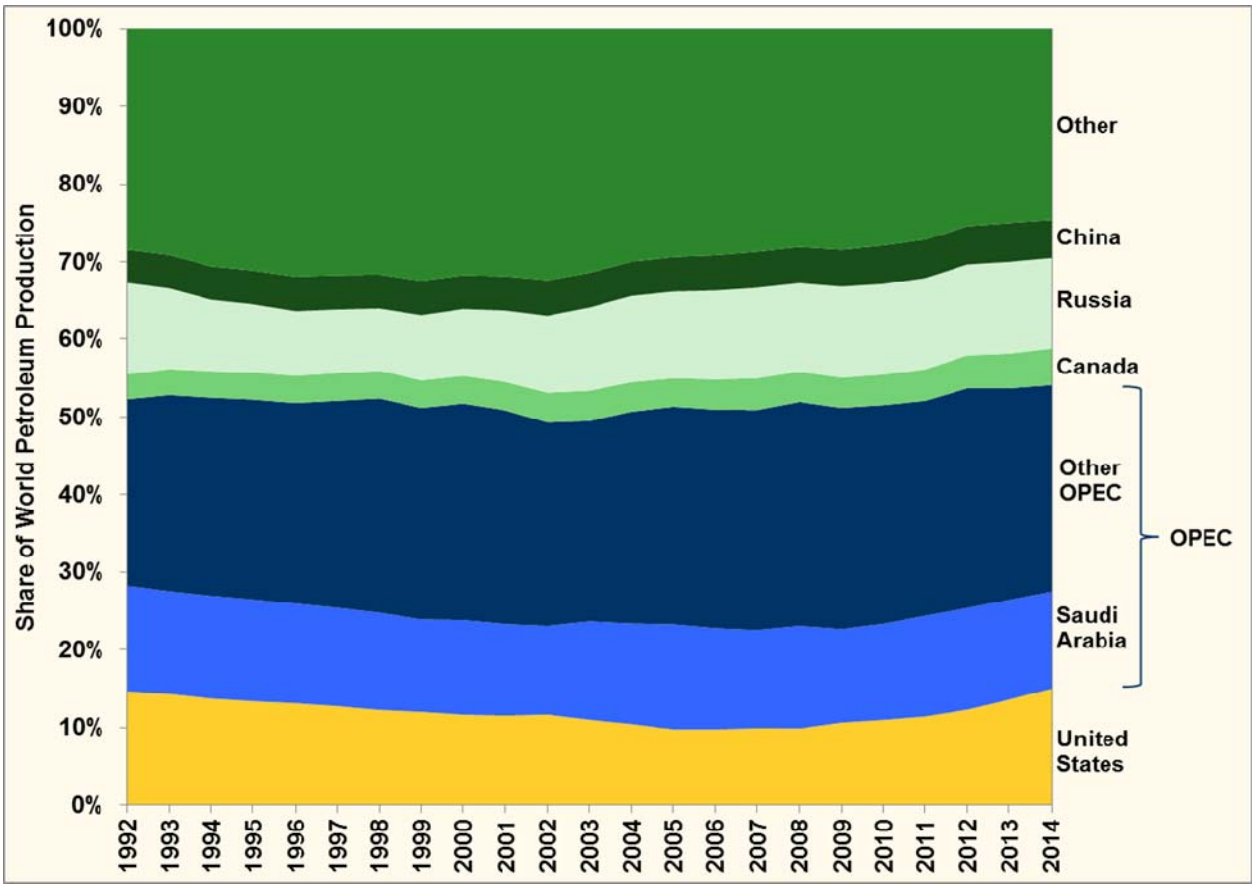
Source:
Automotive News, "How high can leasing go?" June 8, 2015, Jim Henry, Site accessed July 7, 2015. Website.

Fact #887: August 24, 2015

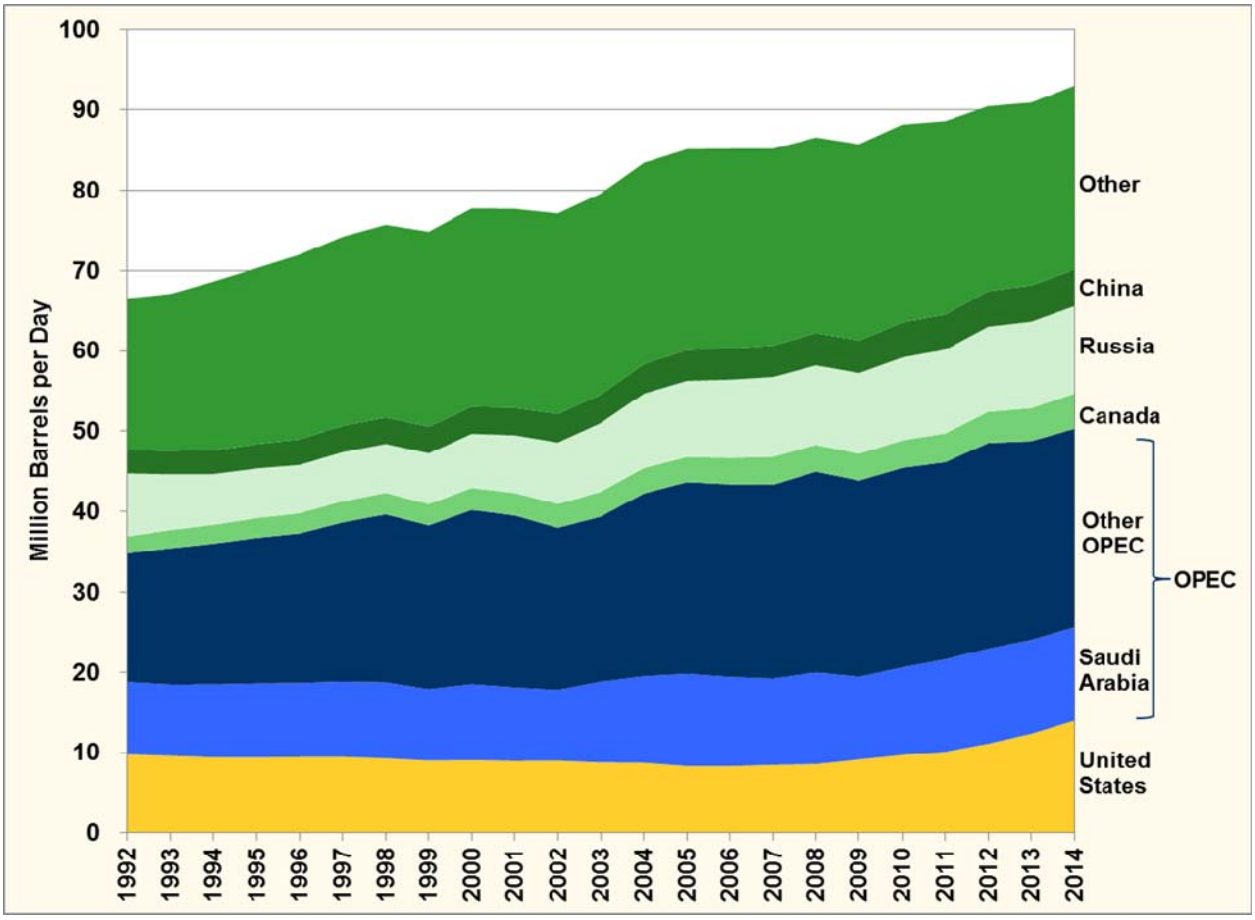
The United States Supplies 15% of World Petroleum

Although the United States has increased the production of petroleum in recent years, it accounted for only 15% of the World's production in 2014 – the same percentage as in 1992. The total amount of petroleum produced world-wide grew from 66.6 million barrels per day (mmbd) in 1992 to 93.0 mmbd in 2014. However, the production shares by country have changed little over the same time period. OPEC accounted for 38% of production in 1992 and 39% in 2014.

Share of World Petroleum Production, 1992-2014



World Petroleum Production, 1992-2014



Notes:

- Includes crude oil, natural gas plant liquids, other liquids, and processing gain.
- OPEC = Organization for Petroleum Exporting Countries. The OPEC countries are Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

Supporting Information

Shares of World Petroleum Production, 1992-2014

Year	United States	OPEC		Canada	Russia	China	Other	World Petroleum Production (Million barrels per day)
		Saudi Arabia	Other OPEC					
1992	15%	14%	24%	3%	12%	4%	28%	66.6
1993	14%	13%	25%	3%	10%	4%	29%	67.1
1994	14%	13%	26%	3%	9%	4%	31%	68.6
1995	13%	13%	26%	3%	9%	4%	31%	70.3
1996	13%	13%	26%	3%	8%	4%	32%	72.0
1997	13%	13%	27%	4%	8%	4%	32%	74.2
1998	12%	13%	28%	4%	8%	4%	32%	75.7
1999	12%	12%	27%	4%	8%	4%	32%	74.8
2000	12%	12%	28%	4%	9%	4%	32%	77.7
2001	12%	12%	28%	4%	9%	4%	32%	77.7
2002	12%	11%	26%	4%	10%	5%	32%	77.1
2003	11%	13%	26%	4%	11%	4%	31%	79.6
2004	10%	13%	27%	4%	11%	4%	30%	83.4
2005	10%	14%	28%	4%	11%	4%	29%	85.1
2006	10%	13%	28%	4%	11%	5%	29%	85.2
2007	10%	13%	28%	4%	12%	5%	29%	85.2
2008	10%	13%	29%	4%	11%	5%	28%	86.6
2009	11%	12%	29%	4%	12%	5%	28%	85.7
2010	11%	12%	28%	4%	12%	5%	28%	88.2
2011	11%	13%	28%	4%	12%	5%	27%	88.6
2012	12%	13%	28%	4%	12%	5%	25%	90.5
2013	14%	13%	27%	4%	12%	5%	25%	90.9
2014	15%	12%	27%	5%	12%	5%	25%	93.0

Source:
U.S. Department of Energy, Energy Information Administration, *International Energy Statistics*, accessed July 28, 2015.

World Petroleum Production, 1992-2014
(Million barrels per day)

Year	United States	OPEC		Canada	Russia	China	Other	World
		Saudi Arabia	Other OPEC					
1992	9.8	9.0	16.0	2.1	7.8	2.9	18.9	66.6
1993	9.6	8.9	17.0	2.3	7.0	2.9	19.5	67.1
1994	9.4	9.1	17.5	2.3	6.3	3.0	21.0	68.6
1995	9.4	9.2	18.1	2.5	6.2	3.1	21.9	70.3
1996	9.4	9.2	18.6	2.5	6.0	3.2	23.0	72.0
1997	9.5	9.4	19.8	2.6	6.1	3.3	23.5	74.2
1998	9.3	9.5	20.9	2.7	6.1	3.3	24.0	75.7
1999	9.0	8.9	20.4	2.6	6.3	3.3	24.3	74.8
2000	9.1	9.5	21.7	2.8	6.7	3.4	24.7	77.7
2001	9.0	9.2	21.4	2.8	7.2	3.4	24.7	77.7
2002	9.0	8.8	20.2	3.0	7.7	3.5	25.0	77.1
2003	8.8	10.1	20.5	3.1	8.5	3.6	25.0	79.6
2004	8.7	10.8	22.8	3.1	9.3	3.7	25.0	83.4
2005	8.3	11.5	23.9	3.1	9.5	3.8	25.0	85.1
2006	8.3	11.1	24.0	3.3	9.7	3.9	24.8	85.2
2007	8.5	10.7	24.1	3.4	9.9	4.0	24.5	85.2
2008	8.6	11.4	25.0	3.3	9.9	4.0	24.3	86.6
2009	9.1	10.3	24.4	3.3	10.0	4.1	24.4	85.7
2010	9.7	10.9	24.8	3.4	10.3	4.4	24.6	88.2
2011	10.1	11.5	24.5	3.6	10.4	4.4	24.1	88.6
2012	11.1	11.8	25.6	3.9	10.6	4.5	23.0	90.5
2013	12.3	11.7	24.7	4.1	10.8	4.5	22.7	90.9
2014	14.0	11.6	24.7	4.4	10.9	4.6	22.9	93.0

Source:
U.S. Department of Energy, Energy Information Administration, *International Energy Statistics*, accessed July 28, 2015.

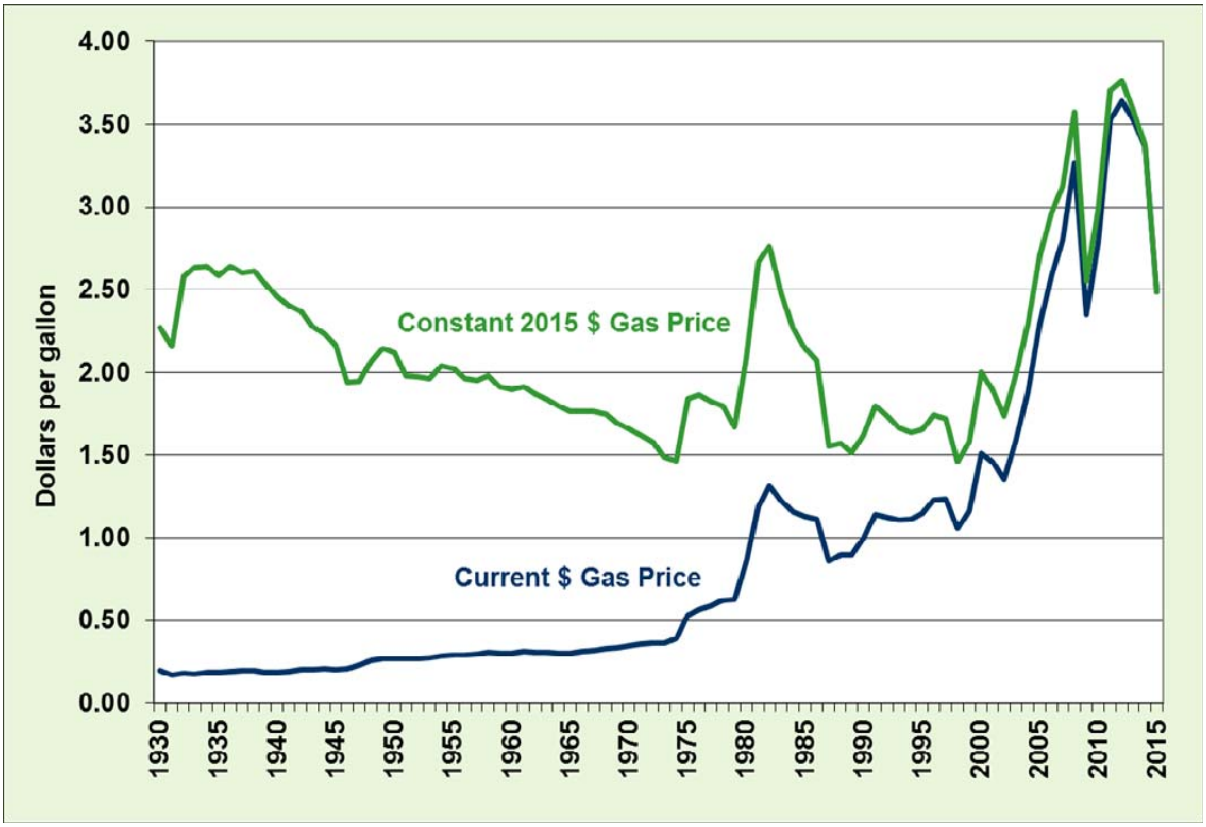
Vehicle Technologies Office

Fact #888: August 31, 2015

Historical Gas Prices

In the first six months of 2015, the average retail price of regular gasoline was $2.49 per gallon—the lowest average price since the economic recession in 2009. Gasoline has always been subject to price swings but the degree of price volatility has increased since the mid-1970s. Between 1930 and 2015, the average price of regular gasoline has ranged from a low of $1.43 per gallon in 1998 to a high of $3.69 per gallon in 2012 when measured in constant 2015 dollars. The effect of the U.S. embargo of Iranian oil can be seen in the early 1980's with the price of gasoline peaking in 1982.

Historical Gas Prices, 1930 – 2015



Notes: Average annual retail price of regular gasoline. The 2015 average is for January through June.

Supporting Information

Historical Gas Prices, 1930 - 2015

Year	Retail Gasoline Price (Current dollars/gallon)	Retail Gasoline Price (Constant 2015 dollars/gallon)
1930	0.20	2.23
1931	0.17	2.11
1932	0.18	2.53
1933	0.18	2.58
1934	0.19	2.59
1935	0.19	2.54
1936	0.19	2.59
1937	0.20	2.55
1938	0.20	2.56
1939	0.19	2.49
1940	0.18	2.41
1941	0.19	2.36
1942	0.20	2.32
1943	0.21	2.23
1944	0.21	2.19
1945	0.21	2.12
1946	0.21	1.90
1947	0.23	1.91
1948	0.26	2.03
1949	0.27	2.10
1950	0.27	2.08
1951	0.27	1.94
1952	0.27	1.93
1953	0.27	1.93
1954	0.29	2.00

1955	0.29	1.98
1956	0.29	1.93
1957	0.30	1.92
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	1.73
1968	0.33	1.71
1969	0.34	1.66
1970	0.35	1.63
1971	0.36	1.59
1972	0.36	1.55
1973	0.36	1.46
1974	0.39	1.44
1975	0.53	1.81
1976	0.57	1.82
1977	0.59	1.79
1978	0.62	1.76
1979	0.63	1.64
1980	0.86	2.06
1981	1.19	2.61
1982	1.31	2.71
1983	1.22	2.43

1984	1.16	2.22
1985	1.13	2.10
1986	1.12	2.03
1987	0.86	1.52
1988	0.90	1.54
1989	0.90	1.49
1990	1.00	1.59
1991	1.14	1.76
1992	1.13	1.70
1993	1.11	1.63
1994	1.11	1.60
1995	1.15	1.62
1996	1.23	1.71
1997	1.23	1.68
1998	1.06	1.43
1999	1.17	1.55
2000	1.51	1.97
2001	1.46	1.86
2002	1.36	1.70
2003	1.59	1.95
2004	1.88	2.25
2005	2.30	2.66
2006	2.59	2.91
2007	2.80	3.07
2008	3.27	3.51
2009	2.35	2.50
2010	2.79	2.94
2011	3.53	3.64
2012	3.64	3.69

2013	3.53	3.53
2014	3.37	3.38
2015	2.49	2.49

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.

