

Appendix A

Reference case

Table A1. Total energy supply, disposition, and price summary
(quadrillion Btu per year, unless otherwise noted)

Supply, disposition, and prices	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Production								
Crude oil and lease condensate	18.4	19.7	19.6	19.7	21.0	22.3	23.5	0.7%
Natural gas plant liquids	4.1	4.4	6.1	6.4	6.5	6.6	6.7	1.6%
Dry natural gas	26.5	28.0	31.4	35.9	38.9	41.2	43.4	1.8%
Coal ¹	20.6	17.2	17.5	15.4	13.3	13.4	13.1	-1.1%
Nuclear / uranium ²	8.3	8.3	8.1	8.2	8.2	8.2	8.2	0.0%
Conventional hydroelectric power	2.5	2.3	2.8	2.8	2.8	2.8	2.8	0.8%
Biomass ³	4.4	4.1	4.2	4.3	4.4	4.4	4.6	0.4%
Other renewable energy ⁴	2.5	2.6	4.6	6.1	6.6	7.8	8.8	5.0%
Other ⁵	1.0	0.5	0.9	1.0	0.9	0.9	1.0	2.8%
Total	88.4	87.3	95.4	99.8	102.7	107.7	112.2	1.0%
Imports								
Crude oil	16.3	16.1	16.8	16.8	16.0	15.8	15.9	-0.1%
Petroleum and other liquids ⁶	3.9	3.9	4.5	4.5	4.3	4.2	4.3	0.4%
Natural gas ⁷	2.8	2.8	2.1	1.8	1.6	1.4	1.4	-2.6%
Other imports ⁸	0.4	0.4	0.2	0.2	0.2	0.2	0.2	-3.9%
Total	23.3	23.2	23.6	23.2	22.0	21.5	21.8	-0.3%
Exports								
Petroleum and other liquids ⁹	8.2	9.0	11.6	12.5	13.5	14.4	15.2	2.1%
Natural gas ¹⁰	1.5	1.8	5.0	7.1	7.6	8.6	9.0	6.7%
Coal	2.5	2.0	1.9	1.8	1.9	2.2	2.3	0.7%
Total	12.2	12.8	18.5	21.4	23.0	25.2	26.6	3.0%
Discrepancy ¹¹	1.4	1.0	0.0	0.1	0.1	0.2	0.3	-
Consumption								
Petroleum and other liquids ¹²	36.0	36.5	37.8	37.3	36.6	36.8	37.5	0.1%
Natural gas	27.5	28.3	28.3	30.2	32.5	33.5	35.4	0.9%
Coal ¹³	17.9	15.5	15.6	13.5	11.3	11.2	10.7	-1.4%
Nuclear / uranium ²	8.3	8.3	8.1	8.2	8.2	8.2	8.2	0.0%
Conventional hydroelectric power	2.5	2.3	2.8	2.8	2.8	2.8	2.8	0.8%
Biomass ¹⁴	3.0	2.8	2.8	2.9	3.0	3.0	3.1	0.5%
Other renewable energy ⁴	2.5	2.6	4.6	6.1	6.6	7.8	8.8	5.0%
Other ¹⁵	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.1%
Total	98.1	96.7	100.5	101.6	101.5	103.9	107.1	0.4%
Prices (2015 dollars per unit)								
Crude oil spot prices (dollars per barrel)								
Brent	100	52	77	92	104	120	136	3.9%
West Texas Intermediate	94	49	71	85	97	112	129	4.0%
Natural gas at Henry Hub (dollars per million Btu)								
Coal (dollars per ton)								
at the minemouth ¹⁶	35.2	33.8	33.6	34.0	33.8	37.6	38.7	0.5%
Coal (dollars per million Btu)								
at the minemouth ¹⁶	1.73	1.69	1.68	1.71	1.71	1.86	1.91	0.5%
Average end-use ¹⁷	2.52	2.37	2.43	2.49	2.55	2.61	2.68	0.5%
Average electricity (cents per kilowatthour)	10.5	10.3	10.5	10.7	10.9	10.6	10.5	0.1%

Table A1. Total energy supply, disposition, and price summary (*continued*)
(quadrillion Btu per year, unless otherwise noted)

Supply, disposition, and prices	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Prices (nominal dollars per unit)								
Crude oil spot prices (dollars per barrel)								
Brent	99	52	85	112	141	181	229	6.1%
West Texas Intermediate	93	49	79	105	131	170	217	6.2%
Natural gas at Henry Hub (dollars per million Btu)	4.39	2.62	4.90	6.27	6.84	7.42	8.17	4.7%
Coal (dollars per ton)								
at the minemouth ¹⁶	34.9	33.8	37.1	41.6	45.8	56.8	65.1	2.7%
Coal (dollars per million Btu)								
at the minemouth ¹⁶	1.71	1.69	1.86	2.09	2.31	2.81	3.21	2.6%
Average end-use ¹⁷	2.49	2.37	2.69	3.05	3.45	3.94	4.50	2.6%
Average electricity (cents per kilowatthour)	10.4	10.3	11.6	13.1	14.7	16.1	17.6	2.2%

¹Includes waste coal.

²These values represent the energy obtained from uranium when it is used in light water reactors. The total energy content of uranium is much larger, but alternative processes are required to take advantage of it.

³Includes grid-connected electricity from wood and wood waste; biomass, such as corn, used for liquid fuels production; and non-electric energy demand from wood. Refer to Table A17 for details.

⁴Includes grid-connected electricity from landfill gas; biogenic municipal waste; wind; photovoltaic and solar thermal sources; and non-electric energy from renewable sources, such as active and passive solar systems. Excludes electricity imports using renewable sources and nonmarketed renewable energy. See Table A17 for selected nonmarketed residential and commercial renewable energy data.

⁵Includes non-biogenic municipal waste, liquid hydrogen, methanol, and some domestic inputs to refineries.

⁶Includes imports of finished petroleum products, unfinished oils, alcohols, ethers, blending components, and renewable fuels such as ethanol.

⁷Includes imports of liquefied natural gas that are later re-exported.

⁸Includes coal, coal coke (net), and electricity (net). Excludes imports of fuel used in nuclear power plants.

⁹Includes crude oil, petroleum products, ethanol, and biodiesel.

¹⁰Includes re-exported liquefied natural gas.

¹¹Balancing item. Includes unaccounted for supply, losses, gains, and net storage withdrawals.

¹²Estimated consumption. Includes petroleum-derived fuels and non-petroleum derived fuels, such as ethanol and biodiesel, and coal-based synthetic liquids. Petroleum coke, which is a solid, is included. Also included are hydrocarbon gas liquids and crude oil consumed as a fuel. Refer to Table A17 for detailed renewable liquid fuels consumption.

¹³Excludes coal converted to coal-based synthetic liquids and natural gas.

¹⁴Includes grid-connected electricity from wood and wood waste, non-electric energy from wood, and biofuels heat and coproducts used in the production of liquid fuels, but excludes the energy content of the liquid fuels.