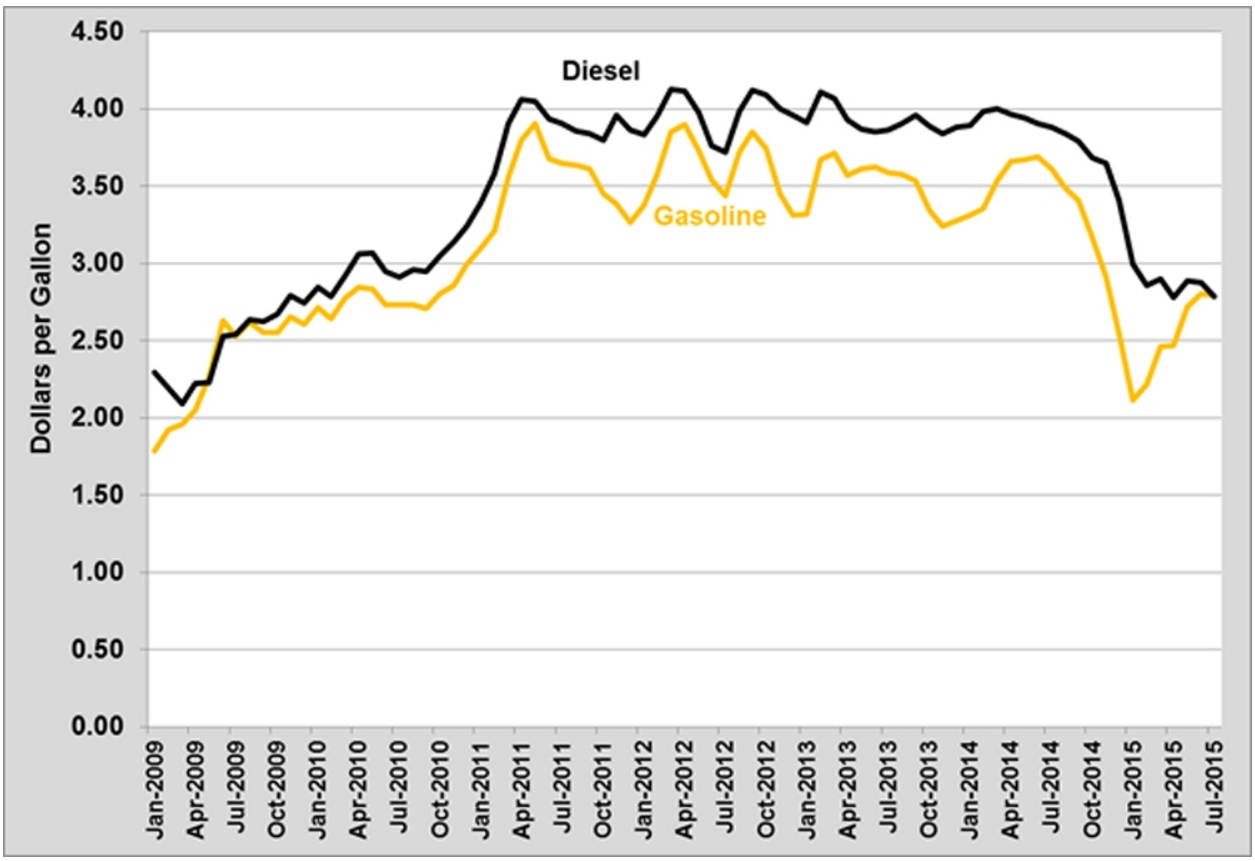
Source:
Energy Information Administration, *Monthly Energy Review,* Table 9.4.

Fact #889: September 7, 2015

Average Diesel Price Lower than Gasoline for the First Time in Six Years

In July of 2015, the nationwide average price of diesel was lower than the average price of a regular gallon of gasoline for the first time since June 2009. Both gasoline and diesel prices fluctuate throughout the year and from region to region across the country, but diesel prices have been an average of 32 cents higher than the gasoline average from 2009 to 2015.

Monthly Average of Gasoline and Diesel Prices, January 2009 – August 2015



Supporting Information

Monthly Average of Gasoline and Diesel Prices, January 2009 – August 2015
(Dollars per gallon)

Date	Gasoline	Diesel
2009 January	1.788	2.292
2009 February	1.923	2.195
2009 March	1.959	2.092
2009 April	2.049	2.220
2009 May	2.266	2.227
2009 June	2.631	2.529
2009 July	2.527	2.540
2009 August	2.616	2.634
2009 September	2.554	2.626
2009 October	2.551	2.672
2009 November	2.651	2.792
2009 December	2.607	2.745
2010 January	2.715	2.845
2010 February	2.644	2.785
2010 March	2.772	2.915
2010 April	2.848	3.059
2010 May	2.836	3.069
2010 June	2.732	2.948
2010 July	2.729	2.911
2010 August	2.730	2.959
2010 September	2.705	2.946
2010 October	2.801	3.052
2010 November	2.859	3.140
2010 December	2.993	3.243
2011 January	3.095	3.388
2011 February	3.211	3.584
2011 March	3.561	3.905

2011 April	3.800	4.064
2011 May	3.906	4.047
2011 June	3.680	3.933
2011 July	3.650	3.905
2011 August	3.639	3.860
2011 September	3.611	3.837
2011 October	3.448	3.798
2011 November	3.384	3.962
2011 December	3.266	3.861
2012 January	3.380	3.833
2012 February	3.579	3.953
2012 March	3.852	4.127
2012 April	3.900	4.115
2012 May	3.732	3.979
2012 June	3.539	3.759
2012 July	3.439	3.721
2012 August	3.722	3.983
2012 September	3.849	4.120
2012 October	3.746	4.094
2012 November	3.452	4.000
2012 December	3.310	3.961
2013 January	3.319	3.909
2013 February	3.670	4.111
2013 March	3.711	4.068
2013 April	3.570	3.930
2013 May	3.615	3.870
2013 June	3.626	3.849
2013 July	3.591	3.866
2013 August	3.574	3.905
2013 September	3.532	3.961
2013 October	3.344	3.885
2013 November	3.243	3.839

2013 December	3.276	3.882
2014 January	3.313	3.893
2014 February	3.356	3.984
2014 March	3.533	4.001
2014 April	3.661	3.964
2014 May	3.673	3.943
2014 June	3.692	3.906
2014 July	3.611	3.884
2014 August	3.487	3.838
2014 September	3.406	3.792
2014 October	3.171	3.681
2014 November	2.912	3.647
2014 December	2.543	3.411
2015 January	2.116	2.997
2015 February	2.216	2.858
2015 March	2.464	2.897
2015 April	2.469	2.782
2015 May	2.718	2.888
2015 June	2.802	2.873
2015 July	2.794	2.788

Notes:

- Regular gasoline prices are from areas that sell both conventional and reformulated gasoline.
- Diesel prices are for ultra-low sulfur diesel (15 parts per million and under).

Source:

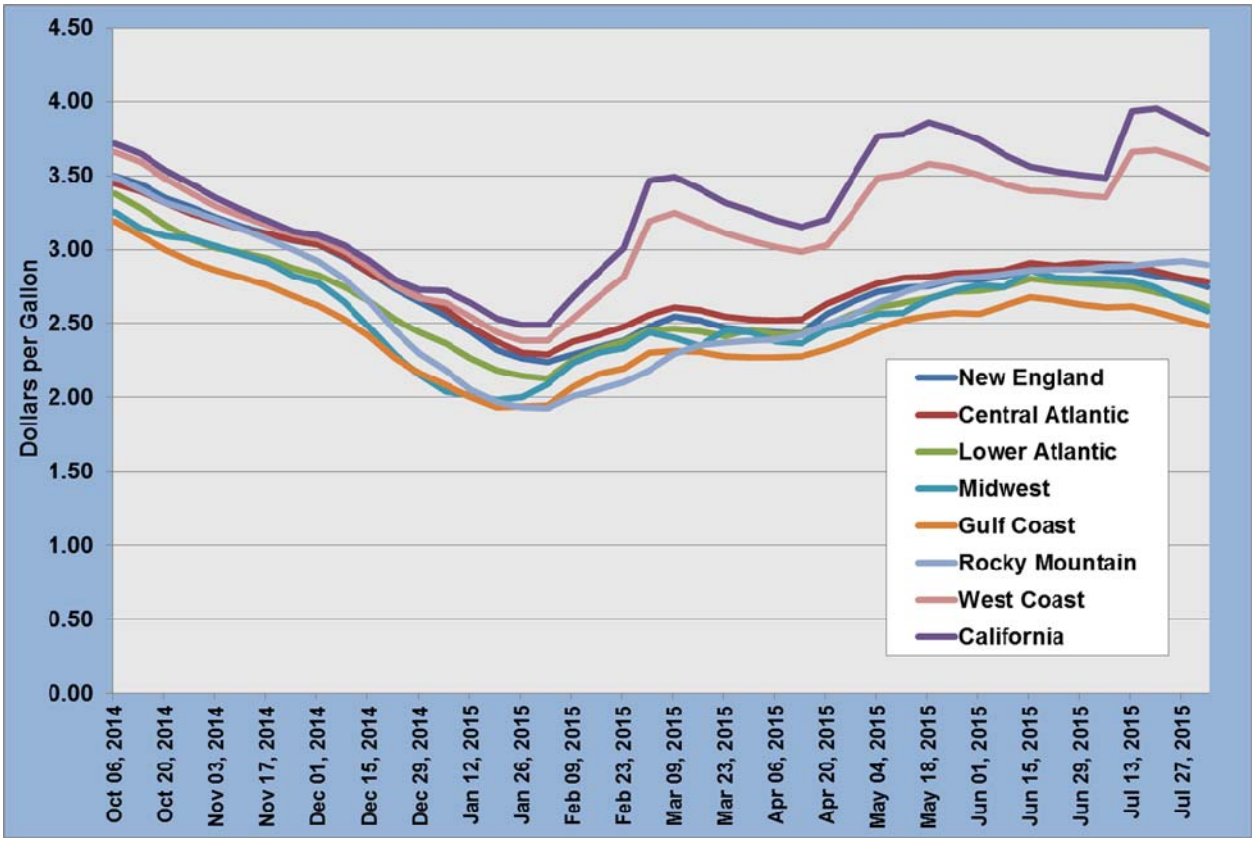
Energy Information Administration, *Monthly Energy Review, August 2015*, Table 9.4. Accessed August 31, 2015.

Fact #890: September 14, 2015

Gasoline Prices Are Affected by Changes in Refinery Output

Most of the nation has enjoyed average gasoline prices below $3.00 per gallon since the beginning of 2015. California and the rest of the West Coast, however, have experienced higher gasoline prices than the rest of the nation. Although gasoline price changes are caused by a myriad of factors, the likely cause for the high West Coast prices is an explosion and fire at a California refinery in February of 2015. The sudden decrease in refinery output resulted in tight supplies on the West Coast. In addition, few refineries outside of California are equipped to produce the gasoline formulation that can be sold in California, which is different than the rest of the nation due to State regulations.

Weekly Average of Gasoline Prices, October 2014-July 2015



Notes:

- Weekly average prices of all formulations of gasoline.
- West Coast includes the states of Washington, Oregon, Nevada, Arizona, California, Hawaii, and Alaska.
- New England includes the states of Maine, Vermont, New Hampshire, Massachusetts, Connecticut, and Rhode Island.
- Central Atlantic includes the states of New York, Pennsylvania, New Jersey, Delaware, and Maryland.
- Lower Atlantic includes the states of West Virginia, Virginia, North Carolina, South Carolina, Georgia and Florida.
- Midwest includes the states of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Michigan, Indiana, Ohio, Kentucky and Tennessee.
- Gulf Coast includes the states of Alabama, Mississippi, Arkansas, Louisiana, Texas, and New Mexico.
- Rocky Mountain includes the states of Montana, Idaho, Wyoming, Utah and Colorado.

Supporting Information

Weekly Average of Gasoline Prices, October 2014-July 2015

Week of:	New England	Central Atlantic	Lower Atlantic	Midwest	Gulf Coast	Rocky Mountain	West Coast	California
Jan 06, 2014	3.633	3.626	3.445	3.278	3.2	3.175	3.602	3.714
Jan 13, 2014	3.610	3.597	3.421	3.309	3.185	3.203	3.581	3.683
Jan 20, 2014	3.575	3.560	3.416	3.255	3.181	3.200	3.547	3.638
Jan 27, 2014	3.551	3.551	3.406	3.272	3.171	3.189	3.541	3.630
Feb 03, 2014	3.534	3.537	3.387	3.289	3.162	3.179	3.548	3.639
Feb 10, 2014	3.538	3.531	3.371	3.339	3.163	3.192	3.573	3.675
Feb 17, 2014	3.572	3.601	3.428	3.413	3.257	3.294	3.629	3.747
Feb 24, 2014	3.624	3.642	3.488	3.493	3.287	3.378	3.709	3.844
Mar 03, 2014	3.644	3.664	3.485	3.550	3.303	3.445	3.766	3.904
Mar 10, 2014	3.666	3.686	3.499	3.589	3.328	3.491	3.811	3.946
Mar 17, 2014	3.678	3.683	3.554	3.627	3.358	3.510	3.868	4.007
Mar 24, 2014	3.673	3.679	3.571	3.604	3.395	3.512	3.880	4.019
Mar 31, 2014	3.677	3.676	3.630	3.641	3.418	3.505	3.909	4.045
Apr 07, 2014	3.676	3.687	3.672	3.632	3.469	3.500	3.938	4.077
Apr 14, 2014	3.708	3.703	3.710	3.687	3.548	3.490	4.037	4.206
Apr 21, 2014	3.754	3.762	3.760	3.695	3.568	3.499	4.086	4.254
Apr 28, 2014	3.822	3.836	3.772	3.717	3.568	3.538	4.131	4.302
May 05, 2014	3.819	3.833	3.765	3.650	3.543	3.559	4.112	4.271
May 12, 2014	3.809	3.822	3.740	3.653	3.515	3.570	4.079	4.218
May 19, 2014	3.798	3.803	3.723	3.667	3.517	3.566	4.072	4.208
May 26, 2014	3.796	3.807	3.712	3.708	3.512	3.563	4.061	4.184
Jun 02, 2014	3.793	3.800	3.695	3.771	3.517	3.563	4.062	4.176
Jun 09, 2014	3.792	3.798	3.674	3.747	3.495	3.568	4.05	4.155
Jun 16, 2014	3.811	3.802	3.676	3.769	3.505	3.590	4.054	4.151
Jun 23, 2014	3.831	3.831	3.704	3.748	3.571	3.665	4.066	4.151
Jun 30, 2014	3.840	3.844	3.711	3.724	3.560	3.689	4.090	4.180
Jul 07, 2014	3.846	3.834	3.682	3.669	3.539	3.702	4.091	4.177
Jul 14, 2014	3.828	3.801	3.653	3.593	3.517	3.704	4.054	4.138

Jul 21, 2014	3.794	3.763	3.608	3.552	3.470	3.699	4.010	4.083
Jul 28, 2014	3.770	3.713	3.562	3.464	3.429	3.704	3.976	4.041
Aug 04, 2014	3.727	3.672	3.528	3.473	3.385	3.701	3.945	4.000
Aug 11, 2014	3.687	3.635	3.494	3.508	3.351	3.711	3.922	3.974
Aug 18, 2014	3.661	3.592	3.468	3.451	3.343	3.716	3.897	3.946
Aug 25, 2014	3.628	3.557	3.439	3.456	3.319	3.708	3.877	3.925
Sep 01, 2014	3.627	3.552	3.456	3.493	3.296	3.696	3.848	3.891
Sep 08, 2014	3.626	3.557	3.448	3.499	3.302	3.682	3.825	3.863
Sep 15, 2014	3.608	3.533	3.410	3.416	3.253	3.650	3.792	3.833
Sep 22, 2014	3.568	3.494	3.385	3.334	3.209	3.600	3.735	3.775
Sep 29, 2014	3.547	3.482	3.388	3.359	3.238	3.552	3.697	3.741
Oct 06, 2014	3.498	3.450	3.378	3.257	3.193	3.491	3.663	3.714
Oct 13, 2014	3.443	3.394	3.281	3.144	3.093	3.403	3.590	3.647
Oct 20, 2014	3.347	3.318	3.169	3.089	2.999	3.314	3.478	3.538
Oct 27, 2014	3.286	3.244	3.069	3.075	2.917	3.260	3.379	3.440
Nov 03, 2014	3.214	3.194	3.010	3.020	2.857	3.205	3.291	3.348
Nov 10, 2014	3.153	3.134	2.979	2.966	2.811	3.138	3.222	3.266
Nov 17, 2014	3.107	3.102	2.938	2.918	2.761	3.073	3.167	3.200
Nov 24, 2014	3.058	3.065	2.871	2.825	2.683	2.996	3.101	3.122
Dec 01, 2014	3.038	3.038	2.830	2.778	2.621	2.922	3.070	3.097
Dec 08, 2014	2.950	2.957	2.748	2.65	2.529	2.804	2.993	3.028
Dec 15, 2014	2.845	2.849	2.656	2.479	2.418	2.652	2.887	2.928
Dec 22, 2014	2.732	2.753	2.531	2.288	2.265	2.453	2.753	2.800
Dec 29, 2014	2.649	2.676	2.441	2.151	2.163	2.296	2.671	2.728
Jan 05, 2015	2.550	2.594	2.364	2.038	2.082	2.182	2.638	2.721
Jan 12, 2015	2.446	2.477	2.268	2.018	2.000	2.051	2.547	2.643
Jan 19, 2015	2.320	2.378	2.184	1.984	1.933	1.972	2.438	2.532
Jan 26, 2015	2.264	2.304	2.146	2.001	1.939	1.934	2.387	2.489
Feb 02, 2015	2.242	2.289	2.127	2.093	1.949	1.929	2.386	2.491
Feb 09, 2015	2.290	2.381	2.250	2.231	2.070	2.008	2.533	2.676
Feb 16, 2015	2.340	2.424	2.329	2.302	2.160	2.055	2.681	2.847
Feb 23, 2015	2.385	2.476	2.375	2.336	2.195	2.101	2.819	3.009
Mar 02, 2015	2.480	2.557	2.455	2.440	2.301	2.184	3.194	3.468

Mar 09, 2015	2.545	2.610	2.464	2.400	2.313	2.296	3.245	3.489
Mar 16, 2015	2.524	2.590	2.446	2.344	2.306	2.355	3.181	3.410
Mar 23, 2015	2.474	2.549	2.416	2.451	2.275	2.372	3.108	3.316
Mar 30, 2015	2.450	2.529	2.460	2.440	2.273	2.383	3.061	3.258
Apr 06, 2015	2.443	2.522	2.430	2.375	2.271	2.389	3.017	3.200
Apr 13, 2015	2.435	2.528	2.436	2.367	2.275	2.421	2.983	3.153
Apr 20, 2015	2.566	2.633	2.489	2.463	2.328	2.498	3.028	3.207
Apr 27, 2015	2.644	2.706	2.563	2.506	2.391	2.55	3.244	3.483
May 04, 2015	2.717	2.774	2.612	2.565	2.468	2.639	3.483	3.764
May 11, 2015	2.741	2.812	2.640	2.573	2.522	2.710	3.508	3.781
May 18, 2015	2.756	2.815	2.671	2.664	2.552	2.764	3.578	3.859
May 25, 2015	2.798	2.839	2.716	2.721	2.572	2.805	3.553	3.811
Jun 01, 2015	2.800	2.846	2.723	2.762	2.567	2.814	3.506	3.743
Jun 08, 2015	2.820	2.857	2.748	2.745	2.623	2.832	3.441	3.643
Jun 15, 2015	2.864	2.908	2.802	2.862	2.678	2.860	3.396	3.562
Jun 22, 2015	2.883	2.892	2.784	2.811	2.662	2.864	3.389	3.531
Jun 29, 2015	2.876	2.909	2.770	2.806	2.631	2.867	3.368	3.502
Jul 06, 2015	2.862	2.906	2.758	2.805	2.610	2.882	3.357	3.484
Jul 13, 2015	2.856	2.895	2.747	2.791	2.617	2.889	3.660	3.939
Jul 20, 2015	2.825	2.854	2.711	2.738	2.577	2.911	3.674	3.954
Jul 27, 2015	2.798	2.812	2.671	2.649	2.530	2.925	3.615	3.869
Aug 03, 2015	2.747	2.785	2.615	2.584	2.485	2.897	3.549	3.781

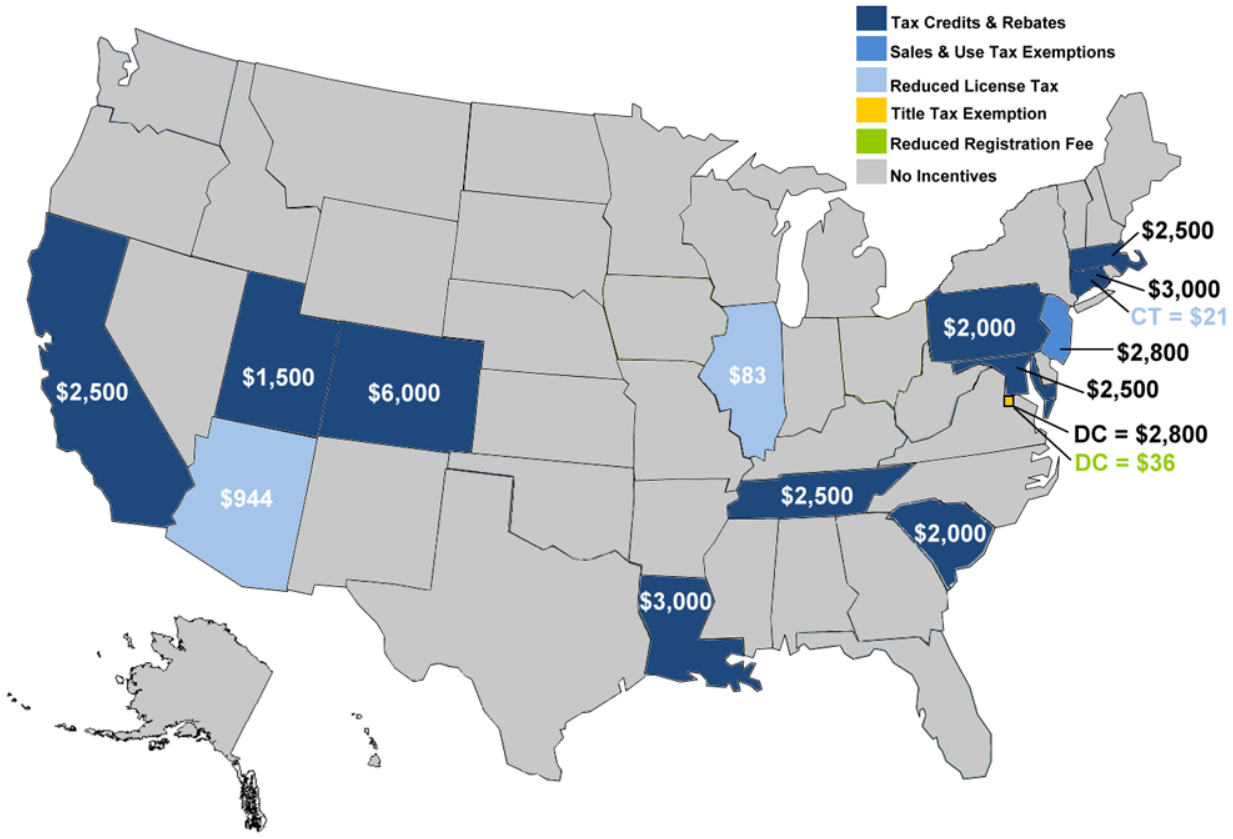
Source:
Energy Information Administration, *Weekly Retail Gasoline and Diesel Prices*, accessed August 14, 2015.

Fact #891: September 21, 2015

Comparison of State Incentives for Plug-In Electric Vehicle Purchases

In addition to a Federal government tax credit up to $7,500, consumers who purchase plug-in electric vehicles (PEVs) may also receive state government incentives which vary by state. Shown below are state incentives that can be quantified, such as tax credits and rebates, sales and use tax exemptions, reduced license taxes, title tax exemptions, and reduced registration fees. Colorado, Connecticut and Louisiana have the highest incentives for tax credits. New Jersey offers the only sales and use tax exemptions; and DC offers the only title tax exemption and reduced registration fee.

Select State PEV Incentives Totals by State, July 2015



Supporting Information

Selected State Incentives for Plug-In Vehicles, July 2015
(Dollars)

State	Tax Credits & Rebates	Sales and Use Tax Exemption	Reduced License Tax	Title Tax Exemption	Reduced Registration Fee	Total
AZ			$944			$944
CA	$2,500					$2,500
CO	$6,000					$6,000
CT	$3,000		$21			$3,021
DC				$2,800	$36	$2,836
IL			$83			$83
LA	$3,000					$3,000
MA	$2,500					$2,500
MD	$2,500					$2,500
NJ		$2,800				$2,800
PA	$2,000					$2,000
SC	$2,000					$2,000
TN	$2,500					$2,500
UT	$1,500					$1,500

Notes:

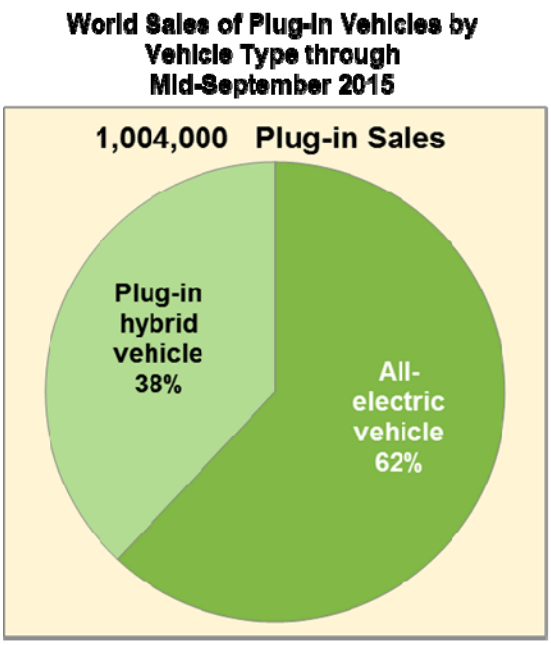
- For calculation purposes, e.g., sales tax exemptions, the vehicle was assumed to have a value of $40,000, a weight of 3,500 lbs., and a 20 kWh battery capacity.
- Only the incentives listed in the columns above were considered. Other state incentives, such as high-occupancy vehicle lane exemptions and reduced toll rates are not reflected here. Also, incentives on the charging equipment, electricity discounts, etc., were not considered.

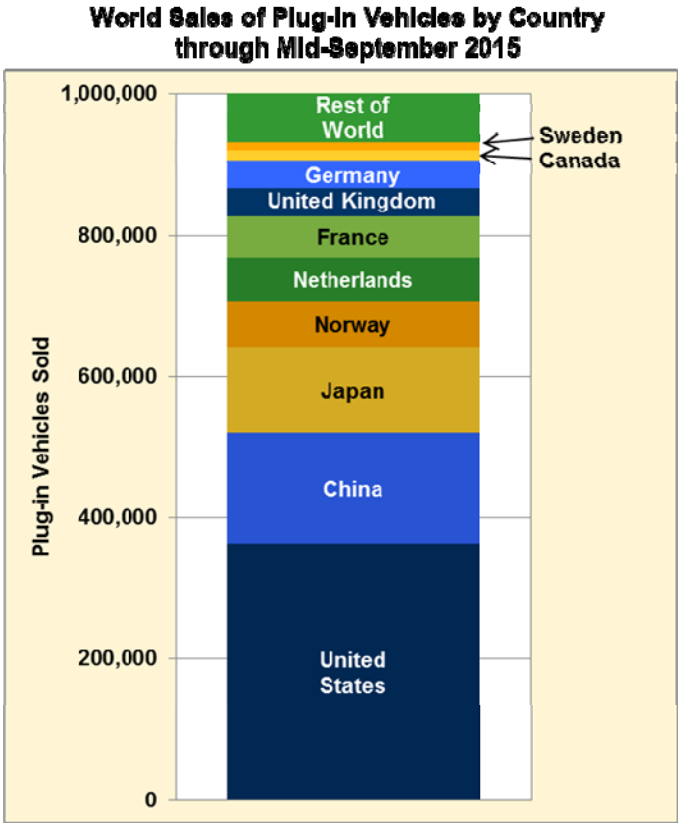
Sources:
Alternative Fuels Data Center accessed July 20, 2015. Data compiled by SRA International, Inc.

Fact #892: September 28, 2015

Over One Million in Plug-In Vehicle Sales Worldwide

As of mid-September 2015 there have been about 1,004,000 plug-in vehicles (PEV) sold worldwide according to HybridCars.com. The pace of PEV sales has quickened – global PEV sales reached half a million in July 2014, and just one year and two months later, reached the one million mark. Of those vehicles sold, 62% were all-electric vehicles and 38% were plug-in hybrid vehicles. The United States was responsible for the largest share of plug-in vehicle sales (36%), followed by China (16%) and Japan (12%).





Supporting Information

World Sales of Plug-In Vehicles by Vehicle Type through Mid-September 2015

Vehicle Type	Vehicle Sales	Shares
All-electric vehicle	622,480	62%
Plug-in hybrid vehicle	381,520	38%
Total	1,004,000	100%

Source:
HybridCars.com, "One Million Global Plug-In Sales Milestone Reached," Accessed Sept. 21, 2015.

World Sales of Plug-In Vehicles by Country through Mid-September 2015

Country	Vehicle Sales	Shares
United States	363,265	36%
China	157,354	16%
Japan	121,000	12%
Norway	65,958	7%
Netherlands	61,025	6%
France	59,000	6%
United Kingdom	39,616	4%
Germany	38,154	4%
Canada	14,429	1%
Sweden	12,786	1%
Rest of World	71,413	7%
Total	1,004,000	100%

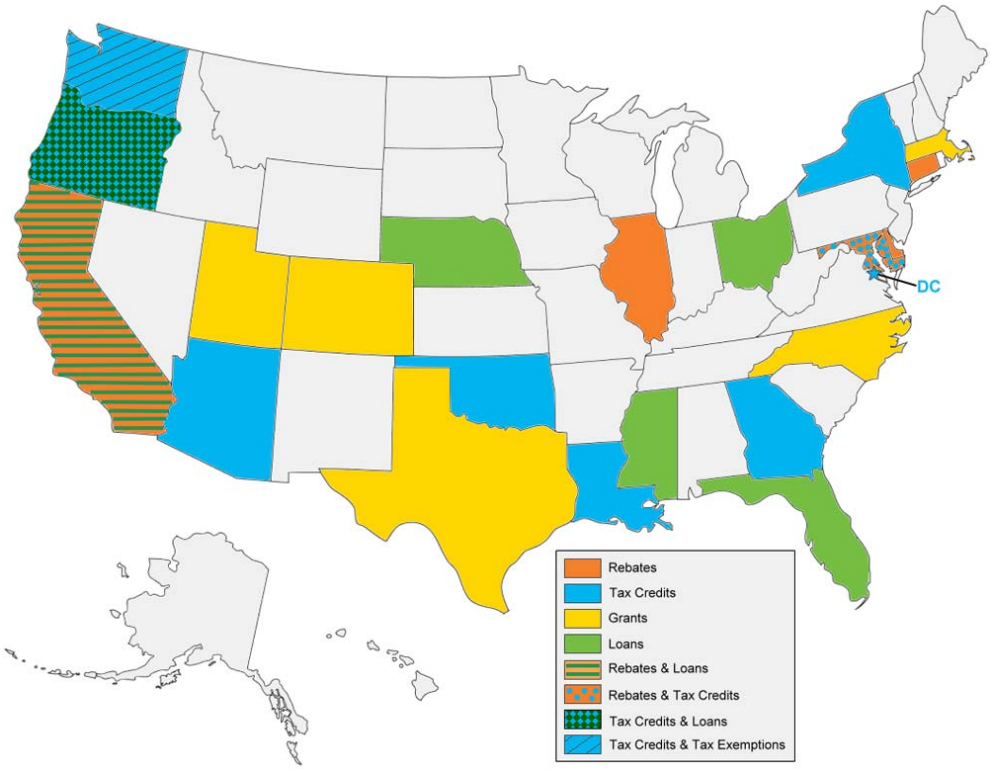
Source:
HybridCars.com, "One Million Global Plug-In Sales Milestone Reached," Accessed Sept. 21, 2015.

Fact #893: October 5, 2015

Incentives for the Installation of Electric Vehicle Charging Stations

Many state governments are providing incentives for the installation of electric vehicle supply equipment (EVSE), also known as an electric vehicle charging station. The most common type of incentive is a state tax credit, but there are also states that give rebates, grants, tax exemptions, and loans to those installing EVSE. The incentives can apply to businesses, local governments, educational institutions, and more. Each state has specific provisions for the amount of incentive and the qualification for their incentives; a short summary of these is provided in the table below. In addition to the state incentives, the Federal government also provides funding for public airports to install or modify fueling infrastructure to support zero emission vehicles.

State EVSE Incentives as of July 22, 2015



Supporting Information

State EVSE Incentives as of July 22, 2015
(Dollars)

State	Description	Dollar Value
AZ	Tax credit for individuals for the installation of EVSE in a house or housing unit that they have built.	up to $75
CA	Loans to property owners for purchasing and installing EVSE.	not stated
CA	Small business loans up to $500,000 on the installation of EVSE; rebate of 50% of loan under certain conditions.	up to $250,000
CO	Grants from the Charge Ahead Colorado Program provide 80% of the cost of an EVSE to local governments, school districts; state/federal agencies; public universities; public transit agencies; private non-profit or for-profit corporations; landlords of multi-family apartment buildings; and owners associations of common interest communities.	up to single port Level 2 $3,260; multiple ports Level 2 $6,260; single port DC $13,000; multiple port DC $16,000
CT	Funding up to 100% of EVSE installation cost dependent on certain conditions.	up to $10,000
DC	Income tax credit of 50% of equipment and labor costs for the purchase and installation of EVSE (publicly available commercial or residential).	Commercial up to $10,000; Residential up to $1,000
DE	Rebate available for purchase of EVSE (commercial or residential).	$500
FL	Assistance with financing EVSE installation from local governments.	not stated
GA	Income tax credit of 10% for purchase or lease of EVSE.	up to $2,500
IL	Rebates available to offset cost of EVSE for governments, businesses, educational institutions, non-profits, and individuals.	up to $50,000
LA	Corporate or income tax credit for 10% to 25% of the project costs of state-certified green projects, such as capital infrastructure for advanced drivetrain vehicles.	up to $1 million
LA	Income tax credit up to 50% of the cost of alternative fueling equipment.	not stated
MA	Grants from the Massachusetts Electric Vehicle Incentive Program for 50% of the cost of Level 1 or 2 workplace EVSE.	up to $25,000
MA	Grants from the Massachusetts Electric Vehicle Incentive Program provide for the purchase or lease of Level 2 EVSE by local governments, universities, driving schools, and state agencies.	up to $13,500

MA	Grants from the Department of Energy Resources' Clean Vehicle Project for public and private fleets to purchase alternative fuel infrastructure.	not stated
MD	Rebates available for governments, businesses, and individuals for the cost of acquiring and installing EVSE.	up to: Individual $900; Gov. or Bus. $5,000; Service Station $7,500
MD	Income tax credit of 20% for cost of EVSE	up to $400
MS	Zero-interest loans for public school districts and municipalities to install fueling stations for alternative fuels.	up to $500,000
NC	Grant funding from the Clean Fuel Advanced Technology Project for fueling infrastructure related to emissions reduction.	not stated
NE	Low-cost loans through the Dollar and Energy Saving Loan Program for the construction or purchase of fueling station or equipment.	up to $750,000
NY	Income tax credit for 50% of EVSE.	up to $5,000
OH	Loans up to 80% of the cost for purchase and installation of fueling facilities for alternative fuels.	not stated
OK	Tax credit available for up to 75% of the cost of installing alternative fuel infrastructure.	not stated
OR	Tax credit of 25% of alternative fuel infrastructure purchase costs. A company that constructs the dwelling or a resident may claim the credit.	up to $750
OR	Tax credit for business owners of 35% of cost for alternative fuel infrastructure project.	not stated
OR	Low-interest loans for alternative fuel infrastructure projects.	not stated
TX	Grants from the Alternative Fueling Facilities Program provide for 50% of the cost of alternative fuel facilities.	up to $600,000
TX	Grants from the Emissions Reduction Incentive Grants Program provide for alternative fuel dispensing infrastructure.	not stated
UT	Grants from the Utah Clean Fuels and Vehicle Technology Grant and Loan Program provide for the cost of fueling equipment for public/private sector business and government vehicles.	not stated
WA	Leasehold excise tax exemption for public lands used for installing, maintaining, and operating EV infrastructure.	not stated
WA	State sales and use taxes do not apply to labor and services installing, repairing, altering, or improving EV infrastructure; those taxes do not apply to the sale of property used for EV infrastructure.	not stated

WA	An additional 2% rate of return for a utility installing an EVSE for the benefit of ratepayers.	not stated
US Airports	The Zero Emissions Airport Vehicle and Infrastructure Pilot Program provides funding for public airports to install or modify fueling infrastructure to support zero emission vehicles.	not stated

Note: EV = electric vehicle, which includes both fully electric and plug-in hybrid vehicles.

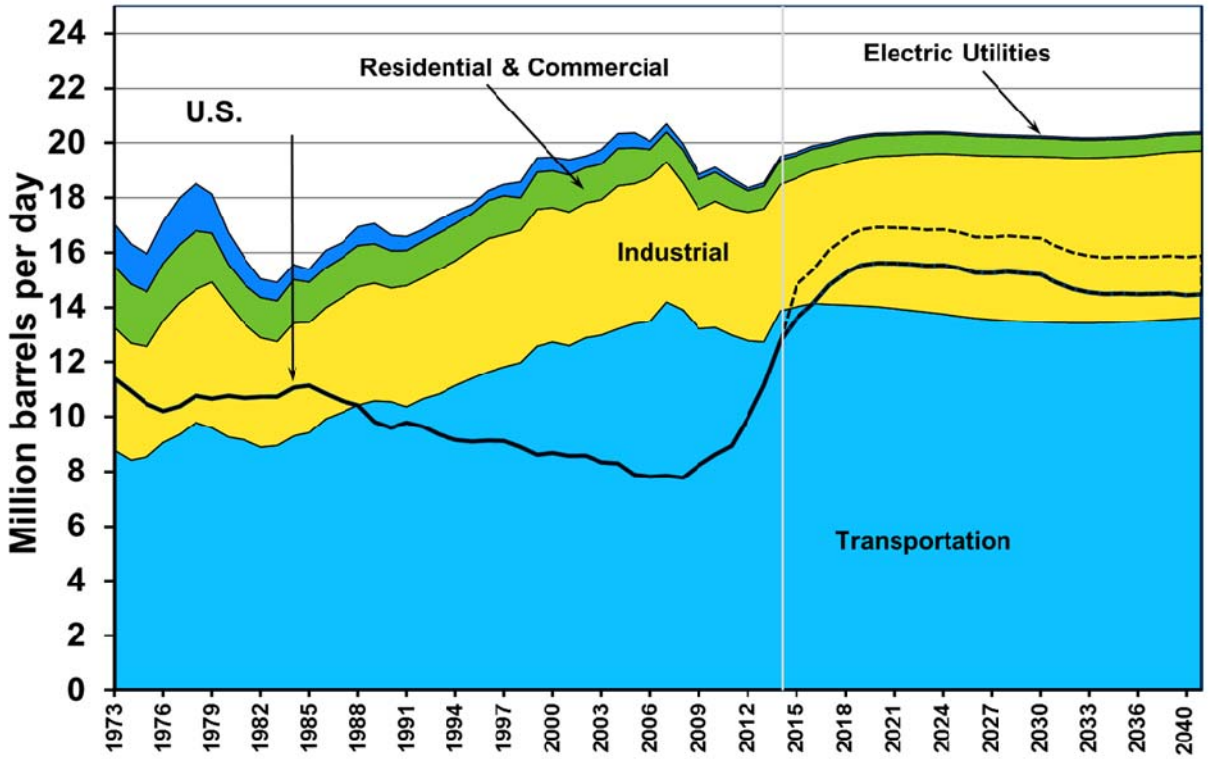
Source:
U.S. Department of Energy, Alternative Fuels Data Center, *Federal and State Laws and Incentives*, accessed July 22, 2015. Compiled by Stacy Davis, Oak Ridge National Laboratory.