¹⁵Includes non-biogenic municipal waste, liquid hydrogen, and net electricity imports.

¹⁶Includes reported prices for both open market and captive mines. Prices weighted by production, which differs from average minemouth prices published in EIA data reports where it is weighted by reported sales.

¹⁷Prices weighted by consumption; weighted average excludes export free-alongside-ship (f.a.s.) prices.

Btu = British thermal unit.

-- = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 natural gas supply values: EIA, *Natural Gas Monthly*, July 2015. 2014 coal minemouth and delivered coal prices: EIA, *Annual Coal Report 2013*. 2014 petroleum supply values: EIA, *Petroleum Supply Annual 2014*. 2014 crude oil spot prices and natural gas spot price at Henry Hub: Thomson Reuters. Other 2014 coal values: *Quarterly Coal Report, October-December 2014*. Other 2014: EIA, *Monthly Energy Review*, February 2016. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A2. Energy consumption by sector and source
(quadrillion Btu per year, unless otherwise noted)

Sector and source	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Energy consumption								
Residential								
Propane	0.50	0.43	0.42	0.40	0.38	0.36	0.34	-0.9%
Kerosene	0.01	0.01	0.01	0.01	0.01	0.00	0.00	-2.6%
Distillate fuel oil	0.55	0.50	0.43	0.38	0.34	0.30	0.27	-2.4%
Petroleum and other liquids subtotal.....	1.05	0.93	0.86	0.78	0.72	0.66	0.61	-1.7%
Natural gas	5.25	4.77	4.87	4.82	4.80	4.77	4.73	0.0%
Renewable energy ¹	0.59	0.44	0.42	0.41	0.39	0.38	0.37	-0.7%
Electricity	4.80	4.78	4.76	4.75	4.83	4.97	5.20	0.3%
Delivered energy	11.70	10.92	10.90	10.77	10.74	10.78	10.91	0.0%
Electricity related losses	9.72	9.44	9.37	9.03	8.77	8.93	9.15	-0.1%
Total	21.42	20.37	20.27	19.79	19.50	19.71	20.05	-0.1%
Commercial								
Propane	0.15	0.17	0.18	0.19	0.19	0.20	0.20	0.7%
Motor gasoline ²	0.04	0.04	0.06	0.06	0.06	0.07	0.07	2.1%
Kerosene	0.00	0.00	0.00	0.00	0.01	0.01	0.01	5.0%
Distillate fuel oil	0.36	0.37	0.36	0.34	0.32	0.30	0.29	-1.0%
Residual fuel oil	0.02	0.07	0.11	0.10	0.10	0.10	0.10	1.2%
Petroleum and other liquids subtotal.....	0.57	0.66	0.70	0.69	0.68	0.67	0.67	0.1%
Natural gas	3.58	3.32	3.45	3.46	3.53	3.66	3.81	0.5%
Coal	0.05	0.06	0.05	0.05	0.05	0.05	0.05	-0.4%
Renewable energy ³	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.0%
Electricity	4.61	4.64	4.69	4.86	5.09	5.33	5.62	0.8%
Delivered energy	8.95	8.81	9.03	9.20	9.49	9.86	10.28	0.6%
Electricity related losses	9.34	9.16	9.23	9.23	9.23	9.57	9.89	0.3%
Total	18.29	17.97	18.26	18.43	18.72	19.43	20.17	0.5%
Industrial ⁴								
Liquefied petroleum gases and other ⁵	2.44	2.38	3.10	3.50	3.66	3.92	4.22	2.3%
Motor gasoline ²	0.27	0.27	0.28	0.27	0.27	0.27	0.27	0.0%
Distillate fuel oil	1.36	1.34	1.44	1.45	1.44	1.45	1.47	0.4%
Residual fuel oil	0.03	0.04	0.04	0.06	0.06	0.05	0.05	1.6%
Petrochemical feedstocks	0.70	0.66	0.96	1.21	1.31	1.47	1.66	3.8%
Other petroleum ⁶	3.19	3.38	3.59	3.71	3.82	3.95	4.15	0.8%
Petroleum and other liquids subtotal.....	7.99	8.07	9.40	10.19	10.55	11.13	11.82	1.5%
Natural gas	7.84	7.75	8.55	8.93	9.13	9.49	9.89	1.0%
Natural-gas-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Lease and plant fuel ⁷	1.55	1.63	1.76	1.94	2.06	2.19	2.31	1.4%
Natural gas liquefaction for export ⁸	0.00	0.00	0.26	0.48	0.53	0.64	0.69	--
Natural gas subtotal	9.40	9.38	10.57	11.34	11.72	12.32	12.89	1.3%
Metallurgical coal	0.58	0.54	0.41	0.45	0.47	0.43	0.40	-1.2%
Other industrial coal	0.87	0.82	0.82	0.86	0.88	0.89	0.93	0.5%
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Net coal coke imports	-0.02	-0.02	-0.01	0.00	0.00	0.01	0.01	--
Coal subtotal	1.43	1.34	1.23	1.31	1.35	1.33	1.34	0.0%
Biofuels heat and coproducts	0.75	0.78	0.83	0.80	0.81	0.81	0.84	0.3%
Renewable energy ⁹	1.52	1.48	1.48	1.59	1.67	1.70	1.79	0.8%
Electricity	3.40	3.27	3.61	3.91	3.98	4.08	4.26	1.1%
Delivered energy	24.49	24.33	27.11	29.14	30.07	31.38	32.94	1.2%
Electricity related losses	6.89	6.46	7.11	7.42	7.22	7.34	7.50	0.6%
Total	31.38	30.79	34.22	36.56	37.29	38.72	40.44	1.1%

Table A2. Energy consumption by sector and source (continued)
(quadrillion Btu per year, unless otherwise noted)