Fact #894: October 12, 2015

U.S. Petroleum Production and Consumption for All Sectors, 1973 through 2040

Before 1989 the U.S. produced enough petroleum to meet the needs of the transportation sector, but was still short of meeting the petroleum needs of all sectors, including industrial, residential and commercial, and electric utilities. In 1973 the gap between what the U.S. produced and what was consumed was 5.6 million barrels per day. Due to 1) increased petroleum production and 2) increased efficiencies across several sectors limiting demand, the gap is expected to be only about 4.5 million barrels per day by 2040 if petroleum and non-petroleum sources (ethanol, biomass, etc.) are included.

U.S. Petroleum Production and Consumption by Sector, 1973-2040



Notes:

- The U.S. production has two lines after 2014. The solid line is conventional sources of petroleum, including crude oil, natural gas plant liquids, and refinery gains. The dashed line adds in other non-petroleum sources, including ethanol, biomass, liquids from coal, other blending components, other hydrocarbons, and ethers.
- The data change from historical to projected values between 2013 and 2014 is denoted by a gray vertical line.
- The sharp increase in transportation values between 2006 and 2007 is the result of the FHWA's methodology change for heavy trucks.

Supporting Information

U.S. Petroleum Production and Consumption by Sector, 1973-2040
(Million Barrels per Day)

Year	Transportation	Industrial	Residential and Commercial	Electric Utilities	Total	U.S Production without other inputs	U.S. Production with other inputs (dotted line 2015-on)
1973	8.78	4.48	2.23	1.54	17.03	11.40	
1974	8.43	4.27	2.16	1.47	16.31	10.94	
1975	8.55	4.02	2.00	1.38	15.95	10.47	
1976	9.06	4.45	2.10	1.52	17.14	10.21	
1977	9.36	4.83	2.11	1.71	18.01	10.39	
1978	9.80	4.85	2.14	1.74	18.53	10.77	
1979	9.60	5.33	1.78	1.43	18.14	10.66	
1980	9.26	4.87	1.44	1.16	16.73	10.77	
1981	9.16	4.24	1.44	0.96	15.80	10.69	
1982	8.90	3.99	1.47	0.68	15.03	10.73	
1983	8.95	3.80	1.49	0.67	14.91	10.73	
1984	9.29	4.13	1.59	0.55	15.57	11.06	
1985	9.42	4.03	1.47	0.47	15.40	11.14	
1986	9.93	4.06	1.46	0.63	16.08	10.85	
1987	10.17	4.20	1.45	0.55	16.36	10.58	
1988	10.43	4.32	1.51	0.68	16.94	10.42	
1989	10.59	4.30	1.43	0.74	17.06	9.82	
1990	10.55	4.16	1.36	0.57	16.64	9.60	
1991	10.37	4.42	1.28	0.51	16.59	9.79	
1992	10.66	4.42	1.33	0.43	16.84	9.64	
1993	10.84	4.55	1.33	0.49	17.21	9.35	
1994	11.14	4.56	1.34	0.47	17.51	9.16	
1995	11.40	4.73	1.30	0.33	17.75	9.10	
1996	11.65	4.86	1.40	0.35	18.27	9.13	

1997	11.83	4.83	1.43	0.41	18.49	9.12	
1998	11.99	4.83	1.19	0.57	18.58	8.90	
1999	12.58	5.01	1.34	0.53	19.46	8.62	
2000	12.74	4.91	1.34	0.51	19.49	8.68	
2001	12.60	4.89	1.35	0.56	19.40	8.57	
2002	12.89	4.93	1.28	0.43	19.53	8.58	
2003	12.98	4.95	1.29	0.54	19.76	8.34	
2004	13.21	5.23	1.37	0.54	20.34	8.30	
2005	13.40	5.11	1.31	0.55	20.37	7.89	
2006	13.49	5.25	1.03	0.29	20.07	7.82	
2007	14.20	5.12	1.09	0.30	20.70	7.86	
2008	13.91	4.63	1.21	0.21	19.96	7.78	
2009	13.22	4.37	1.09	0.18	18.85	8.24	
2010	13.26	4.62	1.06	0.18	19.11	8.62	
2011	12.98	4.62	0.98	0.14	18.71	8.94	
2012	12.78	4.70	0.78	0.10	18.36	9.96	
2013	12.74	4.86	0.83	0.12	18.55	11.15	
2014	13.88	4.610	0.90	0.128	19.51	12.77	
2015	14.02	4.699	0.83	0.114	19.66	13.60	14.81
2016	14.14	4.845	0.79	0.112	19.89	14.14	15.35
2017	14.11	5.010	0.78	0.101	20.01	14.81	16.09
2018	14.09	5.218	0.77	0.102	20.18	15.25	16.54
2019	14.06	5.381	0.76	0.078	20.28	15.54	16.84
2020	14.02	5.501	0.76	0.078	20.36	15.62	16.92
2021	13.96	5.580	0.75	0.078	20.36	15.61	16.90
2022	13.90	5.679	0.74	0.079	20.39	15.58	16.89
2023	13.83	5.774	0.73	0.079	20.41	15.52	16.82
2024	13.76	5.850	0.72	0.080	20.41	15.54	16.84
2025	13.68	5.905	0.71	0.079	20.38	15.44	16.74
2026	13.61	5.943	0.70	0.078	20.34	15.26	16.57
2027	13.56	5.976	0.70	0.078	20.31	15.25	16.56
2028	13.52	6.010	0.69	0.077	20.29	15.30	16.61

2029	13.49	6.028	0.68	0.078	20.27	15.25	16.56
2030	13.46	6.040	0.67	0.078	20.26	15.21	16.52
2031	13.45	6.041	0.67	0.077	20.23	14.91	16.24
2032	13.43	6.031	0.66	0.077	20.19	14.68	16.01
2033	13.43	6.030	0.65	0.077	20.19	14.55	15.88
2034	13.44	6.034	0.64	0.077	20.20	14.49	15.82
2035	13.46	6.039	0.64	0.077	20.22	14.50	15.84
2036	13.49	6.046	0.63	0.078	20.25	14.48	15.84
2037	13.52	6.076	0.63	0.078	20.30	14.49	15.84
2038	13.56	6.102	0.62	0.079	20.36	14.51	15.88
2039	13.60	6.098	0.62	0.079	20.39	14.44	15.83
2040	13.64	6.088	0.61	0.079	20.41	14.48	15.89

Source:
Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 34*, Figure 1.7, September 2015. Projections are from the Energy Information Administration, *Annual Energy Outlook 2015*, April 2015.

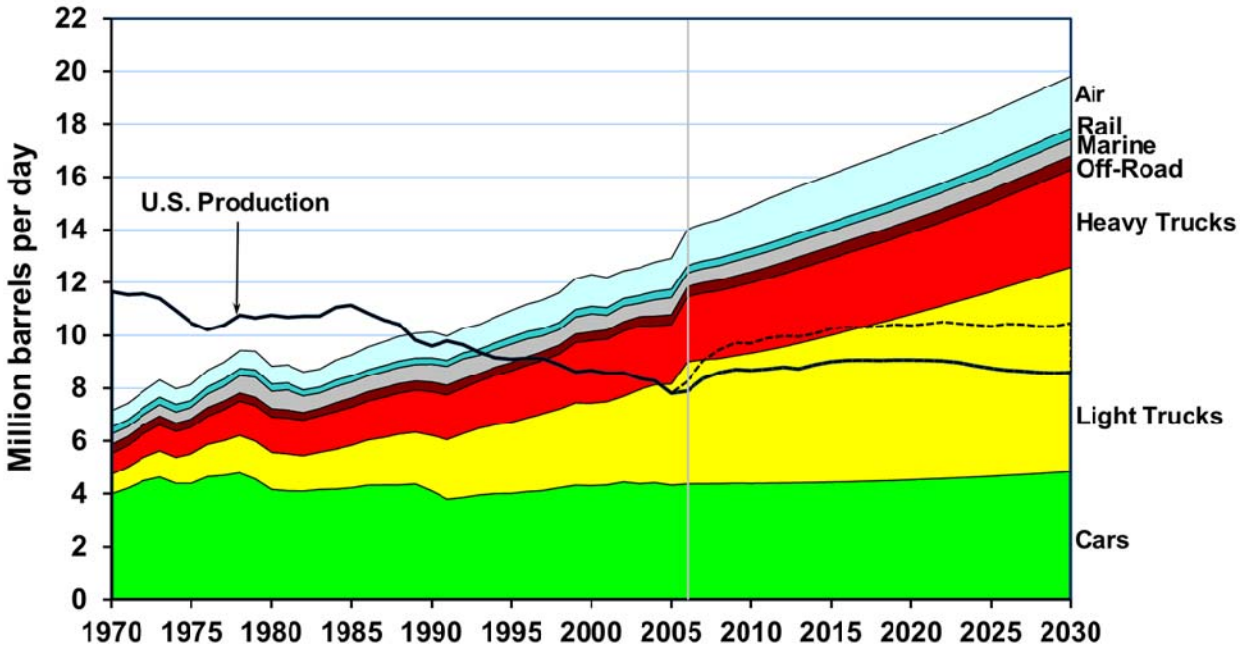
Fact #895: October 19, 2015

U.S. Petroleum Production and Consumption: The Changing Landscape

In 1989 the transportation sector's petroleum consumption surpassed U.S. petroleum production for the first time, creating a gap that had to be met with imports of petroleum. The 2007 Annual Energy Outlook (AEO) prediction from the Energy Information Administration showed increasing consumption by transportation and steady petroleum production, so that by the year 2030, the transportation sector would consume nearly twice the amount of U.S. petroleum production (see first graph).

In 2009 the U.S. production of petroleum began to increase and the same graph created today, using the 2015 Annual Energy Outlook, is much different than the first (see second graph). Petroleum production is expected to be nearly equal to transportation consumption in 2015 and projected to exceed it thereafter. When including non-petroleum sources (ethanol, biomass, etc.), the production will exceed transportation demand by about 2.3 million barrels per day in 2040.

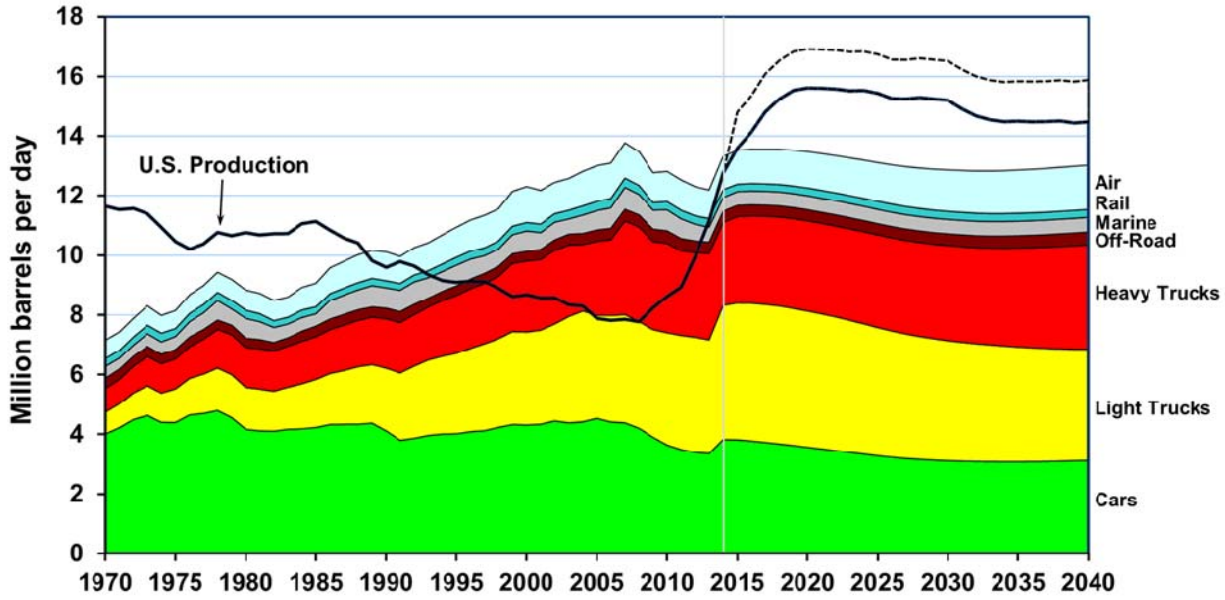
2007 Edition of the Petroleum Gap Chart with Historical Data from 1970-2005 and AEO2007 Projections from 2006-2030



Notes:

- The U.S. production has two lines after 2005. The solid line is conventional sources of petroleum, including crude oil, natural gas plant liquids, and refinery gains. The dashed line adds in other non-petroleum sources, including ethanol, biomass, liquids from coal, other blending components, other hydrocarbons, and ethers.
- The sharp increase in consumption values between 2005 and 2006 are caused by the data change from historical to projected values and is denoted by a gray vertical line.

2015 Edition of the Petroleum Gap Chart with Historical Data from 1970-2014 and AEO2015 Projections from 2014-2040



Notes:

- The U.S. production has two lines after 2014. The solid line is conventional sources of petroleum, including crude oil, natural gas plant liquids, and refinery gains. The dashed line adds in other non-petroleum sources, including ethanol, biomass, liquids from coal, other blending components, other hydrocarbons, and ethers.
- The sharp increase in consumption values between 2013 and 2014 are caused by the data change from historical to projected values and is denoted by a gray vertical line.
- The sharp increase in the consumption value for heavy trucks between 2006 and 2007 is the result of the FHWA's methodology change.

Supporting Information

Transportation Energy Consumption and U.S. Petroleum Production Using AEO2007 Projections
(Million Barrels per Day)

Year	Autos	Light Trucks	Medium & Heavy Trucks	Air	Water	Off-Highway	Rail	Pipeline	Total	U.S Production	U.S. Production with other inputs (dotted line)
1970	4.01	0.73	0.79	0.62	0.40	0.35	0.26	0.47	7.62	11.66	
1971	4.22	0.80	0.82	0.62	0.37	0.34	0.26	0.48	7.91	11.54	
1972	4.50	0.89	0.90	0.62	0.38	0.33	0.28	0.49	8.38	11.57	
1973	4.63	0.99	0.99	0.65	0.43	0.34	0.29	0.47	8.79	11.40	
1974	4.40	0.98	0.99	0.59	0.42	0.31	0.29	0.44	8.43	10.94	
1975	4.40	1.13	1.00	0.60	0.44	0.32	0.26	0.40	8.54	10.47	
1976	4.65	1.23	1.06	0.63	0.51	0.33	0.27	0.38	9.06	10.21	
1977	4.70	1.32	1.17	0.64	0.56	0.32	0.27	0.37	9.36	10.39	
1978	4.80	1.43	1.30	0.67	0.65	0.31	0.27	0.37	9.80	10.77	
1979	4.56	1.44	1.34	0.70	0.76	0.32	0.28	0.41	9.81	10.66	
1980	4.17	1.41	1.34	0.68	0.66	0.32	0.27	0.43	9.26	10.77	
1981	4.12	1.40	1.36	0.69	0.76	0.30	0.26	0.43	9.31	10.69	
1982	4.11	1.34	1.35	0.68	0.63	0.28	0.22	0.41	9.03	10.73	
1983	4.17	1.41	1.38	0.68	0.59	0.28	0.22	0.35	9.08	10.73	
1984	4.18	1.51	1.43	0.76	0.60	0.34	0.25	0.37	9.44	11.06	
1985	4.23	1.61	1.43	0.79	0.60	0.35	0.23	0.36	9.61	11.14	
1986	4.33	1.71	1.47	0.86	0.60	0.35	0.23	0.35	9.90	10.85	
1987	4.34	1.80	1.52	0.90	0.61	0.36	0.23	0.37	10.12	10.58	
1988	4.34	1.93	1.55	0.93	0.62	0.36	0.24	0.41	10.38	10.42	
1989	4.37	1.96	1.59	0.94	0.63	0.34	0.24	0.42	10.50	9.82	
1990	4.12	2.10	1.65	0.98	0.68	0.36	0.24	0.44	10.57	9.60	
1991	3.80	2.26	1.69	0.92	0.72	0.36	0.22	0.41	10.38	9.79	
1992	3.87	2.42	1.73	0.93	0.76	0.34	0.23	0.40	10.67	9.64	
1993	3.96	2.53	1.78	0.94	0.68	0.30	0.23	0.42	10.84	9.35	

1994	4.01	2.61	1.87	0.98	0.66	0.31	0.26	0.45	11.15	9.16	
1995	4.02	2.69	1.95	1.01	0.69	0.32	0.27	0.46	11.41	9.10	
1996	4.09	2.79	2.00	1.04	0.67	0.32	0.27	0.46	11.65	9.13	
1997	4.13	2.91	2.02	1.09	0.59	0.34	0.27	0.49	11.83	9.12	
1998	4.23	2.98	2.08	1.12	0.58	0.34	0.28	0.43	12.04	8.90	
1999	4.33	3.12	2.29	1.17	0.65	0.32	0.29	0.43	12.58	8.62	
2000	4.31	3.12	2.37	1.20	0.69	0.33	0.29	0.43	12.74	8.68	
2001	4.34	3.15	2.37	1.14	0.56	0.35	0.29	0.42	12.62	8.57	
2002	4.45	3.25	2.47	1.05	0.59	0.36	0.29	0.44	12.89	8.58	
2003	4.38	3.57	2.40	1.05	0.51	0.36	0.30	0.40	12.97	8.37	
2004	4.42	3.71	2.23	1.11	0.61	0.37	0.31	0.39	13.16	8.28	
2005	4.33	3.83	2.25	1.17	0.65	0.38	0.31	0.40	13.32	7.81	
2006	4.38	4.63	2.46	1.37	0.52	0.38	0.28	0.39	14.41	8.26	
2007	4.38	4.70	2.53	1.41	0.53	0.39	0.29	0.43	14.66	8.37	9.04
2008	4.38	4.74	2.57	1.46	0.55	0.40	0.29	0.44	14.84	8.59	9.46
2009	4.40	4.84	2.61	1.52	0.56	0.42	0.29	0.45	15.08	8.71	9.72
2010	4.39	4.93	2.66	1.59	0.57	0.42	0.30	0.45	15.32	8.68	9.70
2011	4.40	5.04	2.72	1.69	0.58	0.42	0.30	0.46	15.61	8.73	9.89
2012	4.41	5.16	2.77	1.73	0.58	0.44	0.31	0.46	15.87	8.80	9.97
2013	4.42	5.28	2.83	1.76	0.59	0.44	0.31	0.47	16.10	8.73	9.95
2014	4.43	5.42	2.87	1.79	0.59	0.45	0.32	0.47	16.34	8.89	10.07
2015	4.44	5.56	2.91	1.81	0.60	0.45	0.32	0.48	16.57	9.01	10.26
2016	4.45	5.71	2.95	1.83	0.60	0.45	0.32	0.48	16.80	9.05	10.32
2017	4.47	5.85	2.99	1.85	0.60	0.46	0.33	0.48	17.03	9.07	10.29
2018	4.49	5.99	3.01	1.88	0.61	0.47	0.33	0.50	17.28	9.05	10.35
2019	4.51	6.13	3.05	1.89	0.61	0.48	0.34	0.53	17.53	9.07	10.42
2020	4.53	6.27	3.09	1.91	0.61	0.48	0.34	0.54	17.78	9.07	10.38
2021	4.56	6.42	3.14	1.92	0.62	0.48	0.35	0.54	18.01	9.06	10.44
2022	4.58	6.56	3.19	1.92	0.62	0.48	0.35	0.54	18.24	9.03	10.52
2023	4.60	6.70	3.24	1.93	0.62	0.49	0.36	0.54	18.49	8.97	10.45
2024	4.63	6.85	3.29	1.93	0.63	0.50	0.37	0.54	18.74	8.85	10.40
2025	4.66	6.99	3.35	1.93	0.63	0.50	0.37	0.54	18.98	8.76	10.35
2026	4.69	7.15	3.42	1.94	0.63	0.50	0.38	0.54	19.26	8.68	10.44

2027	4.73	7.30	3.49	1.94	0.63	0.51	0.39	0.54	19.53	8.65	10.42
2028	4.76	7.45	3.56	1.95	0.64	0.51	0.40	0.54	19.80	8.60	10.35
2029	4.80	7.60	3.62	1.96	0.64	0.52	0.40	0.54	20.08	8.58	10.35
2030	4.84	7.74	3.69	1.97	0.64	0.52	0.41	0.54	20.35	8.59	10.47

Source:
Oak Ridge National Laboratory, Transportation Energy Data Book: Edition 26, Figure 1.8, September 2015.
Projections are from the Energy Information Administration, Annual Energy Outlook 2007, February 2007.