Sector and source	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Transportation								
Propane	0.01	0.01	0.01	0.01	0.01	0.01	0.02	3.3%
Motor gasoline ²	16.78	17.01	16.79	15.05	13.62	12.84	12.55	-1.2%
of which: E85 ¹⁰	0.03	0.05	0.04	0.12	0.22	0.27	0.28	7.3%
Jet fuel ¹¹	2.82	2.84	2.99	3.14	3.32	3.46	3.56	0.9%
Distillate fuel oil ¹²	6.40	6.67	6.99	7.28	7.49	7.77	8.01	0.7%
Residual fuel oil	0.44	0.45	0.37	0.40	0.42	0.44	0.45	0.1%
Other petroleum ¹³	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.1%
Petroleum and other liquids subtotal	26.61	27.14	27.32	26.04	25.01	24.68	24.75	-0.4%
Pipeline fuel natural gas	0.87	0.89	0.83	0.89	0.94	1.00	1.07	0.7%
Compressed / liquefied natural gas	0.06	0.07	0.08	0.10	0.17	0.31	0.59	9.2%
Liquid hydrogen	0.00	0.00	0.01	0.03	0.04	0.05	0.06	22.9%
Electricity	0.03	0.03	0.05	0.08	0.11	0.14	0.15	6.7%
Delivered energy	27.56	28.13	28.29	27.13	26.28	26.18	26.63	-0.2%
Electricity related losses	0.05	0.06	0.09	0.15	0.20	0.24	0.27	6.2%
Total	27.61	28.19	28.38	27.28	26.48	26.42	26.90	-0.2%
Unspecified sector¹⁴	-0.57	-0.58	-0.58	-0.52	-0.46	-0.43	-0.42	-1.3%
Delivered energy consumption for all sectors								
Liquefied petroleum gases and other ⁵	3.09	2.99	3.71	4.09	4.24	4.49	4.79	1.9%
Motor gasoline ²	16.51	16.96	16.55	14.87	13.49	12.74	12.47	-1.2%
of which: E85 ¹⁰	0.03	0.05	0.04	0.12	0.22	0.27	0.28	7.3%
Jet fuel ¹¹	3.04	3.18	3.22	3.38	3.58	3.72	3.83	0.7%
Kerosene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.3%
Distillate fuel oil	8.45	8.33	8.98	9.19	9.33	9.56	9.77	0.6%
Residual fuel oil	0.50	0.56	0.52	0.56	0.57	0.59	0.60	0.3%
Petrochemical feedstocks	0.70	0.66	0.96	1.21	1.31	1.47	1.66	3.8%
Other petroleum ¹⁵	3.35	3.54	3.75	3.87	3.98	4.12	4.31	0.8%
Petroleum and other liquids subtotal	35.65	36.23	37.70	37.18	36.51	36.71	37.44	0.1%
Natural gas	16.73	15.90	16.95	17.31	17.63	18.23	19.02	0.7%
Natural-gas-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Lease and plant fuel ⁷	1.55	1.63	1.76	1.94	2.06	2.19	2.31	1.4%
Natural gas liquefaction for export ⁸	0.00	0.00	0.26	0.48	0.53	0.64	0.69	--
Pipeline fuel natural gas	0.87	0.89	0.83	0.89	0.94	1.00	1.07	0.7%
Natural gas subtotal	19.15	18.43	19.80	20.61	21.16	22.06	23.09	0.9%
Metallurgical coal	0.58	0.54	0.41	0.45	0.47	0.43	0.40	-1.2%
Other coal	0.92	0.88	0.88	0.92	0.93	0.95	0.98	0.5%
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Net coal coke imports	-0.02	-0.02	-0.01	0.00	0.00	0.01	0.01	--
Coal subtotal	1.48	1.40	1.28	1.36	1.40	1.39	1.39	0.0%
Biofuels heat and coproducts	0.75	0.78	0.83	0.80	0.81	0.81	0.84	0.3%
Renewable energy ¹⁶	2.24	2.06	2.03	2.13	2.19	2.22	2.29	0.4%
Liquid hydrogen	0.00	0.00	0.01	0.03	0.04	0.05	0.06	22.9%
Electricity	12.84	12.72	13.11	13.60	14.01	14.52	15.23	0.7%
Delivered energy	72.12	71.62	74.75	75.73	76.12	77.77	80.34	0.5%
Electricity related losses	26.01	25.12	25.80	25.83	25.41	26.09	26.81	0.3%
Total	98.13	96.74	100.55	101.56	101.54	103.85	107.15	0.4%
Electric power¹⁷								
Distillate fuel oil	0.09	0.09	0.09	0.08	0.06	0.06	0.05	-2.0%
Residual fuel oil	0.22	0.17	0.06	0.05	0.04	0.04	0.03	-6.6%
Petroleum and other liquids subtotal	0.31	0.26	0.15	0.13	0.11	0.10	0.09	-4.4%
Natural gas	8.38	9.89	8.50	9.60	11.34	11.46	12.31	0.9%
Steam coal	16.42	14.08	14.34	12.12	9.92	9.82	9.36	-1.6%
Nuclear / uranium ¹⁸	8.33	8.34	8.12	8.25	8.25	8.25	8.25	0.0%
Renewable energy ¹⁹	5.01	4.86	7.37	8.91	9.41	10.60	11.67	3.6%
Non-biogenic municipal waste	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.0%
Electricity imports	0.18	0.19	0.19	0.20	0.17	0.16	0.15	-1.1%
Total	38.86	37.85	38.90	39.43	39.42	40.61	42.04	0.4%

Table A2. Energy consumption by sector and source (continued)
(quadrillion Btu per year, unless otherwise noted)

Sector and source	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Total energy consumption								
Liquefied petroleum gases and other ⁵	3.09	2.99	3.71	4.09	4.24	4.49	4.79	1.9%
Motor gasoline ²	16.51	16.96	16.55	14.87	13.49	12.74	12.47	-1.2%
of which: E85 ¹⁰	0.03	0.05	0.04	0.12	0.22	0.27	0.28	7.3%
Jet fuel ¹¹	3.04	3.18	3.22	3.38	3.58	3.72	3.83	0.7%
Kerosene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.3%
Distillate fuel oil	8.54	8.42	9.07	9.27	9.40	9.62	9.82	0.6%
Residual fuel oil	0.72	0.73	0.58	0.61	0.62	0.63	0.64	-0.5%
Petrochemical feedstocks	0.70	0.66	0.96	1.21	1.31	1.47	1.66	3.8%
Other petroleum ¹⁵	3.35	3.54	3.75	3.87	3.98	4.12	4.31	0.8%
Petroleum and other liquids subtotal	35.96	36.49	37.85	37.31	36.62	36.81	37.52	0.1%
Natural gas	25.11	25.79	25.45	26.91	28.97	29.69	31.33	0.8%
Natural-gas-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Lease and plant fuel ⁷	1.55	1.63	1.76	1.94	2.06	2.19	2.31	1.4%
Natural gas liquefaction for export ⁸	0.00	0.00	0.26	0.48	0.53	0.64	0.69	--
Pipeline fuel natural gas	0.87	0.89	0.83	0.89	0.94	1.00	1.07	0.7%
Natural gas subtotal	27.53	28.31	28.30	30.22	32.51	33.52	35.39	0.9%
Metallurgical coal	0.58	0.54	0.41	0.45	0.47	0.43	0.40	-1.2%
Other coal	17.34	14.96	15.22	13.04	10.86	10.77	10.34	-1.5%
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Net coal coke imports	-0.02	-0.02	-0.01	0.00	0.00	0.01	0.01	--
Coal subtotal	17.90	15.48	15.62	13.49	11.32	11.21	10.75	-1.4%
Nuclear / uranium ¹⁸	8.33	8.34	8.12	8.25	8.25	8.25	8.25	0.0%
Biofuels heat and coproducts	0.75	0.78	0.83	0.80	0.81	0.81	0.84	0.3%
Renewable energy ²⁰	7.26	6.92	9.40	11.04	11.60	12.82	13.96	2.8%
Liquid hydrogen	0.00	0.00	0.01	0.03	0.04	0.05	0.06	22.9%
Non-biogenic municipal waste	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.0%
Electricity imports	0.18	0.19	0.19	0.20	0.17	0.16	0.15	-1.1%
Total	98.13	96.74	100.55	101.56	101.54	103.85	107.15	0.4%
Energy use and related statistics								
Delivered energy use	72.12	71.62	74.75	75.73	76.12	77.77	80.34	0.5%
Total energy use	98.13	96.74	100.55	101.56	101.54	103.85	107.15	0.4%
Ethanol consumed in motor gasoline and E85	1.14	1.18	1.19	1.13	1.12	1.14	1.24	0.2%
Population (millions)	319	322	335	348	360	371	381	0.7%
Gross domestic product (billion 2009 dollars)	15,962	16,349	18,555	20,765	23,113	25,598	28,397	2.2%
Carbon dioxide emissions (million metric tons)	5,406	5,273	5,289	5,115	4,961	4,980	5,044	-0.2%