Transportation Energy Consumption and U.S. Petroleum Production Using AEO2015 Projections
(Million Barrels per Day)

Year	Autos	Light Trucks	Medium & Heavy Trucks	Air	Water	Off-Highway	Rail	Pipeline	Total	U.S Production	U.S. Production with other inputs (dotted line)
1970	4.01	0.73	0.79	0.62	0.40	0.35	0.26	0.47	7.62	11.66	
1971	4.22	0.80	0.83	0.62	0.37	0.34	0.26	0.48	7.90	11.54	
1972	4.50	0.89	0.90	0.62	0.37	0.33	0.27	0.49	8.38	11.57	
1973	4.64	0.99	0.99	0.65	0.42	0.34	0.28	0.47	8.78	11.40	
1974	4.40	0.98	0.99	0.59	0.42	0.31	0.29	0.44	8.43	10.94	
1975	4.40	1.13	1.01	0.60	0.44	0.32	0.26	0.40	8.55	10.47	
1976	4.65	1.23	1.06	0.63	0.51	0.33	0.27	0.38	9.06	10.21	
1977	4.70	1.32	1.17	0.64	0.56	0.32	0.28	0.37	9.36	10.39	
1978	4.80	1.43	1.30	0.67	0.65	0.31	0.28	0.37	9.80	10.77	
1979	4.56	1.44	1.34	0.70	0.54	0.32	0.29	0.41	9.60	10.66	
1980	4.17	1.41	1.34	0.68	0.66	0.32	0.28	0.42	9.26	10.77	
1981	4.12	1.40	1.36	0.69	0.60	0.31	0.27	0.43	9.16	10.69	
1982	4.11	1.34	1.35	0.68	0.50	0.28	0.23	0.40	8.90	10.73	
1983	4.17	1.41	1.38	0.68	0.46	0.28	0.23	0.35	8.95	10.73	
1984	4.19	1.51	1.43	0.76	0.46	0.34	0.25	0.37	9.29	11.06	
1985	4.23	1.61	1.43	0.79	0.41	0.35	0.24	0.36	9.42	11.14	
1986	4.33	1.71	1.47	0.86	0.63	0.35	0.23	0.35	9.93	10.85	
1987	4.34	1.80	1.52	0.90	0.65	0.36	0.24	0.37	10.17	10.58	
1988	4.34	1.93	1.55	0.93	0.67	0.36	0.24	0.41	10.43	10.42	
1989	4.37	1.96	1.59	0.94	0.72	0.34	0.24	0.42	10.59	9.82	

1990	4.12	2.10	1.65	0.97	0.68	0.36	0.24	0.44	10.55	9.60	
1991	3.80	2.26	1.69	0.91	0.72	0.37	0.23	0.41	10.37	9.79	
1992	3.87	2.42	1.73	0.92	0.76	0.35	0.23	0.40	10.66	9.64	
1993	3.96	2.53	1.78	0.94	0.68	0.30	0.24	0.42	10.84	9.35	
1994	4.01	2.61	1.87	0.98	0.66	0.31	0.25	0.45	11.14	9.16	
1995	4.02	2.69	1.95	1.01	0.69	0.32	0.26	0.46	11.40	9.10	
1996	4.09	2.80	2.00	1.04	0.67	0.32	0.27	0.46	11.65	9.13	
1997	4.13	2.91	2.02	1.09	0.59	0.34	0.27	0.48	11.83	9.12	
1998	4.23	2.98	2.09	1.08	0.58	0.34	0.27	0.42	11.99	8.90	
1999	4.33	3.12	2.29	1.17	0.65	0.32	0.28	0.43	12.58	8.62	
2000	4.31	3.12	2.38	1.21	0.69	0.33	0.28	0.43	12.74	8.68	
2001	4.34	3.15	2.37	1.13	0.56	0.35	0.29	0.42	12.60	8.57	
2002	4.45	3.25	2.47	1.05	0.59	0.36	0.29	0.44	12.89	8.58	
2003	4.38	3.57	2.40	1.07	0.51	0.36	0.29	0.40	12.98	8.34	
2004	4.42	3.71	2.23	1.16	0.61	0.37	0.31	0.39	13.21	8.30	
2005	4.54	3.45	2.50	1.20	0.65	0.38	0.31	0.40	13.41	7.89	
2006	4.41	3.57	2.55	1.19	0.69	0.38	0.32	0.40	13.49	7.82	
2007	4.38	3.63	3.14	1.19	0.74	0.39	0.31	0.42	14.20	7.86	
2008	4.20	3.58	3.18	1.13	0.69	0.40	0.30	0.43	13.91	7.78	
2009	3.91	3.61	2.96	1.01	0.63	0.42	0.26	0.44	13.22	8.24	
2010	3.64	3.77	3.00	1.02	0.70	0.42	0.27	0.44	13.26	8.62	
2011	3.49	3.83	2.83	1.02	0.66	0.42	0.29	0.45	12.98	8.94	
2012	3.39	3.86	2.83	0.98	0.56	0.40	0.28	0.47	12.78	9.96	
2013	3.36	3.82	2.90	0.96	0.50	0.38	0.29	0.54	12.74	11.15	
2014	3.83	4.50	2.78	1.11	0.46	0.38	0.27	0.56	13.88	12.77	
2015	3.82	4.58	2.90	1.14	0.47	0.37	0.25	0.50	14.02	13.60	14.81
2016	3.78	4.62	2.93	1.15	0.47	0.37	0.25	0.58	14.14	14.14	15.35
2017	3.73	4.63	2.96	1.16	0.47	0.37	0.25	0.55	14.11	14.81	16.09
2018	3.68	4.63	2.99	1.18	0.47	0.37	0.25	0.53	14.09	15.25	16.54
2019	3.63	4.60	3.01	1.20	0.47	0.37	0.25	0.54	14.06	15.54	16.84
2020	3.57	4.56	3.03	1.21	0.47	0.37	0.26	0.54	14.02	15.62	16.92
2021	3.51	4.53	3.04	1.23	0.47	0.37	0.26	0.55	13.96	15.61	16.90
2022	3.45	4.48	3.05	1.25	0.47	0.37	0.27	0.55	13.90	15.58	16.89
2023	3.39	4.43	3.07	1.26	0.48	0.37	0.27	0.56	13.83	15.52	16.82

2024	3.34	4.37	3.09	1.28	0.48	0.37	0.27	0.57	13.76	15.54	16.84
2025	3.28	4.30	3.11	1.30	0.48	0.37	0.27	0.57	13.68	15.44	16.74
2026	3.23	4.24	3.13	1.32	0.48	0.38	0.27	0.57	13.61	15.26	16.57
2027	3.19	4.18	3.14	1.34	0.48	0.38	0.27	0.58	13.56	15.25	16.56
2028	3.16	4.13	3.15	1.36	0.48	0.38	0.27	0.59	13.52	15.30	16.61
2029	3.13	4.08	3.17	1.38	0.48	0.39	0.27	0.59	13.49	15.25	16.56
2030	3.11	4.03	3.19	1.39	0.48	0.39	0.27	0.60	13.46	15.21	16.52
2031	3.10	3.99	3.21	1.41	0.48	0.40	0.27	0.60	13.45	14.91	16.24
2032	3.09	3.95	3.22	1.42	0.48	0.40	0.27	0.60	13.43	14.68	16.01
2033	3.08	3.92	3.25	1.43	0.48	0.40	0.27	0.60	13.43	14.55	15.88
2034	3.08	3.89	3.28	1.44	0.48	0.41	0.27	0.60	13.44	14.49	15.82
2035	3.08	3.85	3.32	1.45	0.48	0.41	0.27	0.60	13.46	14.50	15.84
2036	3.08	3.82	3.36	1.46	0.49	0.42	0.26	0.60	13.49	14.48	15.84
2037	3.09	3.80	3.40	1.47	0.49	0.42	0.26	0.60	13.52	14.49	15.84
2038	3.10	3.77	3.44	1.48	0.49	0.43	0.26	0.61	13.56	14.51	15.88
2039	3.11	3.75	3.47	1.48	0.49	0.43	0.26	0.61	13.60	14.44	15.83
2040	3.12	3.73	3.51	1.49	0.49	0.44	0.26	0.61	13.64	14.48	15.89

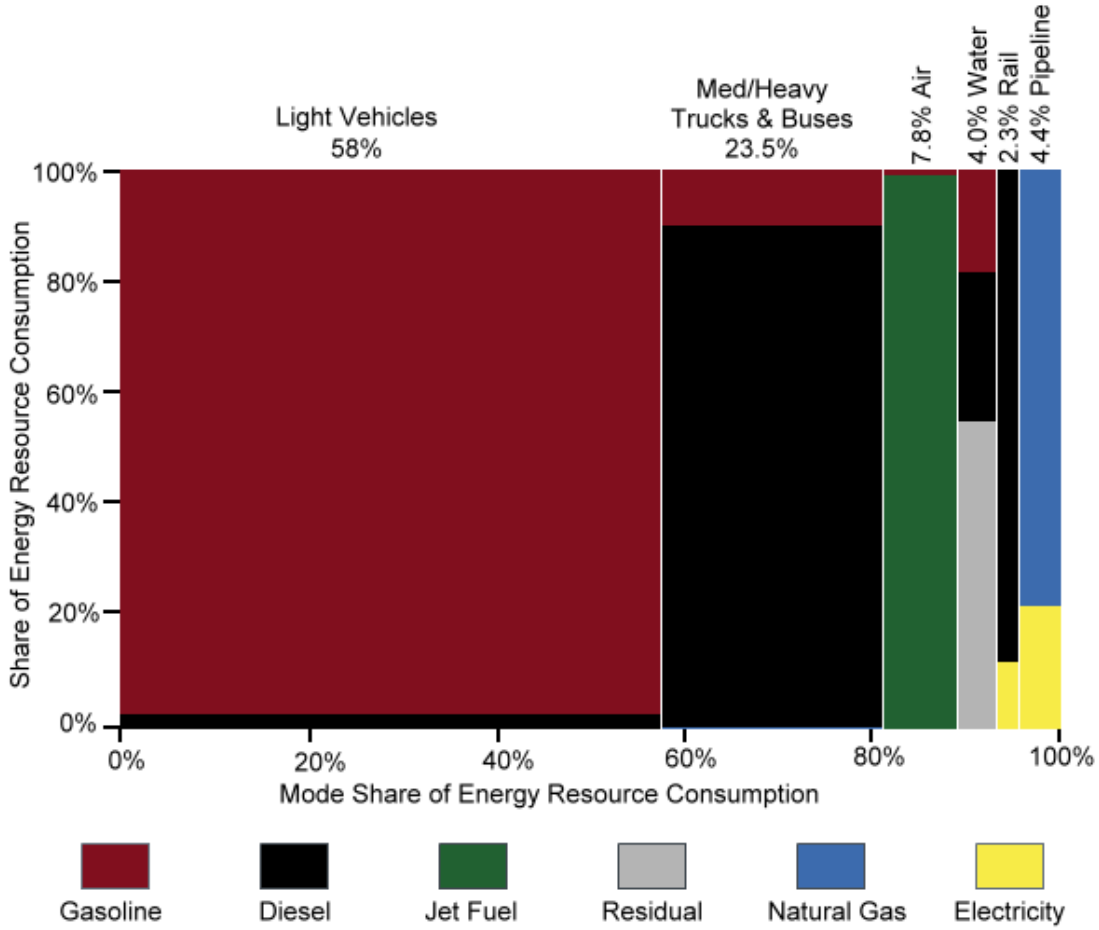
Source:
Oak Ridge National Laboratory, Transportation Energy Data Book: Edition 34, Figure 1.8, September 2015.
Projections are from the Energy Information Administration, Annual Energy Outlook 2015, April 2015.

Fact #896: October 26, 2015

More than 80% of Transportation Energy Use Is Highway Fuel Use

The gasoline and diesel fuel used in highway modes accounts for the majority of transportation energy use (81.5%). Air is the largest non-highway mode, using jet fuel for nearly all of its energy use.

Domestic Consumption of Transportation Energy Use by Mode and Fuel Type, 2013



Note: Civilian consumption only. Totals may not include all possible uses of fuels for transportation (e.g., snowmobiles). Residual fuel oil is heavier oil which can be used in vessel bunkering.

Supporting Information

Domestic Consumption of Transportation Energy Use by Mode and Fuel Type, 2013

Fuel Type	Light Vehicles	Med/Heavy Trucks & Buses	Air	Water	Rail	Pipeline
	Share of Energy Resource Consumption					
Gasoline	97.0%	9.9%	1.0%	18.4%	0.0%	0.0%
Diesel	2.7%	89.5%	0.0%	28.6%	0.0%	88.0%
Jet Fuel	0.0%	0.0%	99.0%	0.0%	0.0%	0.0%
Residual	0.0%	0.0%	0.0%	55.0%	0.0%	0.0%
Natural Gas	0.3%	0.7%	0.0%	0.0%	77.9%	0.0%
Electricity	0.0%	0.0%	0.0%	0.0%	22.1%	12.0%
Mode Share	58.0%	23.5%	7.8%	4.0%	2.3%	4.4%

Source:
Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 34*, Oak Ridge, TN, Table 2.7.

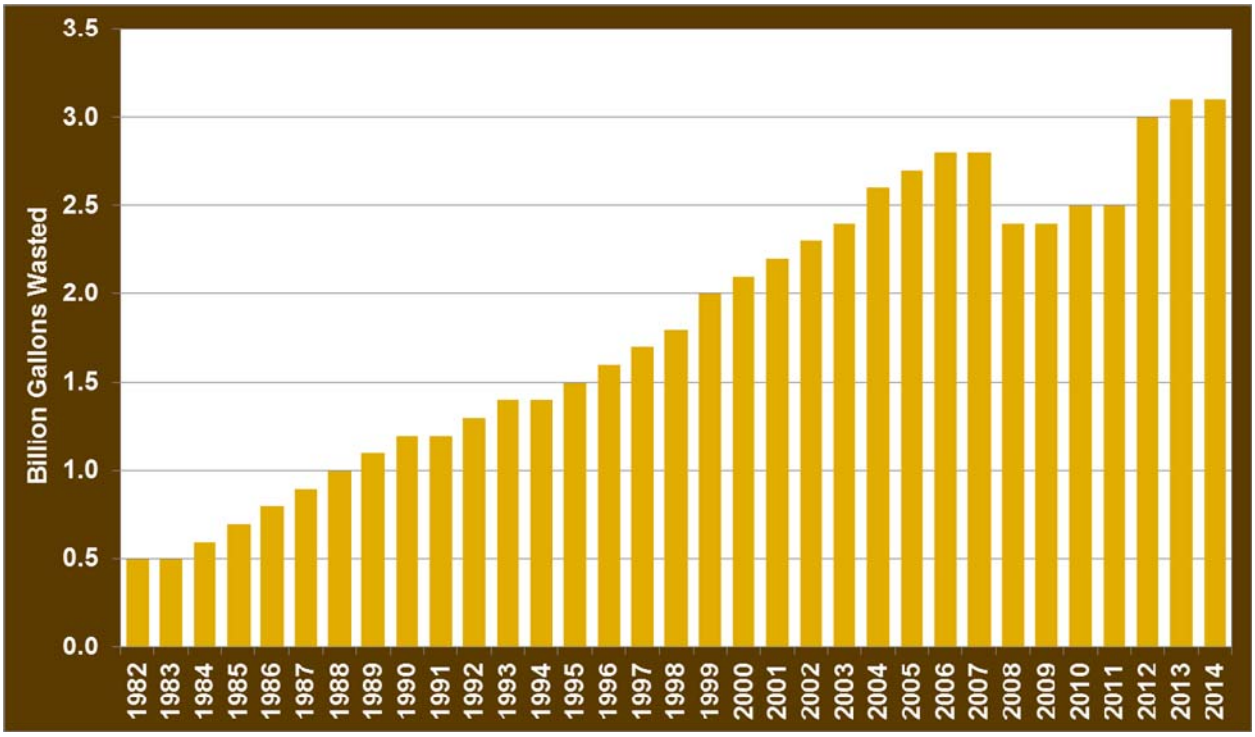
Vehicle Technologies Office

Fact #897: November 2, 2015

Fuel Wasted in Traffic Congestion

The researchers at the Texas Transportation Institute have recently published new estimates of the effects of traffic congestion. The trend toward increased congestion eased in 2008, likely due to effects from the Great Recession, but congestion rose again substantially in 2012. In 2014, there were 3.1 billion gallons of fuel wasted due to traffic congestion. This equates to approximately 19 gallons per commuter in 2014.