¹Includes wood used for residential heating. See Table A4 and/or Table A17 for estimates of nonmarketed renewable energy consumption for geothermal heat pumps, solar thermal water heating, and electricity generation from wind and solar photovoltaic sources.

²Includes ethanol and ethers blended into gasoline.

³Excludes ethanol. Includes commercial sector consumption of wood and wood waste, landfill gas, municipal waste, and other biomass for combined heat and power. See Table A5 and/or Table A17 for estimates of nonmarketed renewable energy consumption for solar thermal water heating and electricity generation from wind and solar photovoltaic sources.

⁴Includes energy for combined heat and power plants that have a non-regulatory status, and small on-site generating systems.

⁵Includes ethane, natural gasoline, and refinery olefins.

⁶Includes petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.

⁷Represents natural gas used in well, field, and lease operations, and in natural gas processing plant machinery.

⁸Fuel used in facilities that liquefy natural gas for export.

⁹Includes consumption of energy produced from hydroelectric, wood and wood waste, municipal waste, and other biomass sources. Excludes ethanol in motor gasoline.

¹⁰E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.

¹¹Includes only kerosene type.

¹²Diesel fuel for on- and off- road use.

¹³Includes aviation gasoline and lubricants.

¹⁴Represents consumption unattributed to the sectors above.

¹⁵Includes aviation gasoline, petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.

¹⁶Includes electricity generated for sale to the grid and for own use from renewable sources, and non-electric energy from renewable sources. Excludes ethanol and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal water heaters.

¹⁷Includes consumption of energy by electricity-only and combined heat and power plants that have a regulatory status.

¹⁸These values represent the energy obtained from uranium when it is used in light water reactors. The total energy content of uranium is much larger, but alternative processes are required to take advantage of it.

¹⁹Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes net electricity imports.

²⁰Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes ethanol, net electricity imports, and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal water heaters.

Btu = British thermal unit.

-- = Not applicable.

Note: Includes estimated consumption for petroleum and other liquids. Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 consumption, carbon dioxide emissions, and emission factors based on: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, February 2016. 2014 population and gross domestic product: IHS Economics, Industry and Employment models, November 2015. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A3. Energy prices by sector and source
(2015 dollars per million Btu, unless otherwise noted)

Sector and source	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Residential								
Propane	23.3	16.9	20.2	21.4	22.4	24.0	25.6	1.7%
Distillate fuel oil	26.9	19.3	22.4	25.5	27.8	30.8	33.8	2.3%
Natural gas	10.7	10.1	10.7	11.6	12.0	12.1	12.3	0.8%
Electricity	37.1	36.3	37.7	38.8	39.4	38.7	38.1	0.2%
Commercial								
Propane	20.6	15.1	17.9	18.9	19.8	21.2	22.5	1.6%
Distillate fuel oil	26.4	17.0	19.7	22.2	24.4	27.4	30.5	2.4%
Residual fuel oil	16.7	6.9	11.0	13.5	15.3	17.6	19.9	4.3%
Natural gas	9.0	7.7	9.3	10.1	10.4	10.3	10.4	1.2%
Electricity	31.8	30.6	31.5	32.0	32.3	31.4	30.7	0.0%
Industrial¹								
Propane	18.8	12.2	15.6	16.8	17.8	19.5	21.1	2.2%
Distillate fuel oil	27.1	17.0	19.7	22.2	24.4	27.4	30.5	2.4%
Residual fuel oil	15.0	6.8	11.3	14.2	15.9	18.2	20.6	4.6%
Natural gas ²	5.4	3.7	5.4	6.0	6.0	5.8	5.7	1.7%
Metallurgical coal	5.3	5.4	6.0	6.5	7.0	7.2	7.3	1.2%
Other industrial coal	3.2	3.4	3.4	3.4	3.4	3.5	3.6	0.2%
Coal to liquids	--	--	--	--	--	--	--	--
Electricity	21.0	20.3	20.9	21.5	22.1	21.5	21.2	0.2%
Transportation								
Propane	24.4	18.0	21.2	22.4	23.4	25.0	26.6	1.6%
E85 ³	33.3	23.3	32.0	31.2	30.8	32.3	35.0	1.6%
Motor gasoline ⁴	28.4	20.9	22.7	24.7	26.5	28.9	31.8	1.7%
Jet fuel ⁵	20.8	12.0	16.2	19.0	21.3	24.5	27.7	3.4%
Diesel fuel (distillate fuel oil) ⁶	27.8	19.8	23.1	25.8	28.0	31.0	34.1	2.2%
Residual fuel oil	14.6	8.1	11.7	13.4	15.0	17.0	19.2	3.5%
Natural gas ⁷	18.4	16.6	16.6	16.4	15.5	15.4	15.9	-0.2%
Electricity	32.2	29.5	33.0	36.0	37.4	36.4	35.5	0.7%
Electric power⁸								
Distillate fuel oil	23.8	15.0	18.4	21.2	23.5	26.4	29.4	2.7%
Residual fuel oil	18.3	10.2	13.8	16.3	18.1	20.2	22.4	3.2%
Natural gas	5.1	3.3	4.7	5.4	5.6	5.4	5.4	2.0%
Steam coal	2.4	2.2	2.3	2.3	2.3	2.3	2.4	0.3%
Average price to all users⁹								
Propane	21.2	14.9	18.0	19.2	20.1	21.6	23.2	1.8%
E85 ³	33.3	23.3	32.0	31.2	30.8	32.3	35.0	1.6%
Motor gasoline ⁴	28.4	20.9	22.7	24.7	26.5	28.9	31.8	1.7%
Jet fuel ⁵	20.8	12.0	16.2	19.0	21.3	24.5	27.7	3.4%
Distillate fuel oil	27.5	19.1	22.3	25.1	27.3	30.3	33.3	2.2%
Residual fuel oil	15.8	8.4	11.7	13.8	15.4	17.4	19.6	3.4%
Natural gas	6.9	5.3	6.7	7.4	7.4	7.3	7.4	1.4%
Metallurgical coal	5.3	5.4	6.0	6.5	7.0	7.2	7.3	1.2%
Other coal	2.4	2.3	2.3	2.4	2.4	2.4	2.5	0.4%
Coal to liquids	--	--	--	--	--	--	--	--
Electricity	30.9	30.1	30.8	31.4	31.9	31.2	30.6	0.1%
Non-renewable energy expenditures by sector (billion 2015 dollars)								
Residential	261	239	250	259	266	268	274	0.6%
Commercial	193	178	193	205	216	221	230	1.0%
Industrial ¹	231	168	232	276	301	330	369	3.2%
Transportation	707	514	586	615	640	698	777	1.7%
Total non-renewable expenditures	1,391	1,099	1,260	1,355	1,423	1,517	1,650	1.6%
Transportation renewable expenditures	1	1	1	4	7	9	10	9.1%
Total expenditures	1,393	1,100	1,262	1,359	1,430	1,526	1,660	1.7%