Total Fuel Wasted Due To Congestion, 1982-2014



Supporting Information

Total Fuel Wasted Due To Congestion, 1982-2014

Year	Fuel Wasted (Billion gallons)
1982	0.5
1983	0.5
1984	0.6
1985	0.7
1986	0.8
1987	0.9
1988	1.0
1989	1.1
1990	1.2
1991	1.2
1992	1.3
1993	1.4
1994	1.4
1995	1.5
1996	1.6
1997	1.7
1998	1.8
1999	2.0
2000	2.1
2001	2.2
2002	2.3
2003	2.4
2004	2.6
2005	2.7
2006	2.8
2007	2.8
2008	2.4

2009	2.4
2010	2.5
2011	2.5
2012	3.0
2013	3.1
2014	3.1

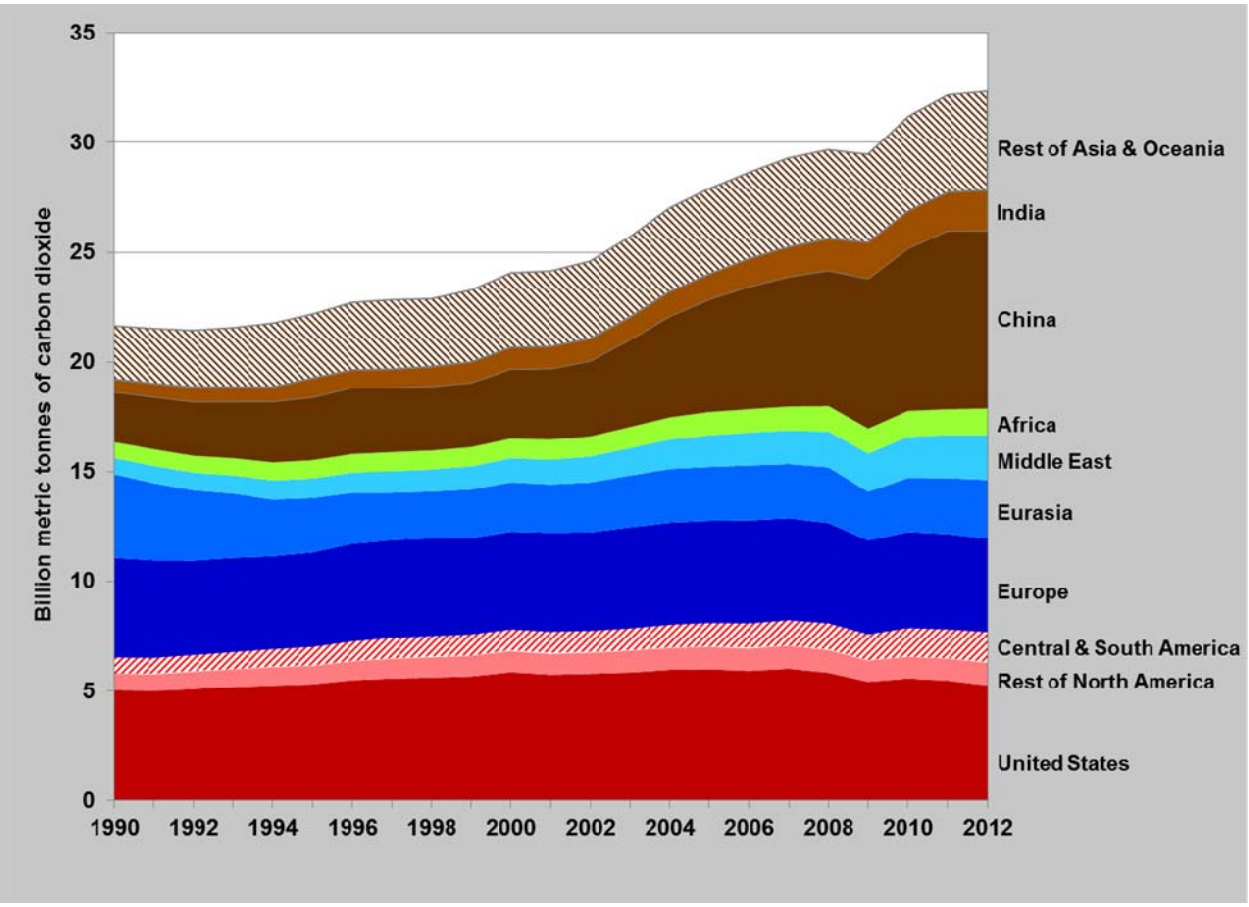
Source:
Texas Transportation Institute, *2015 Urban Mobility Scorecard*, August 2015.

Fact #898: November 9, 2015

World Carbon Dioxide Emissions, 1990–2012

Since 1990, China shows the greatest increase of carbon dioxide (CO2) emissions. The Americas, Europe and Eurasia have about the same CO2 emissions in 2012 as in 1990. The small downturn in 2009 emissions coincides with the Great Recession that was not only felt in the United States, but worldwide.

World Carbon Dioxide Emissions, 1990–2012



Supporting Information

World Carbon Dioxide Emissions, 1990–2012

Year	United States	Rest of North America	Central & South America	Europe	Eurasia	Middle East	Africa	India	China	Rest of Asia & Oceania
1990	5,041	774	716	4,543	3,818	730	727	579	2,269	2,414
1991	4,998	776	738	4,452	3,521	785	751	621	2,369	2,498
1992	5,093	800	744	4,316	3,196	815	764	660	2,449	2,568
1993	5,188	803	784	4,300	2,923	840	776	691	2,565	2,686
1994	5,261	833	812	4,242	2,581	885	813	741	2,754	2,815
1995	5,319	831	858	4,313	2,478	901	826	880	2,852	2,909
1996	5,505	854	903	4,451	2,315	935	843	814	3,006	3,054
1997	5,577	895	949	4,461	2,152	989	868	856	2,918	3,167
1998	5,617	922	975	4,450	2,125	1,019	856	893	2,916	3,086
1999	5,678	931	978	4,396	2,207	1,057	873	951	2,933	3,268
2000	5,864	957	992	4,459	2,253	1,095	887	991	3,165	3,377
2001	5,755	943	1,014	4,513	2,204	1,120	916	1,016	3,227	3,426
2002	5,799	948	1,005	4,493	2,275	1,177	918	1,008	3,422	3,535
2003	5,853	986	1,021	4,613	2,361	1,244	968	1,022	3,960	3,660
2004	5,974	991	1,062	4,658	2,440	1,335	1,016	1,121	4,597	3,775
2005	5,999	1,009	1,103	4,659	2,451	1,448	1,053	1,181	5,116	3,860
2006	5,924	1,017	1,149	4,695	2,501	1,503	1,059	1,281	5,575	3,917
2007	6,024	1,035	1,169	4,657	2,468	1,531	1,087	1,366	5,908	4,021
2008	5,841	1,029	1,220	4,581	2,535	1,631	1,152	1,449	6,167	4,041
2009	5,430	967	1,198	4,280	2,212	1,741	1,146	1,643	6,816	4,003
2010	5,580	984	1,311	4,387	2,466	1,863	1,180	1,715	7,389	4,280
2011	5,483	999	1,335	4,348	2,551	1,959	1,169	1,753	8,127	4,431
2012	5,270	1,028	1,400	4,263	2,672	2,036	1,206	1,831	8,106	4,498

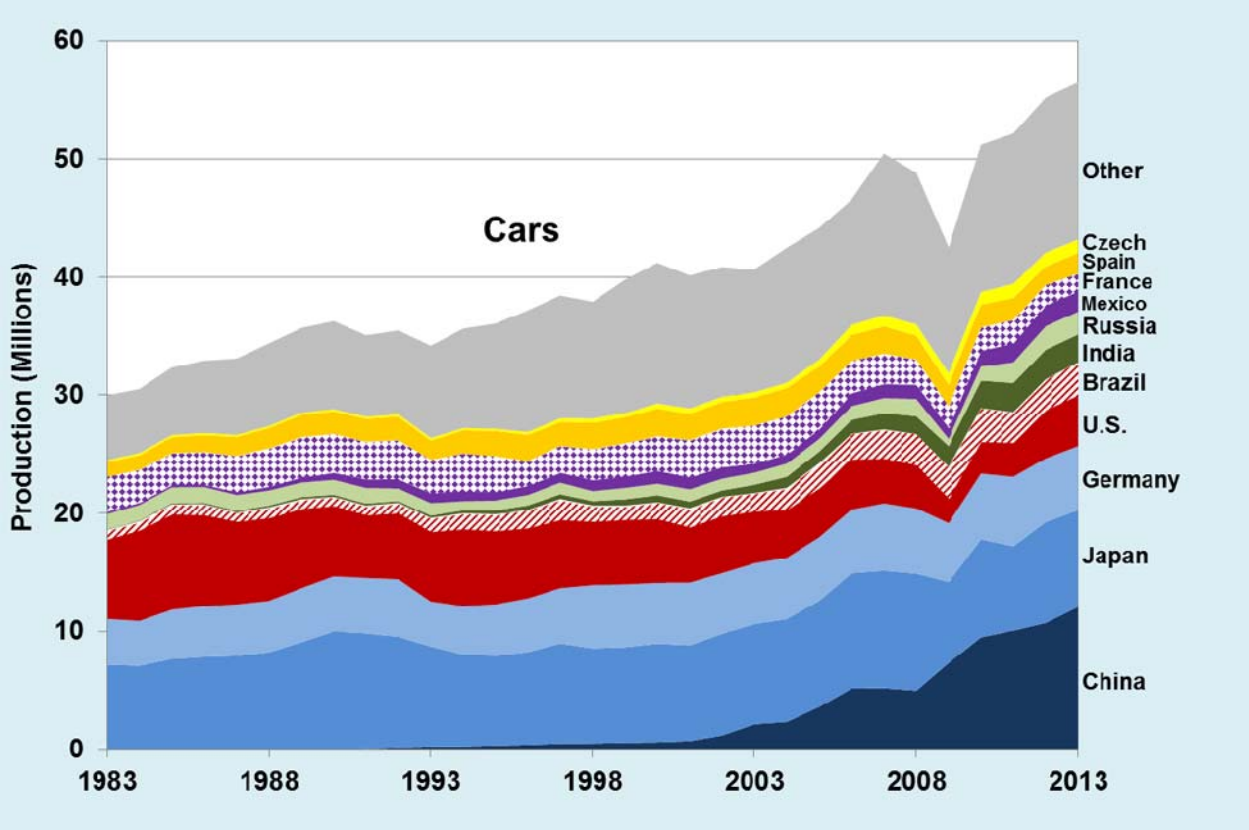
Source:
U.S. Department of Energy, Energy Information Administration, International Energy Statistics, Total *Carbon Dioxide Emissions from the Consumption of Energy*. Accessed July 2015.

Fact #899: November 16, 2015

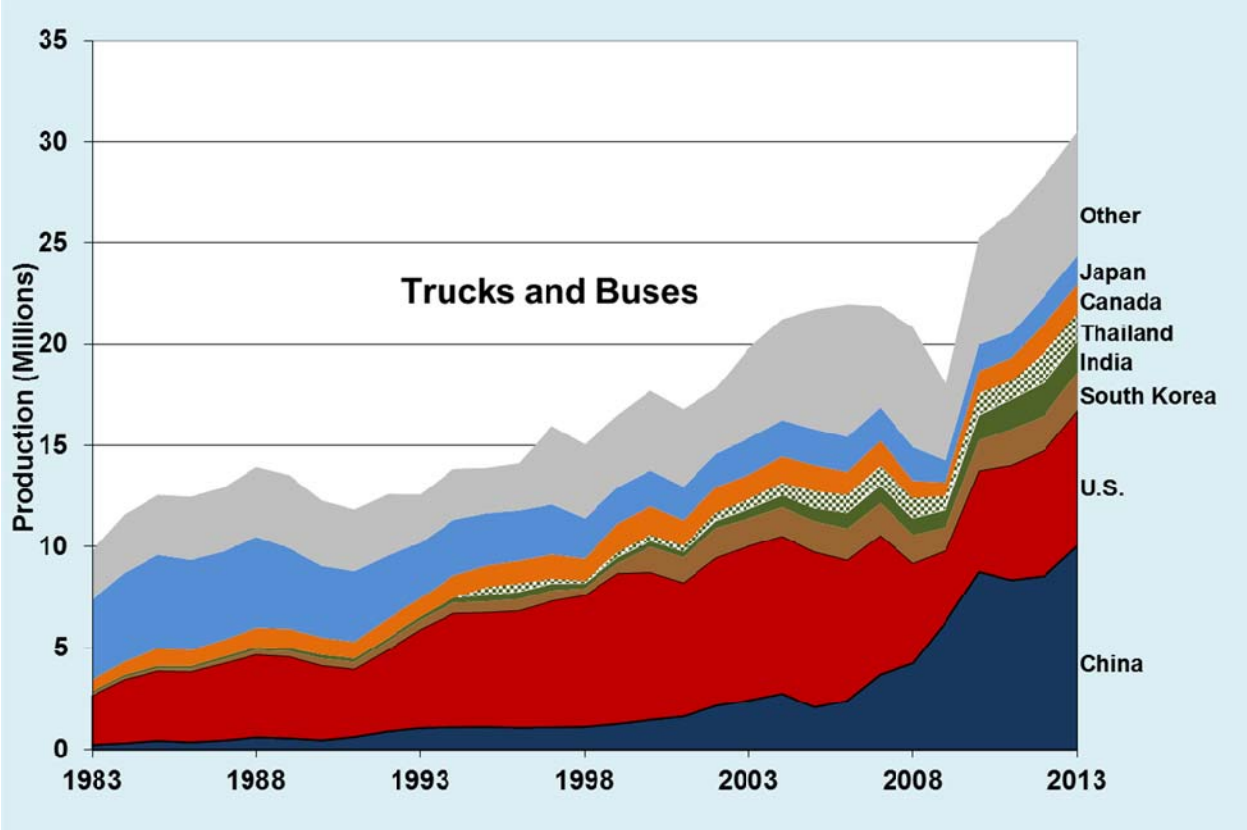
World Production of Cars and Trucks

The top countries producing the world's cars and trucks have changed over the last ten years. In 2013, China was the largest producer of both cars and trucks. In 2000, Japan produced the most cars and the United States produced the most trucks (includes light trucks). The graphs below highlight the top-producing countries for cars and trucks.
World Cars and Trucks Production, 1983–2013

World Production of Cars, 1983–2013



World Production of Trucks and Buses, 1983– 2013



Notes:

- Trucks include all trucks and buses. Light trucks, such as pickups, vans, and sport-utility vehicles are included with trucks.
- Note that the two graphs have differing scales for production. Total car production is 56.5 million while total truck and bus production is 30.5 million for 2013.

Supporting Information

World Production of Cars, 1983–2013
(Thousands)

Year	China	Japan	Germany	U.S.	Brazil	India	Russia	Mexico	France	Spain	Czech Republic	Other
1983	6	7,152	3,878	6,782	748	45	1,316	207	2,961	1,225	178	5,511
1984	6	7,073	3,790	7,773	679	64	1,327	245	2,713	1,255	180	5,428
1985	5	7,647	4,167	8,186	759	102	1,332	268	2,632	1,345	181	5,729
1986	12	7,810	4,311	7,829	815	116	1,326	191	2,773	1,439	185	6,130
1987	21	7,891	4,374	7,100	683	149	1,332	266	3,052	1,594	172	6,480
1988	36	8,198	4,346	7,137	782	160	1,262	354	3,224	1,722	159	7,017
1989	29	9,052	4,564	6,821	731	177	1,217	439	3,409	1,897	184	7,170
1990	42	9,948	4,661	6,078	663	177	1,259	598	3,295	1,916	188	7,448
1991	81	9,753	4,677	5,440	705	179	1,308	720	3,188	1,943	173	6,913
1992	163	9,379	4,864	5,667	816	154	1,053	776	3,329	1,972	200	7,115
1993	230	8,494	3,794	5,982	1,100	200	1,065	835	2,836	1,622	220	7,819
1994	248	7,802	4,094	6,601	1,249	237	796	857	3,175	1,974	174	8,432
1995	320	7,611	4,360	6,326	1,298	330	838	699	3,051	2,131	193	8,913
1996	382	7,865	4,540	6,035	1,459	396	868	798	2,088	2,213	240	10,313
1997	488	8,491	4,678	5,878	1,678	410	970	855	2,259	2,010	321	10,415
1998	507	8,056	5,348	5,492	1,254	384	833	956	2,603	2,216	369	9,907
1999	565	8,100	5,310	5,578	1,108	533	955	994	2,784	2,209	349	11,308
2000	605	8,363	5,132	5,471	1,362	605	969	1,130	2,880	2,367	428	11,917
2001	704	8,117	5,301	4,808	1,502	574	1,022	1,001	3,182	2,211	457	11,271
2002	1,175	8,619	5,123	4,957	1,520	546	980	960	3,283	2,267	441	10,993
2003	2,124	8,478	5,145	4,453	1,505	712	1,010	774	3,220	2,399	436	10,401
2004	2,316	8,720	5,192	4,166	1,756	940	1,110	782	3,227	2,403	443	11,434
2005	3,586	9,017	5,350	4,266	2,009	999	1,068	846	3,113	2,174	599	11,146
2006	5,161	9,757	5,399	4,312	2,092	1,186	1,176	1,098	2,728	2,187	849	10,632
2007	5,185	9,945	5,709	3,867	2,388	1,377	1,293	1,209	2,551	2,309	926	13,732
2008	4,971	9,916	5,532	3,731	2,561	1,507	1,470	1,217	2,145	2,014	933	12,874
2009	7,322	6,862	4,965	2,196	2,578	1,781	596	943	1,815	1,827	968	10,672
2010	9,494	8,307	5,552	2,732	2,828	2,317	1,208	1,386	1,914	1,951	1,070	12,470
2011	10,053	7,159	5,872	2,978	2,505	2,479	1,738	1,657	1,931	1,868	1,192	12,747
2012	10,705	8,554	5,388	4,109	2,591	2,520	1,969	1,810	1,683	1,595	1,172	13,129

2013	12,059	8,189	5,440	4,369	2,723	2,370	1,920	1,772	1,461	1,755	1,127	13,324

Source:
Oak Ridge National Laboratory, Transportation Energy Data Book: Edition 34, Figure 3.1, September 2015.

World Production of Trucks and Buses, 1983–2013 (Thousands)

Year	China	U.S.	South Korea	India	Thailand	Canada	Japan	Other
1983	234	2,444	99	109		554	3,960	2,423
1984	311	3,166	107	116		649	4,392	2,875
1985	438	3,452	114	128		855	4,625	2,944
1986	361	3,491	144	123		791	4,450	3,113
1987	451	3,812	186	140		826	4,358	3,154
1988	610	4,085	212	152		949	4,501	3,454
1989	558	4,036	257	160		947	3,973	3,618
1990	467	3,690	335	187		850	3,539	3,213
1991	627	3,350	340	176		828	3,492	3,035
1992	899	4,025	423	166		945	3,121	3,021
1993	1,067	4,873	458	173		900	2,734	2,383
1994	1,103	5,638	506	237		1,106	2,752	2,520
1995	1,114	5,669	524	306	397	1,071	2,585	2,247
1996	1,074	5,795	548	366	418	1,117	2,482	2,335
1997	1,095	6,252	510	326	247	1,198	2,483	3,870
1998	1,121	6,510	330	244	125	1,089	1,994	3,649
1999	1,265	7,447	481	285	249	1,431	1,795	3,565
2000	1,464	7,303	1,233	284	315	1,413	1,781	3,924
2001	1,631	6,617	1,231	276	303	1,260	1,660	3,825
2002	2,160	7,322	1,456	347	415	1,264	1,638	3,240
2003	2,424	7,634	1,353	450	499	1,213	1,808	4,444
2004	2,755	7,794	1,415	571	628	1,311	1,791	4,982
2005	2,082	7,681	1,505	643	848	1,281	1,783	5,913
2006	2,406	6,949	1,542	772	889	1,144	1,728	6,554

2007	3,700	6,885	1,577	872	972	1,237	1,652	4,998
2008	4,262	4,941	1,391	809	992	887	1,647	5,910
2009	6,326	3,514	1,138	861	686	669	1,072	3,747
2010	8,770	5,012	1,480	1,237	1,091	1,101	1,318	5,267
2011	8,366	5,685	1,755	1,461	920	1,145	1,240	5,961
2012	8,567	6,227	1,690	1,628	1,496	1,423	1,388	5,915
2013	10,058	6,698	1,883	1,526	1,386	1,415	1,441	6,123

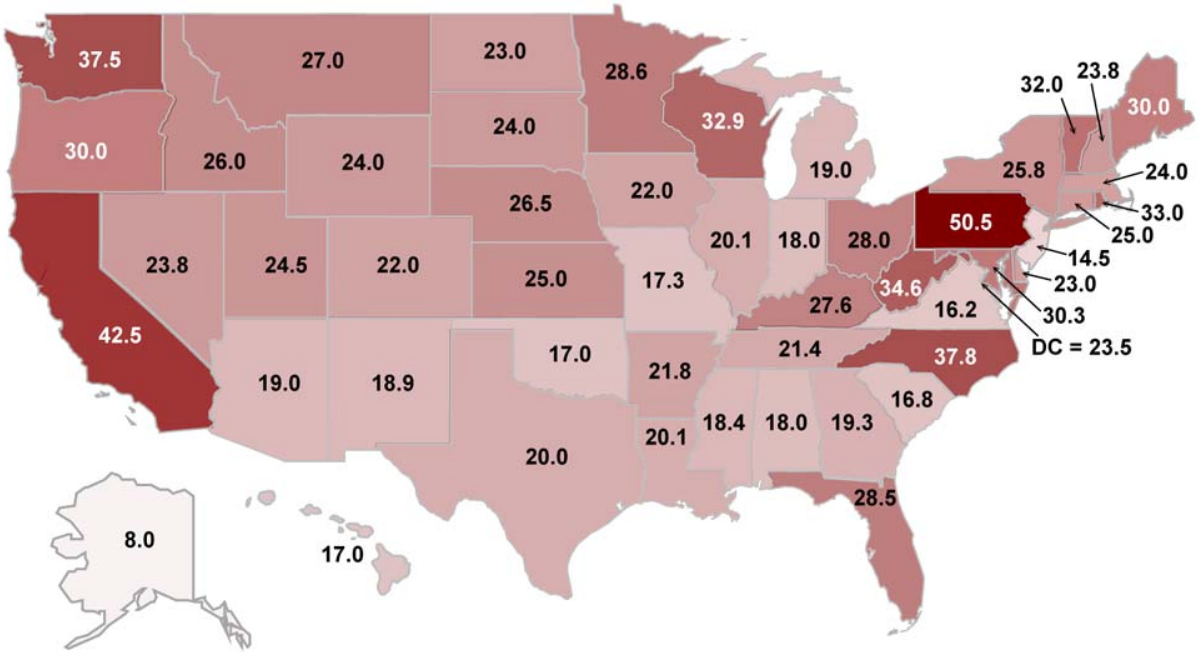
Source:
Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 34*, Figure 3.2, September 2015.