Table A3. Energy prices by sector and source (continued)
(nominal dollars per million Btu, unless otherwise noted)

Sector and source	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Residential								
Propane	23.1	16.9	22.3	26.2	30.3	36.2	43.0	3.8%
Distillate fuel oil	26.7	19.3	24.7	31.2	37.6	46.5	56.9	4.4%
Natural gas	10.6	10.1	11.9	14.2	16.3	18.3	20.8	2.9%
Electricity	36.7	36.3	41.7	47.5	53.3	58.4	64.2	2.3%
Commercial								
Propane	20.4	15.1	19.8	23.2	26.8	31.9	37.9	3.8%
Distillate fuel oil	26.1	17.0	21.8	27.2	33.1	41.4	51.2	4.5%
Residual fuel oil	16.5	6.9	12.1	16.5	20.7	26.5	33.6	6.5%
Natural gas	8.9	7.7	10.3	12.3	14.1	15.6	17.5	3.4%
Electricity	31.5	30.6	34.8	39.2	43.7	47.4	51.7	2.1%
Industrial¹								
Propane	18.7	12.2	17.2	20.6	24.1	29.4	35.6	4.4%
Distillate fuel oil	26.8	17.0	21.8	27.2	33.1	41.4	51.3	4.5%
Residual fuel oil	14.8	6.8	12.4	17.4	21.6	27.5	34.7	6.8%
Natural gas ²	5.3	3.7	5.9	7.3	8.1	8.7	9.6	3.9%
Metallurgical coal	5.3	5.4	6.7	8.0	9.4	10.9	12.2	3.3%
Other industrial coal	3.2	3.4	3.7	4.2	4.6	5.2	6.0	2.4%
Coal to liquids	--	--	--	--	--	--	--	--
Electricity	20.8	20.3	23.1	26.3	29.9	32.5	35.7	2.3%
Transportation								
Propane	24.1	18.0	23.4	27.5	31.7	37.8	44.8	3.7%
E85 ³	32.9	23.3	35.4	38.2	41.7	48.8	58.8	3.8%
Motor gasoline ⁴	28.1	20.9	25.1	30.2	35.9	43.7	53.6	3.8%
Jet fuel ⁵	20.6	12.0	17.9	23.2	28.8	37.0	46.6	5.6%
Diesel fuel (distillate fuel oil) ⁶	27.5	19.8	25.5	31.6	37.9	46.7	57.3	4.3%
Residual fuel oil	14.5	8.1	12.9	16.5	20.3	25.7	32.3	5.7%
Natural gas ⁷	18.2	16.6	18.4	20.0	21.0	23.2	26.7	1.9%
Electricity	31.8	29.5	36.5	44.1	50.5	55.0	59.8	2.9%
Electric power⁸								
Distillate fuel oil	23.5	15.0	20.4	26.0	31.8	39.9	49.4	4.9%
Residual fuel oil	18.1	10.2	15.2	19.9	24.4	30.5	37.8	5.4%
Natural gas	5.0	3.3	5.2	6.6	7.5	8.1	9.0	4.2%
Steam coal	2.4	2.2	2.5	2.8	3.1	3.5	4.0	2.5%

Table A3. Energy prices by sector and source (continued)
(nominal dollars per million Btu, unless otherwise noted)

Sector and source	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Average price to all users ⁹								
Propane	21.0	14.9	19.9	23.5	27.2	32.6	39.0	3.9%
E85 ³	32.9	23.3	35.4	38.2	41.7	48.8	58.8	3.8%
Motor gasoline ⁴	28.1	20.9	25.1	30.2	35.9	43.7	53.6	3.8%
Jet fuel ⁵	20.6	12.0	17.9	23.2	28.8	37.0	46.6	5.6%
Distillate fuel oil	27.2	19.1	24.7	30.7	36.9	45.7	56.1	4.4%
Residual fuel oil	15.7	8.4	13.0	16.8	20.8	26.2	32.9	5.6%
Natural gas	6.9	5.3	7.4	9.0	10.0	11.1	12.4	3.5%
Metallurgical coal	5.3	5.4	6.7	8.0	9.4	10.9	12.2	3.3%
Other coal	2.4	2.3	2.6	2.9	3.2	3.7	4.2	2.5%
Coal to liquids	--	--	--	--	--	--	--	--
Electricity	30.6	30.1	34.1	38.4	43.1	47.0	51.6	2.2%
Non-renewable energy expenditures by sector (billion nominal dollars)								
Residential	258	239	276	317	360	405	462	2.7%
Commercial	191	178	213	251	292	334	387	3.2%
Industrial ¹	229	168	256	338	407	498	620	5.4%
Transportation	699	514	647	753	866	1,054	1,307	3.8%
Total non-renewable expenditures	1,377	1,099	1,392	1,659	1,925	2,291	2,776	3.8%
Transportation renewable expenditures	1	1	1	5	9	13	17	11.4%
Total expenditures	1,378	1,100	1,394	1,663	1,934	2,304	2,793	3.8%

¹Includes energy for combined heat and power plants that have a non-regulatory status, and small on-site generating systems.

²Excludes use for lease and plant fuel.

³E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.

⁴Sales weighted-average price for all grades. Includes Federal, State, and local taxes.

⁵Kerosene-type jet fuel. Includes Federal and State taxes while excluding county and local taxes.

⁶Diesel fuel for on-road use. Includes Federal and State taxes while excluding county and local taxes.

⁷Natural gas used as fuel in motor vehicles, trains, and ships. Includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.

⁸Includes electricity-only and combined heat and power plants that have a regulatory status.

⁹Weighted averages of end-use fuel prices are derived from the prices shown in each sector and the corresponding sectoral consumption.

Btu = British thermal unit.

-- = Not applicable.

Note: Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 prices for motor gasoline, distillate fuel oil, and jet fuel are based on prices in the U.S. Energy Information Administration (EIA), *Petroleum Marketing Monthly*, January 2105-December 2015. 2014 residential, commercial, and industrial natural gas delivered prices: EIA, *Natural Gas Monthly*, July 2015. 2015 transportation sector natural gas delivered prices derived from: U.S. Department of Energy, Clean Cities Alternative Fuel Price Report. 2014 electric power sector distillate and residual fuel oil prices: EIA, *Monthly Energy Review*, February 2016. 2014 electric power sector natural gas prices: EIA, *Electric Power Monthly*, April 2014 and April 2015, Table 4.2, and EIA, *State Energy Data Report 2013*. 2014 coal prices based on: EIA, *Quarterly Coal Report, October-December 2014* and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. 2014 electricity prices: EIA, *Monthly Energy Review*, February 2016. 2014 E85 prices derived from: U.S. Department of Energy, Clean Cities Alternative Fuel Price Report. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. **Projections:** EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A4. Residential sector key indicators and consumption
(quadrillion Btu per year, unless otherwise noted)

Key indicators and consumption	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Key indicators								
Households (millions)								
Single-family	80.1	80.6	84.4	88.5	92.2	95.5	99.0	0.8%
Multifamily	28.6	28.9	30.5	32.3	34.0	35.8	37.5	1.1%
Mobile homes	6.1	6.0	5.5	5.3	5.1	4.9	4.8	-0.9%
Total	114.8	115.4	120.4	126.0	131.3	136.3	141.4	0.8%
Average house square footage	1,686	1,694	1,733	1,768	1,799	1,828	1,857	0.4%
Energy intensity								
(million Btu per household)								
Delivered energy consumption	101.9	94.6	90.5	85.4	81.8	79.1	77.1	-0.8%
Total energy consumption	186.6	176.5	168.3	157.1	148.5	144.6	141.8	-0.9%
(thousand Btu per square foot)								
Delivered energy consumption	60.4	55.9	52.3	48.3	45.5	43.2	41.6	-1.2%
Total energy consumption	110.7	104.2	97.1	88.9	82.6	79.1	76.4	-1.2%
Delivered energy consumption by fuel								
Purchased electricity								
Space heating	0.43	0.33	0.36	0.35	0.34	0.34	0.33	0.0%
Space cooling	0.65	0.80	0.74	0.75	0.79	0.84	0.89	0.4%
Water heating	0.45	0.45	0.46	0.47	0.47	0.48	0.48	0.2%
Refrigeration	0.36	0.36	0.34	0.33	0.33	0.34	0.36	0.0%
Cooking	0.11	0.11	0.11	0.12	0.13	0.14	0.14	1.1%
Clothes dryers	0.20	0.21	0.21	0.22	0.23	0.24	0.26	0.9%
Freezers	0.08	0.08	0.07	0.07	0.07	0.06	0.06	-0.7%
Lighting	0.51	0.50	0.43	0.37	0.30	0.25	0.23	-3.0%
Clothes washers ¹	0.03	0.03	0.02	0.02	0.02	0.02	0.02	-2.0%
Dishwashers ¹	0.09	0.09	0.10	0.10	0.11	0.12	0.13	1.2%
Televisions and related equipment ²	0.30	0.29	0.26	0.25	0.26	0.29	0.32	0.4%
Computers and related equipment ³	0.11	0.11	0.09	0.08	0.07	0.06	0.05	-3.0%
Furnace fans and boiler circulation pumps	0.14	0.11	0.12	0.12	0.11	0.11	0.10	-0.5%
Other uses ⁴	1.34	1.32	1.43	1.50	1.60	1.70	1.82	1.3%
Delivered energy	4.80	4.78	4.76	4.75	4.83	4.97	5.20	0.3%
Natural gas								
Space heating	3.52	3.03	3.11	3.04	3.01	2.98	2.95	-0.1%
Space cooling	0.02	0.02	0.02	0.02	0.02	0.02	0.02	-0.9%
Water heating	1.21	1.21	1.23	1.25	1.27	1.27	1.25	0.1%
Cooking	0.21	0.21	0.21	0.21	0.22	0.22	0.22	0.3%
Clothes dryers	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.7%
Other uses ⁵	0.25	0.25	0.24	0.24	0.23	0.23	0.22	-0.5%
Delivered energy	5.25	4.77	4.87	4.82	4.80	4.77	4.73	0.0%
Distillate fuel oil								
Space heating	0.49	0.45	0.40	0.35	0.31	0.28	0.25	-2.3%
Water heating	0.05	0.04	0.03	0.02	0.02	0.02	0.01	-4.7%
Other uses ⁶	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-0.6%
Delivered energy	0.55	0.50	0.43	0.38	0.34	0.30	0.27	-2.4%
Propane								
Space heating	0.37	0.29	0.30	0.27	0.26	0.24	0.22	-1.1%
Water heating	0.06	0.06	0.05	0.05	0.04	0.03	0.03	-2.7%
Cooking	0.03	0.03	0.03	0.03	0.02	0.02	0.02	-0.8%
Other uses ⁶	0.04	0.04	0.05	0.05	0.05	0.06	0.06	1.4%
Delivered energy	0.50	0.43	0.42	0.40	0.38	0.36	0.34	-0.9%
Marketed renewables (wood) ⁷	0.59	0.44	0.42	0.41	0.39	0.38	0.37	-0.7%
Kerosene	0.01	0.01	0.01	0.01	0.01	0.00	0.00	-2.6%

Table A4. Residential sector key indicators and consumption (continued)
(quadrillion Btu per year, unless otherwise noted)