Fact #900: November 23, 2015

States Tax Gasoline at Varying Rates

In addition to the 18.4 cents per gallon federal gasoline tax, the states also tax gasoline at varying rates and for varying reasons. Some states have sales taxes added to gasoline taxes while others have inspection fees, environmental fees, leaking underground storage tank (LUST) taxes, etc. The Federation of Tax Administrators has estimated the gasoline excise taxes, along with other state taxes and fees, to arrive at an estimate of the amount consumers are paying per gallon in each state. According to those estimates, Pennsylvania currently has the highest per gallon tax rate for gasoline; the Pennsylvania rate includes the Oil Franchise Tax for Maintenance and Construction, a variable rate tax adjusted annually. California, with an additional sales tax, and North Carolina, with an inspection fee, have the next highest rates. Alaska, with an 8-cent gasoline tax rate, has by far the lowest gasoline tax rate of any state.

State Gasoline Taxes (Cents per Gallon)



Supporting Information

State Gasoline Taxes (Cents per Gallon)

State	Excise Tax	Additional Fee or Tax	Total	Note
Alabama (1)	16.00	2.00	18.00	Inspection fee
Alaska	8.00		8.00	
Arizona	18.00	1.00	19.00	LUST tax
Arkansas	21.50	0.30	21.80	Environmental fee
California	36.00	6.50	42.50	Includes prepaid sales tax (8)
Colorado	22.00		22.00	
Connecticut	25.00		25.00	Plus a 8.1% Petroleum tax (gas)
Delaware	23.00		23.00	Plus 0.9% GRT
District of Columbia	23.50		23.50	
Florida (2)	4.00	24.53	28.53	Sales tax added to excise (2)
Georgia	7.50	11.80	19.30	Sales tax added to excise
Hawaii (1)	17.00		17.00	Sales tax additional
Idaho	25.00	1.00	26.00	Clean water tax (7)
Illinois (1)	19.00	1.10	20.10	Sales tax add., environmental & LUST fee (3)
Indiana	18.00		18.00	Sales tax additional (3)
Iowa	21.00	1.00	22.00	Environmental fee
Kansas	24.00	1.03	25.03	Environmental & Inspection fees
Kentucky	26.20	1.40	27.60	Environmental fee(3,4)
Louisiana	20.00	0.13	20.13	Inspection fee
Maine	30.00		30.00	(5)
Maryland (5)	30.30		30.30	
Massachusetts	24.00		24.00	
Michigan	19.00		19.00	Sales tax additional
Minnesota	28.50	0.10	28.60	Inspect fee(5)
Mississippi	18.00	0.40	18.40	Environmental fee
Missouri	17.00	0.30	17.30	Inspection & Load fees
Montana	27.00		27.00	

Nebraska	25.60	0.90	26.50	Petroleum fee (5)
Nevada (1)	23.00	0.81	23.81	Inspection & cleanup fee
New Hampshire	22.20	1.63	23.83	Oil discharge cleanup fee
New Jersey	10.50	4.00	14.50	Petroleum fee
New Mexico	17.00	1.88	18.88	Petroleum loading fee
New York	8.00	17.80	25.80	Petroleum tax, sales tax additional
North Carolina	37.50	0.25	37.75	(4) Inspection tax
North Dakota	23.00		23.00	
Ohio	28.00		28.00	
Oklahoma	16.00	1.00	17.00	Environmental fee
Oregon (1)	30.00		30.00	
Pennsylvania	50.50		50.50	Oil franchise tax
Rhode Island	32.00	1.00	33.00	LUST tax
South Carolina	16.00	0.75	16.75	Inspection fee & LUST tax
South Dakota (1)	22.00	2.00	24.00	Inspection fee
Tennessee (1)	20.00	1.40	21.40	Petroleum Tax & Environmental Fee
Texas	20.00		20.00	
Utah	24.50		24.50	
Vermont (5)	12.10	19.87	31.97	Cleanup Fee & Transportation Fee
Virginia (1)	16.20		16.20	(6)
Washington	37.50		37.50	0.5% privilege tax
West Virginia	20.50	14.10	34.60	Sales tax added to excise
Wisconsin	30.90	2.00	32.90	Petroleum Inspection Fee
Wyoming	23.00	1.00	24.00	License tax

Notes:

1. Tax rates do not include local option taxes. In Alabama, 1 - 3 cents; Hawaii, 8.8 to 18.0 cent; Illinois, 5 cents in Chicago and 6 cents in Cook county (gasoline only); Nevada, 4.0 to 9.0 cents; Oregon, 1 to 3 cents; South Dakota and Tennessee, one cent; and Virginia 2.1%.
2. Local taxes for gasoline and gasohol vary from 11.1 cents to 19.1 cents. Includes Inspection Fee, State Comprehensive Enhanced Transportation System (SCETS) tax, and Additional Local Tax.
3. Carriers pay an additional surcharge equal to Illinois-19.3 cents (gasoline) 20.1 cents (diesel), Indiana-11 cents, Kentucky-2% (gasoline) 4.7% (diesel).
4. Tax rate is based on the average wholesale price and is adjusted quarterly. The actual rates are: Kentucky, 9%; and North Carolina, 17.5¢ + 7%.
5. Portion of the rate is adjustable based on maintenance costs, sales volume, cost of fuel to state

government, or inflation.

6. Large trucks pay an additional 12.6 cents for gasoline. Actual rate is 5.1%.
7. Tax rate is reduced by the percentage of ethanol used in blending (reported rate assumes the maximum 10% ethanol).
8. California gasoline subject to 2.25% sales tax.

Source:

Compiled by Federation of Tax Administrators from various sources, January 2015. Site accessed September 29, 2015. http://www.taxadmin.org/fta/rate/mf.pdf

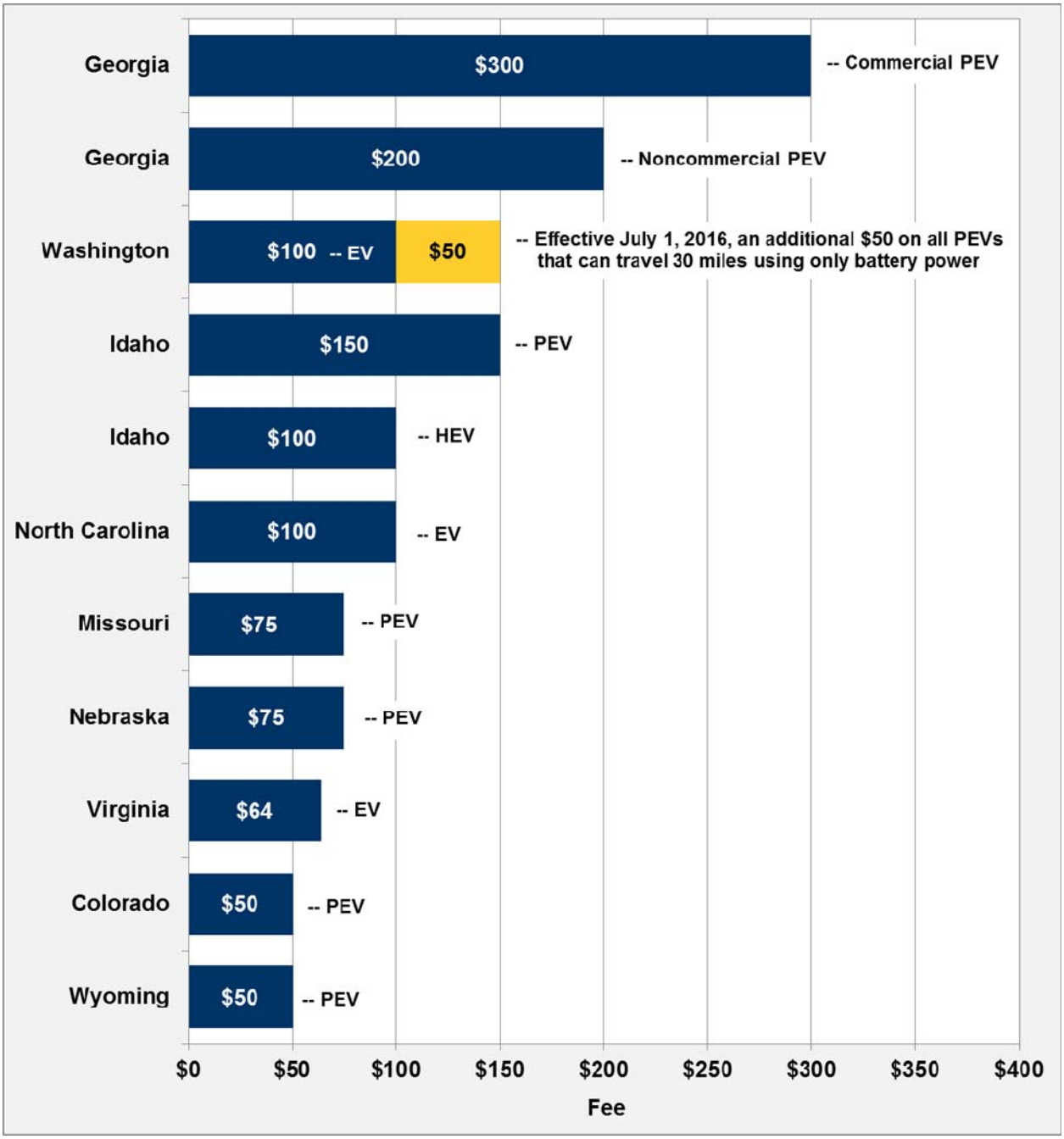
Fact #901: November 30, 2015

States Assessing Fees on Electric Vehicles to Make Up for Lost Fuel Tax Revenue

The maintenance of our highways has traditionally been funded from a combination of Federal and state taxes collected at the pump from the sale of motor fuels. Because electric vehicles (EVs) do not refuel at pumps that collect state and Federal fuel taxes, they do not contribute to the upkeep of the highways. This has caused many states to rethink how funds are collected to support the highway infrastructure.

Nine states currently assess fees on electric vehicle owners in lieu of traditional fuel taxes. Georgia has the highest annual fee of the states that have currently enacted fees for electric vehicles. Commercial and noncommercial plug-in electric vehicles (PEV) have different fees in Georgia. Idaho is the only state that has a fee for conventional hybrid electric vehicles (without a plug). Washington State has enacted new fees that will become effective July 1, 2016.

Annual State Fees for Electric Vehicle Owners as of September 2015



Notes:

- EV = All Electric Vehicle
- PHEV = Plug-in Hybrid Electric Vehicle
- PEV = Plug-in Electric Vehicle (includes both EV and PHEV)
- HEV = Hybrid Electric Vehicle (no plug)

SUPPORTING INFORMATION

Annual State Fees for Electric Vehicle Owners as of September 2015

State	Fee	Upcoming Fee*	Applied to:
Georgia	$300		Commercial PEV
Georgia	$200		Noncommercial PEV
Idaho	$150		PEV
Idaho	$100		HEV
North Carolina	$100		EV
Washington	$100		EV
Missouri	$75		PEV
Nebraska	$75		PEV
Virginia	$64		EV
Colorado	$50		PEV
Wyoming	$50		PEV

* Effective July 1, 2016, all PEVs that can travel 30 miles using only battery power have an additional $50 fee.

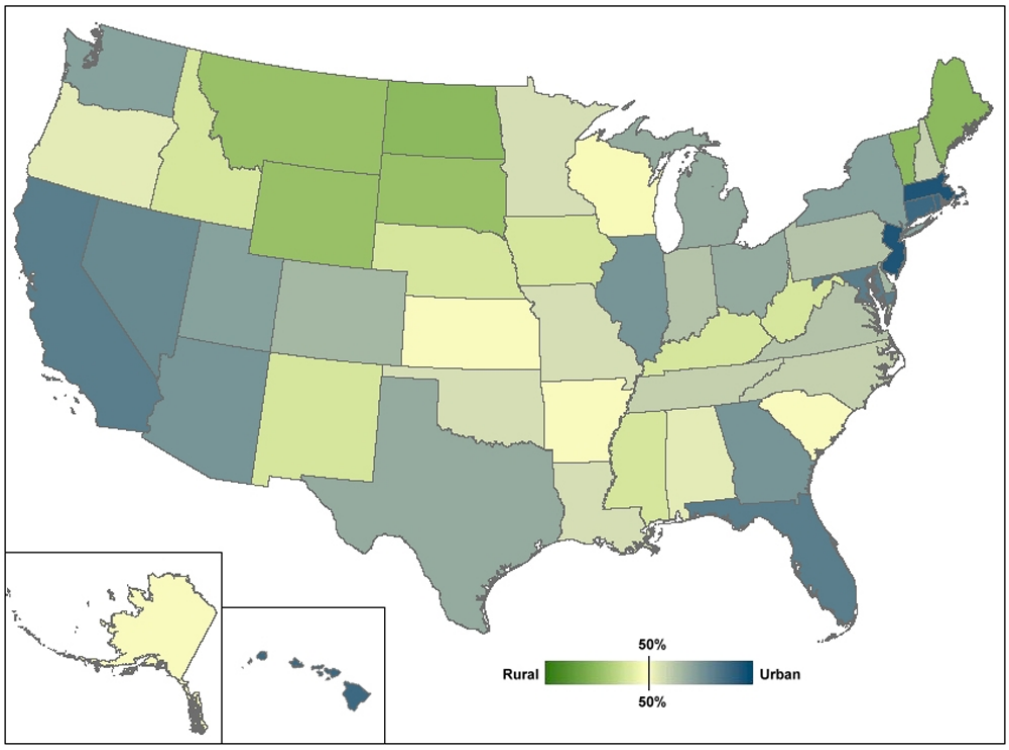
Source:
Alternative Fuels Data Center, U.S. Department of Energy, Federal and State Laws and Incentives, accessed September 3, 2015.

Fact #902: December 7, 2015

Rural Versus Urban Vehicle Miles of Travel by State

In the United States, the U.S. Department of Transportation classifies 3.9 million miles of roadway as rural and 1.2 million miles of roadway as urban. Each state has a different travel pattern affecting the proportion of vehicle miles traveled (VMT) on rural versus urban roads. Massachusetts, New Jersey, Rhode Island, Connecticut, California, Hawaii, Florida, and Maryland are states with more than 80% urban VMT shown in darker shades of blue. North Dakota has the highest percentage of rural VMT of all states (shown in green). Other states, such as Wisconsin, Arkansas, and Alaska are close to an equal number of rural versus urban VMT.

Rural Versus Urban VMT by State, 2013*
(Total U.S. VMT = 3 Trillion Miles)



* The most recent data available are 2013.

SUPPORTING INFORMATION

Rural versus Urban VMT by State, 2013

State	Rural VMT Share	Urban VMT Share	Million VMT
Alabama	46.6%	53.4%	65,046
Alaska	48.0%	52.0%	4,848
Arizona	23.5%	76.5%	60,586
Arkansas	48.0%	52.0%	33,493
California	15.7%	84.3%	329,534
Colorado	31.6%	68.4%	46,968
Connecticut	12.3%	87.7%	30,941
Delaware	32.8%	67.2%	9,308
Dist. of Columbia	0.0%	100.0%	3,527
Florida	18.0%	82.0%	192,702
Georgia	23.4%	76.6%	109,355
Hawaii	17.8%	82.2%	10,099
Idaho	58.1%	41.9%	15,980
Illinois	24.1%	75.9%	105,297
Indiana	37.2%	62.8%	78,311
Iowa	57.5%	42.5%	31,641
Kansas	47.9%	52.1%	30,208
Kentucky	57.8%	42.2%	46,996
Louisiana	41.4%	58.6%	47,758
Maine	72.4%	27.6%	14,129
Maryland	18.6%	81.4%	56,688
Massachusetts	4.6%	95.4%	56,311
Michigan	29.5%	70.5%	95,132
Minnesota	40.9%	59.1%	56,974
Mississippi	56.9%	43.1%	38,758
Missouri	41.0%	59.0%	69,458
Montana	69.3%	30.7%	12,033
Nebraska	58.1%	41.9%	19,322
Nevada	20.3%	79.7%	24,649

New Hampshire	39.3%	60.7%	12,903
New Jersey	6.1%	93.9%	74,530
New Mexico	57.3%	42.7%	25,086
New York	25.1%	74.9%	129,737
North Carolina	38.6%	61.4%	105,213
North Dakota	74.4%	25.6%	10,100
Ohio	29.5%	70.5%	112,767
Oklahoma	42.9%	57.1%	47,999
Oregon	44.5%	55.5%	33,706
Pennsylvania	35.8%	64.2%	98,628
Rhode Island	11.6%	88.4%	7,775
South Carolina	47.8%	52.2%	48,986
South Dakota	70.4%	29.6%	9,122
Tennessee	39.3%	60.7%	71,067
Texas	31.0%	69.0%	244,525
Utah	26.8%	73.2%	27,005
Vermont	73.9%	26.1%	7,116
Virginia	37.3%	62.7%	80,767
Washington	27.3%	72.7%	57,211
West Virginia	58.3%	41.7%	19,232
Wisconsin	51.7%	48.3%	59,486
Wyoming	69.2%	30.8%	9,309
Total	31.5%	68.5%	2,988,322

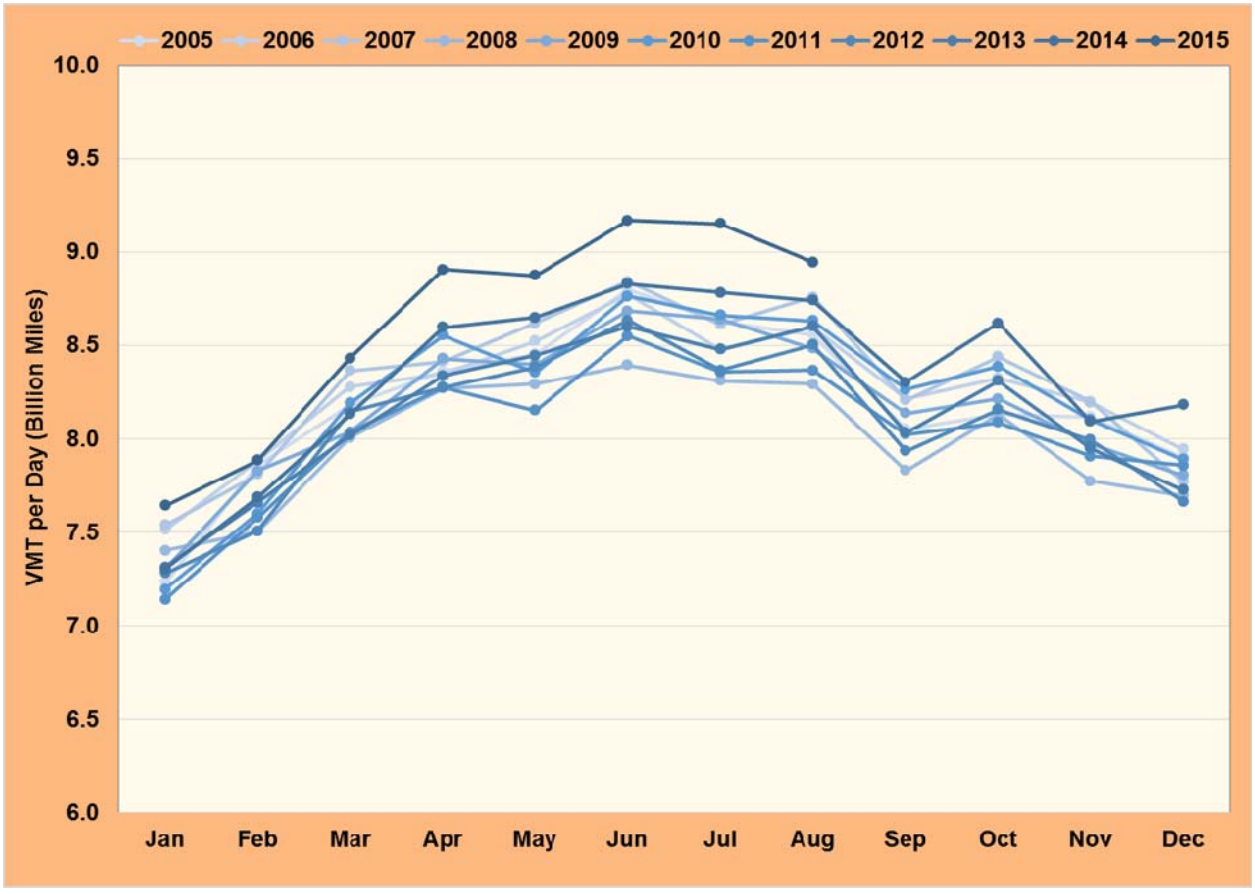
Source:
U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2013*, Washington, DC, 2014, Tables VM-2. Table HM-12 used for miles of rural and urban roadway cited in the text.