Key indicators and consumption	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Delivered energy consumption by end use								
Space heating.....	5.40	4.55	4.58	4.43	4.31	4.22	4.13	-0.4%
Space cooling.....	0.67	0.83	0.76	0.77	0.81	0.86	0.91	0.4%
Water heating.....	1.76	1.77	1.78	1.79	1.81	1.79	1.78	0.0%
Refrigeration.....	0.36	0.36	0.34	0.33	0.33	0.34	0.36	0.0%
Cooking.....	0.34	0.34	0.35	0.36	0.37	0.38	0.39	0.5%
Clothes dryers.....	0.25	0.26	0.27	0.28	0.29	0.30	0.32	0.9%
Freezers.....	0.08	0.08	0.07	0.07	0.07	0.06	0.06	-0.7%
Lighting.....	0.51	0.50	0.43	0.37	0.30	0.25	0.23	-3.0%
Clothes washers ¹	0.03	0.03	0.02	0.02	0.02	0.02	0.02	-2.0%
Dishwashers ¹	0.09	0.09	0.10	0.10	0.11	0.12	0.13	1.2%
Televisions and related equipment ²	0.30	0.29	0.26	0.25	0.26	0.29	0.32	0.4%
Computers and related equipment ³	0.11	0.11	0.09	0.08	0.07	0.06	0.05	-3.0%
Furnace fans and boiler circulation pumps.....	0.14	0.11	0.12	0.12	0.11	0.11	0.10	-0.5%
Other uses ⁸	1.64	1.62	1.73	1.80	1.89	1.99	2.11	1.1%
Delivered energy.....	11.70	10.92	10.90	10.77	10.74	10.78	10.91	0.0%
Electricity related losses.....	9.72	9.44	9.37	9.03	8.77	8.93	9.15	-0.1%
Total energy consumption by end use								
Space heating.....	6.27	5.20	5.29	5.10	4.94	4.83	4.72	-0.4%
Space cooling.....	1.98	2.41	2.21	2.20	2.24	2.36	2.48	0.1%
Water heating.....	2.67	2.66	2.69	2.69	2.67	2.65	2.62	-0.1%
Refrigeration.....	1.09	1.06	1.01	0.96	0.93	0.95	0.98	-0.3%
Cooking.....	0.56	0.56	0.58	0.59	0.60	0.62	0.64	0.5%
Clothes dryers.....	0.67	0.66	0.69	0.70	0.71	0.74	0.77	0.6%
Freezers.....	0.23	0.22	0.21	0.20	0.18	0.18	0.18	-1.0%
Lighting.....	1.54	1.47	1.29	1.07	0.85	0.69	0.64	-3.3%
Clothes washers ¹	0.08	0.08	0.07	0.05	0.05	0.04	0.05	-2.3%
Dishwashers ¹	0.29	0.28	0.29	0.29	0.31	0.33	0.35	0.9%
Televisions and related equipment ²	0.91	0.85	0.77	0.73	0.74	0.81	0.88	0.1%
Computers and related equipment ³	0.35	0.33	0.28	0.23	0.20	0.17	0.14	-3.3%
Furnace fans and boiler circulation pumps.....	0.43	0.34	0.36	0.34	0.31	0.29	0.28	-0.8%
Other uses ⁸	4.36	4.23	4.55	4.65	4.79	5.05	5.32	0.9%
Total.....	21.42	20.37	20.27	19.79	19.50	19.71	20.05	-0.1%
Nonmarketed renewables ⁹								
Geothermal heat pumps.....	0.01	0.01	0.02	0.02	0.02	0.02	0.02	2.8%
Solar hot water heating.....	0.01	0.01	0.01	0.02	0.02	0.02	0.02	3.4%
Solar photovoltaic.....	0.05	0.08	0.30	0.43	0.57	0.71	0.86	10.2%
Wind.....	0.01	0.02	0.03	0.03	0.03	0.03	0.03	2.0%
Total.....	0.08	0.11	0.35	0.50	0.63	0.78	0.94	8.8%
Heating degree days ¹⁰	4,549	4,084	4,173	4,106	4,041	3,977	3,914	-0.2%
Cooling degree days ¹⁰	1,299	1,488	1,456	1,503	1,551	1,599	1,648	0.4%

¹Does not include water heating portion of load.

²Includes televisions, set-top boxes, home theater systems, DVD players, and video game consoles.

³Includes desktop and laptop computers, monitors, and networking equipment.

⁴Includes small electric devices, heating elements, and motors not listed above. Electric vehicles are included in the transportation sector.

⁵Includes such appliances as outdoor grills, exterior lights, pool heaters, spa heaters, and backup electricity generators.

⁶Includes such appliances as pool heaters, spa heaters, and backup electricity generators.

⁷Includes wood used for primary and secondary heating in wood stoves or fireplaces as reported in the *Residential Energy Consumption Survey 2009*.

⁸Includes small electric devices, heating elements, outdoor grills, exterior lights, pool heaters, spa heaters, backup electricity generators, and motors not listed above. Electric vehicles are included in the transportation sector.

⁹Consumption determined by using the fossil fuel equivalent of 9,541 Btu per kilowatt-hour.

¹⁰See Table A5 for regional detail.

Btu = British thermal unit.

-- = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 consumption based on: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, February 2016. 2014 degree days based on state-level data from the National Oceanic and Atmospheric Administration's Climatic Data Center and Climate Prediction Center. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A5. Commercial sector key indicators and consumption
(quadrillion Btu per year, unless otherwise noted)

Key indicators and consumption	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Key indicators								
Total floorspace (billion square feet)								
Surviving.....	81.6	82.2	86.7	91.9	97.1	102.3	107.5	1.1%
New additions	1.5	1.7	2.1	2.1	2.2	2.3	2.3	1.4%
Total	83.1	83.8	88.7	94.0	99.3	104.6	109.8	1.1%
Energy consumption intensity (thousand Btu per square foot)								
Delivered energy consumption	107.6	105.1	101.8	97.8	95.6	94.3	93.6	-0.5%
Electricity related losses	112.4	109.3	104.0	98.2	92.9	91.5	90.0	-0.8%
Total energy consumption	220.0	214.3	205.8	196.0	188.5	185.8	183.7	-0.6%
Delivered energy consumption by fuel								
Purchased electricity								
Space heating ¹	0.16	0.14	0.14	0.13	0.13	0.13	0.13	-0.4%
Space cooling ¹	0.48	0.55	0.52	0.52	0.53	0.55	0.57	0.1%
Water heating ¹	0.09	0.09	0.09	0.09	0.09	0.08	0.08	-0.3%
Ventilation	0.51	0.52	0.54	0.56	0.57	0.58	0.61	0.6%
Cooking	0.02	0.02	0.02	0.02	0.02	0.02	0.02	-0.1%
Lighting	0.89	0.88	0.87	0.83	0.81	0.76	0.74	-0.7%
Refrigeration	0.37	0.36	0.33	0.31	0.30	0.30	0.31	-0.6%
Office equipment (PC)	0.09	0.08	0.06	0.05	0.04	0.03	0.02	-4.8%
Office equipment (non-PC)	0.22	0.22	0.24	0.26	0.30	0.34	0.38	2.2%
Other uses ²	1.79	1.76	1.88	2.08	2.30	2.53	2.76	1.8%
Delivered energy.....	4.61	4.64	4.69	4.86	5.09	5.33	5.62	0.8%
Natural gas								
Space heating ¹	1.92	1.74	1.75	1.70	1.66	1.64	1.62	-0.3%
Space cooling ¹	0.03	0.04	0.04	0.04	0.04	0.04	0.04	-0.6%
Water heating ¹	0.54	0.55	0.56	0.57	0.60	0.63	0.66	0.8%
Cooking	0.20	0.21	0.22	0.22	0.23	0.25	0.26	0.9%
Other uses ³	0.89	0.79	0.89	0.93	1.01	1.11	1.22	1.8%
Delivered energy.....	3.58	3.32	3.45	3.46	3.53	3.66	3.81	0.5%
Distillate fuel oil								
Space heating ¹	0.16	0.16	0.15	0.14	0.13	0.11	0.10	-1.6%
Water heating ¹	0.02	0.02	0.02	0.02	0.02	0.02	0.02	-0.1%
Other uses ⁴	0.18	0.19	0.18	0.18	0.18	0.17	0.17	-0.6%
Delivered energy.....	0.36	0.37	0.36	0.34	0.32	0.30	0.29	-1.0%
Marketed renewables (biomass).....	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.0%
Other fuels ⁵	0.26	0.34	0.40	0.41	0.42	0.42	0.43	0.9%
Delivered energy consumption by end use								
Space heating ¹	2.24	2.03	2.04	1.97	1.92	1.89	1.85	-0.4%
Space cooling ¹	0.51	0.60	0.56	0.56	0.57	0.58	0.60	0.0%
Water heating ¹	0.64	0.66	0.67	0.68	0.70	0.73	0.77	0.6%
Ventilation	0.51	0.52	0.54	0.56	0.57	0.58	0.61	0.6%
Cooking	0.23	0.23	0.24	0.25	0.26	0.27	0.28	0.8%
Lighting	0.89	0.88	0.87	0.83	0.81	0.76	0.74	-0.7%
Refrigeration	0.37	0.36	0.33	0.31	0.30	0.30	0.31	-0.6%
Office equipment (PC)	0.09	0.08	0.06	0.05	0.04	0.03	0.02	-4.8%
Office equipment (non-PC)	0.22	0.22	0.24	0.26	0.30	0.34	0.38	2.2%
Other uses ⁶	3.26	3.23	3.49	3.74	4.03	4.36	4.72	1.5%
Delivered energy.....	8.95	8.81	9.03	9.20	9.49	9.86	10.28	0.6%