Fact #903: December 14, 2015

Vehicle Miles of Travel Is Up In 2015

Daily vehicle miles of travel (VMT) have been higher in 2015 than in any of the last ten years. Since April 2015, VMT has averaged 8.9 billion miles per day or more – levels not reached in any month over the last ten years. The cyclical nature of VMT shows that the summer months tend to have the highest vehicle travel and January typically has the lowest daily VMT. A combination of high gas prices and the Great Recession were the likely causes for 2008 VMT being the lowest in the time series.

VMT per Day, January 2005 through August 2015



SUPPORTING INFORMATION

VMT per Day, January 2005 through August 2015
(Billion Miles)

Month	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Jan	7.2	7.5	7.5	7.4	7.3	7.2	7.1	7.3	7.3	7.3	7.6
Feb	7.9	7.9	7.8	7.5	7.8	7.6	7.6	7.5	7.7	7.7	7.9
Mar	8.2	8.3	8.4	8.0	8.0	8.2	8.0	8.1	8.0	8.1	8.4
Apr	8.4	8.3	8.4	8.3	8.4	8.6	8.3	8.3	8.3	8.6	8.9
May	8.5	8.5	8.6	8.3	8.4	8.4	8.2	8.4	8.4	8.6	8.9
Jun	8.8	8.8	8.8	8.4	8.7	8.8	8.6	8.6	8.6	8.8	9.2
Jul	8.6	8.5	8.6	8.3	8.6	8.7	8.4	8.4	8.5	8.8	9.2
Aug	8.6	8.6	8.8	8.3	8.5	8.6	8.4	8.5	8.6	8.7	8.9
Sep	8.1	8.2	8.2	7.8	8.1	8.3	8.0	7.9	8.0	8.3	n/a
Oct	8.1	8.3	8.4	8.1	8.2	8.4	8.1	8.2	8.3	8.6	n/a
Nov	8.1	8.2	8.2	7.8	8.0	8.1	7.9	8.0	8.0	8.1	n/a
Dec	7.9	7.9	7.8	7.7	7.8	7.9	7.9	7.7	7.7	8.2	n/a

Note: VMT for Sept – Dec 2015 are not yet available.

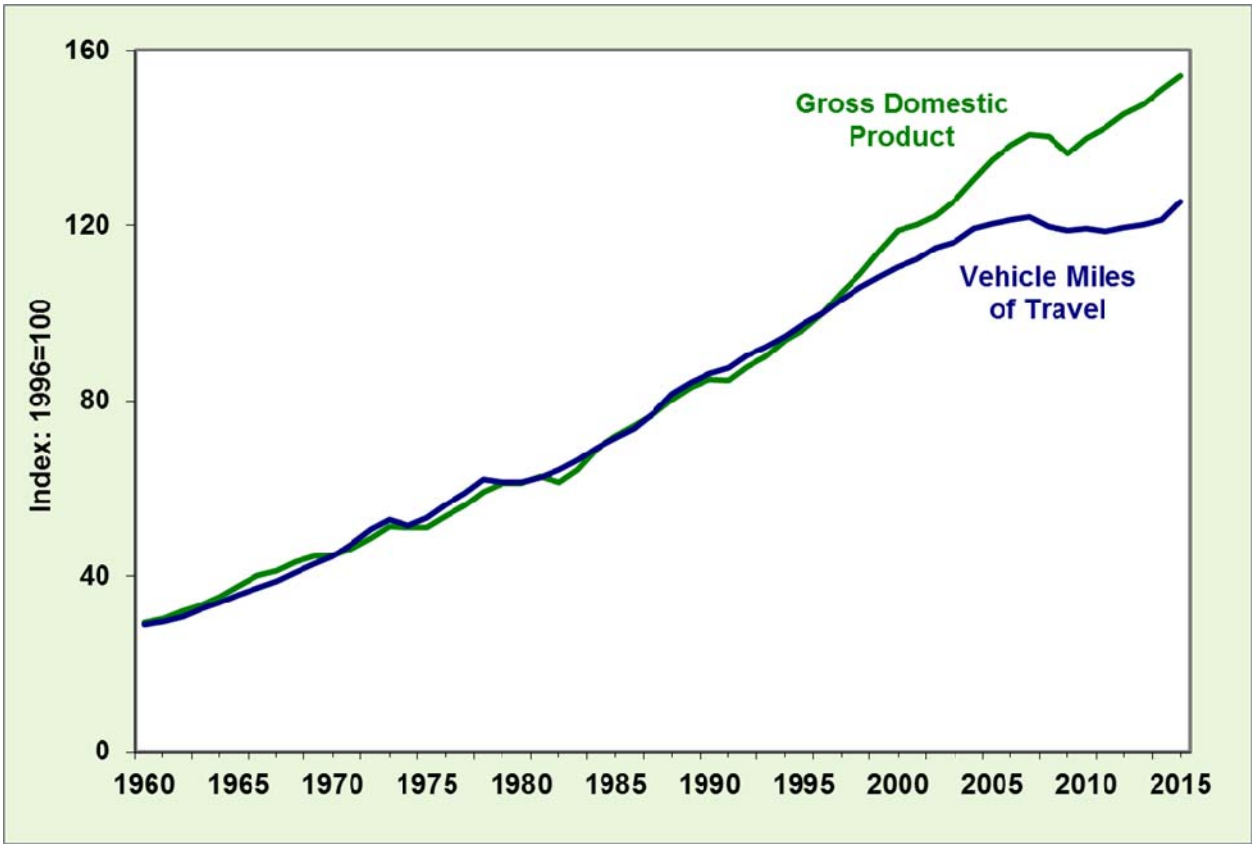
Source:
U.S. Department of Transportation, Federal Highway Administration, *Traffic Volume Trends*, August 2015, and older editions. Monthly VMT was converted to daily VMT using the number of days in a month.

Fact# 904: December 21, 2015

Gross Domestic Product and Vehicle Travel: Both Increased during 2015

The nation's highway vehicle miles of travel (VMT) and the U.S. gross domestic product (GDP) reflect strikingly similar patterns, indicating the strong relationship between the nation's economy and its travel. Beginning in the late 1990's, GDP grew at a faster rate than VMT, uncoupling the two data series. With the growth of VMT in 2015, the gap between the two series has narrowed for the first time since the Great Recession.

GDP and VMT Trends, 1960-2015



Note: Data for the last quarter of 2015 were not available and were estimated using 2014 data.

SUPPORTING INFORMATION

GDP and VMT Trends, 1960-2015

Year	GDP in Constant 2009 dollars (billions)	VMT (millions)	Indexed to 1996	
			GDP	VMT
1960	3,108.7	718,762	29.4	28.9
1961	3,188.1	737,421	30.2	29.7
1962	3,383.1	766,734	32.0	30.8
1963	3,530.4	805,249	33.4	32.4
1964	3,734.0	846,298	35.4	34.0
1965	3,976.7	887,812	37.7	35.7
1966	4,238.9	925,899	40.1	37.2
1967	4,355.2	964,005	41.2	38.8
1968	4,569.0	1,015,869	43.3	40.9
1969	4,712.5	1,061,791	44.6	42.7
1970	4,722.0	1,109,724	44.7	44.6
1971	4,877.6	1,178,811	46.2	47.4
1972	5,134.3	1,259,786	48.6	50.7
1973	5,424.1	1,313,110	51.4	52.8
1974	5,396.0	1,280,544	51.1	51.5
1975	5,385.4	1,327,664	51.0	53.4
1976	5,675.4	1,402,380	53.7	56.4
1977	5,937.0	1,467,027	56.2	59.0
1978	6,267.2	1,544,704	59.3	62.1
1979	6,466.2	1,529,133	61.2	61.5
1980	6,450.4	1,527,295	61.1	61.4
1981	6,617.7	1,555,308	62.7	62.6
1982	6,491.3	1,595,010	61.5	64.2
1983	6,792.0	1,652,788	64.3	66.5
1984	7,285.0	1,720,269	69.0	69.2
1985	7,593.8	1,774,826	71.9	71.4
1986	7,860.5	1,834,872	74.4	73.8

1987	8,132.6	1,921,204	77.0	77.3
1988	8,474.5	2,025,962	80.2	81.5
1989	8,786.4	2,096,487	83.2	84.3
1990	8,955.0	2,144,362	84.8	86.3
1991	8,948.4	2,172,050	84.7	87.4
1992	9,266.6	2,247,151	87.7	90.4
1993	9,521.0	2,296,378	90.2	92.4
1994	9,905.4	2,357,588	93.8	94.8
1995	10,174.8	2,422,696	96.3	97.5
1996	10,561.0	2,485,848	100.0	100.0
1997	11,034.9	2,561,695	104.5	103.1
1998	11,525.9	2,631,522	109.1	105.9
1999	12,065.9	2,691,056	114.2	108.3
2000	12,559.7	2,746,925	118.9	110.5
2001	12,682.2	2,790,372	120.1	112.3
2002	12,908.8	2,855,508	122.2	114.9
2003	13,271.1	2,890,450	125.7	116.3
2004	13,773.5	2,964,788	130.4	119.3
2005	14,234.2	2,989,430	134.8	120.3
2006	14,613.8	3,014,371	138.4	121.3
2007	14,873.7	3,031,124	140.8	121.9
2008	14,830.4	2,976,528	140.4	119.7
2009	14,418.7	2,956,764	136.5	118.9
2010	14,783.8	2,967,266	140.0	119.4
2011	15,020.6	2,950,402	142.2	118.7
2012	15,354.6	2,969,433	145.4	119.5
2013	15,583.3	2,988,323	147.6	120.2

2014	15,961.7	3,015,620	151.1	121.3
2015*	16,270.0	3,120,977	154.1	125.5

* Data for the last quarter of 2015 were not available and were estimated using 2014 data.

Sources:

Bureau of Economic Analysis, *Current and Real Gross Domestic Product*. GDP for 2015 was estimated using an average of the last four quarters of GDP data.

1960-2013 VMT: Federal Highway Administration, *Highway Statistics 2013*, Table VM-1 and previous annual editions.

2014 VMT: Federal Highway Administration, *Traffic Volume Trends, December 2014*, p. 2.

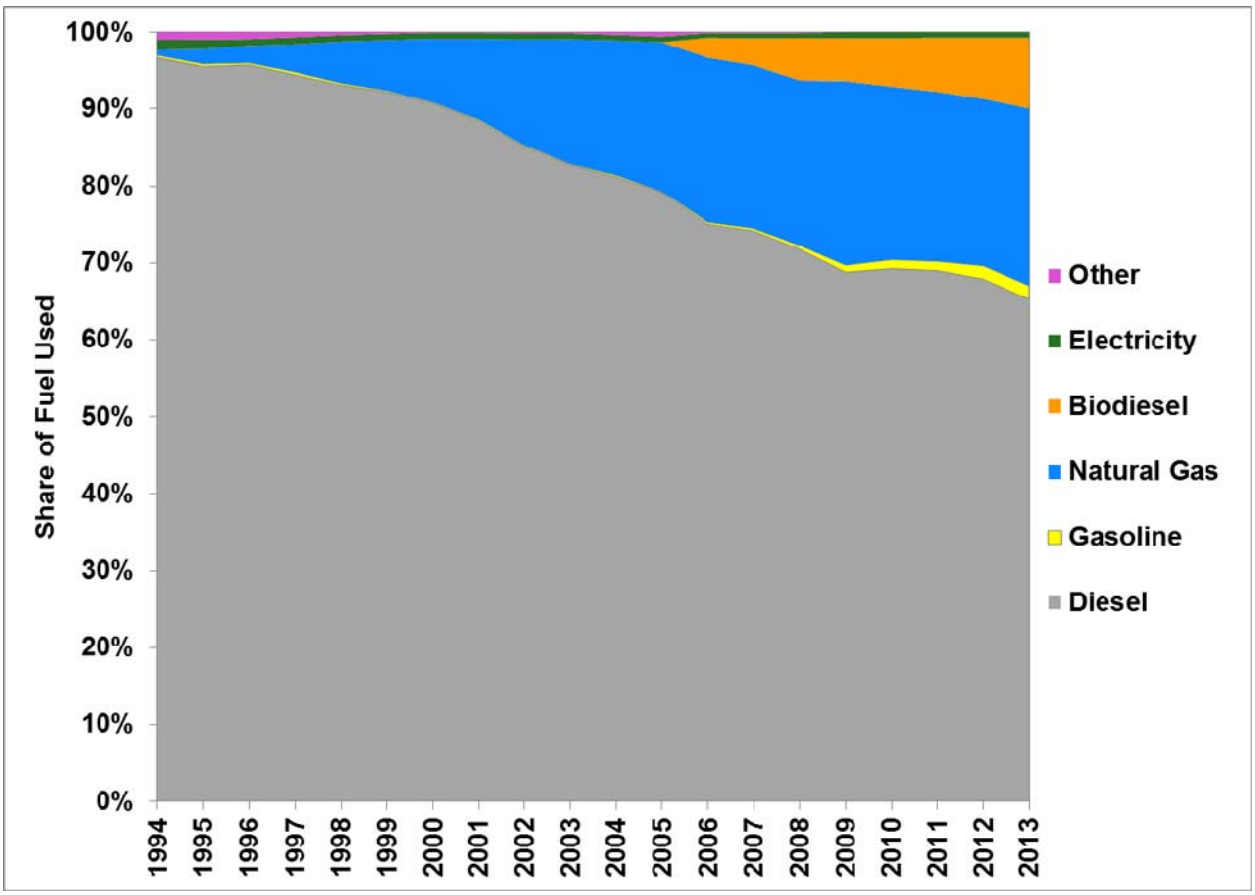
2015 VMT: Federal Highway Administration, *Traffic Volume Trends, September 2015*, p. 2. VMT estimated using moving 12-month total.

Fact# 905: December 28, 2015

Alternative Fuels Account for One-Third of Transit Bus Fuel Use

In 1994, 97% of fuel used in transit buses in the United States was petroleum-based diesel and gasoline, but by 2013 that number declined to 67%. The use of natural gas, including compressed natural gas, liquefied natural gas, and propane, increased substantially during this time period. Twenty-three percent of transit bus fuel use was natural gas in 2013. Beginning in the mid-2000's biodiesel, a diesel fuel based on vegetable oil or animal fat was also used in transit buses. Biodiesel is typically blended with petroleum-based diesel to create a blend such as B5 or B20. By 2013 about 9% of transit bus fuel use was biodiesel.

Transit Bus Fuel Use Shares, 1994-2013



Notes:

- The biodiesel category includes an unknown amount of petroleum-based diesel, as each transit agency may use different blends of fuel and report it as biodiesel.
- Other fuels include bio/soy fuel, biodiesel (through 2006), hydrogen, methanol, ethanol, and various blends.

SUPPORTING INFORMATION

Transit Bus Fuel Use, 1994-2013

Calendar Year	Diesel	Gasoline	Natural Gas	Biodiesel	Electricity	Other	Total Fuel Use (Trillion Btu)
1994	96.7%	0.3%	0.7%	0.0%	1.3%	1.0%	81.1
1995	95.5%	0.4%	1.9%	0.0%	1.3%	0.9%	81.9
1996	95.8%	0.3%	2.2%	0.0%	0.9%	0.9%	83.7
1997	94.4%	0.4%	3.6%	0.0%	0.9%	0.6%	87.8
1998	93.1%	0.3%	5.4%	0.0%	0.8%	0.4%	90.4
1999	92.2%	0.2%	6.5%	0.0%	0.8%	0.2%	92.9
2000	90.7%	0.2%	8.3%	0.0%	0.8%	0.1%	97.1
2001	88.5%	0.2%	10.5%	0.0%	0.8%	0.1%	92.1
2002	85.1%	0.2%	13.7%	0.0%	0.8%	0.1%	91.1
2003	82.7%	0.2%	16.2%	0.0%	0.8%	0.1%	90.3
2004	81.2%	0.2%	17.5%	0.0%	0.7%	0.3%	94.0
2005	79.2%	0.1%	19.4%	0.0%	0.7%	0.6%	93.5
2006	75.0%	0.3%	21.4%	2.6%	0.6%	0.1%	99.2
2007	74.2%	0.3%	21.2%	3.5%	0.7%	0.1%	92.4
2008	71.8%	0.5%	21.4%	5.5%	0.7%	0.1%	95.3
2009	68.8%	0.9%	23.9%	5.6%	0.8%	0.0%	91.8
2010	69.3%	1.2%	22.5%	6.3%	0.8%	0.0%	87.2
2011	69.0%	1.2%	22.0%	7.1%	0.7%	0.0%	91.5
2012	67.9%	1.7%	21.7%	8.0%	0.7%	0.0%	89.7
2013	65.3%	1.8%	23.0%	9.2%	0.7%	0.0%	90.8

Source:
American Public Transportation Association, *2015 Public Transportation Fact Book*, Washington, DC, 2015, Table 59. Original units (gallons and kilowatt-hours) were converted to Btu using the appropriate energy content.