Table A5. Commercial sector key indicators and consumption (*continued*)
(quadrillion Btu per year, unless otherwise noted)

Key indicators and consumption	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Electricity related losses.....	9.34	9.16	9.23	9.23	9.23	9.57	9.89	0.3%
Total energy consumption by end use								
Space heating ¹	2.57	2.32	2.32	2.22	2.16	2.12	2.08	-0.4%
Space cooling ¹	1.47	1.69	1.59	1.56	1.53	1.57	1.60	-0.2%
Water heating ¹	0.83	0.83	0.84	0.84	0.86	0.89	0.91	0.4%
Ventilation	1.55	1.54	1.61	1.62	1.60	1.63	1.67	0.3%
Cooking	0.27	0.28	0.28	0.29	0.30	0.31	0.32	0.6%
Lighting	2.68	2.62	2.58	2.41	2.27	2.12	2.04	-1.0%
Refrigeration	1.11	1.08	0.97	0.89	0.84	0.85	0.85	-0.9%
Office equipment (PC)	0.27	0.25	0.18	0.14	0.10	0.08	0.07	-5.1%
Office equipment (non-PC)	0.65	0.65	0.70	0.76	0.85	0.96	1.05	1.9%
Other uses ⁶	6.88	6.71	7.19	7.70	8.20	8.90	9.57	1.4%
Total	18.29	17.97	18.26	18.43	18.72	19.43	20.17	0.5%
Nonmarketed renewable fuels⁷								
Solar thermal	0.08	0.09	0.09	0.10	0.10	0.11	0.11	1.0%
Solar photovoltaic	0.06	0.07	0.09	0.12	0.19	0.27	0.35	6.5%
Wind	0.00	0.00	0.00	0.00	0.00	0.01	0.01	9.0%
Total	0.15	0.16	0.18	0.22	0.29	0.38	0.47	4.4%
Heating degree days								
New England	6,674	6,526	6,099	6,004	5,909	5,813	5,716	-0.5%
Middle Atlantic	6,203	5,781	5,533	5,459	5,385	5,312	5,240	-0.4%
East North Central	7,194	6,168	6,207	6,182	6,158	6,133	6,109	0.0%
West North Central	7,304	6,090	6,521	6,508	6,492	6,476	6,459	0.2%
South Atlantic	2,952	2,492	2,628	2,593	2,559	2,526	2,494	0.0%
East South Central	3,931	3,227	3,440	3,433	3,426	3,419	3,411	0.2%
West South Central	2,422	2,087	2,031	1,995	1,959	1,923	1,888	-0.4%
Mountain	4,742	4,593	4,877	4,819	4,757	4,691	4,622	0.0%
Pacific	2,772	2,867	3,366	3,334	3,302	3,271	3,240	0.5%
United States	4,549	4,084	4,173	4,106	4,041	3,977	3,914	-0.2%
Cooling degree days								
New England	419	557	561	589	618	647	676	0.8%
Middle Atlantic	596	799	778	810	843	875	906	0.5%
East North Central	610	728	790	804	818	832	846	0.6%
West North Central	814	942	985	999	1,014	1,028	1,043	0.4%
South Atlantic	2,008	2,390	2,169	2,205	2,241	2,278	2,313	-0.1%
East South Central	1,493	1,717	1,686	1,709	1,731	1,754	1,777	0.1%
West South Central	2,474	2,741	2,809	2,875	2,941	3,007	3,073	0.5%
Mountain	1,432	1,484	1,547	1,594	1,644	1,697	1,751	0.7%
Pacific	1,068	1,095	956	994	1,032	1,069	1,107	0.0%
United States	1,299	1,488	1,456	1,503	1,551	1,599	1,648	0.4%

¹Includes fuel consumption for district services.

²Includes (but is not limited to) miscellaneous uses such as transformers, medical imaging and other medical equipment, elevators, escalators, off-road electric vehicles, laboratory fume hoods, laundry equipment, coffee brewers, and water services.

³Includes miscellaneous uses, such as emergency generators, combined heat and power in commercial buildings, and manufacturing performed in commercial buildings.

⁴Includes miscellaneous uses, such as cooking, emergency generators, and combined heat and power in commercial buildings.

⁵Includes residual fuel oil, propane, coal, motor gasoline, and kerosene.

⁶Includes (but is not limited to) miscellaneous uses such as transformers, medical imaging and other medical equipment, elevators, escalators, off-road electric vehicles, laboratory fume hoods, laundry equipment, coffee brewers, water services, emergency generators, combined heat and power in commercial buildings, manufacturing performed in commercial buildings, and cooking (distillate), plus residual fuel oil, propane, coal, motor gasoline, kerosene, and marketed renewable fuels (biomass).

⁷Consumption determined by using the fossil fuel equivalent of 9,541 Btu per kilowatthour.

Btu = British thermal unit.

PC = Personal computer.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 consumption based on: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, February 2016. 2014 degree days based on state-level data from the National Oceanic and Atmospheric Administration's Climatic Data Center and Climate Prediction Center. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A6. Industrial sector key indicators and consumption

Shipments, prices, and consumption	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Key indicators								
Value of shipments (billion 2009 dollars)								
Manufacturing	5,208	5,299	5,858	6,527	7,066	7,734	8,528	1.9%
Agriculture, mining, and construction	1,957	1,931	2,493	2,620	2,710	2,828	2,955	1.7%
Total	7,165	7,229	8,351	9,146	9,776	10,562	11,483	1.9%
Energy prices								
(2015 dollars per million Btu)								
Propane	18.8	12.2	15.6	16.8	17.8	19.5	21.1	2.2%
Motor gasoline	27.5	20.4	22.5	24.7	26.6	28.9	31.8	1.8%
Distillate fuel oil	27.1	17.0	19.7	22.2	24.4	27.4	30.5	2.4%
Residual fuel oil	15.0	6.8	11.3	14.2	15.9	18.2	20.6	4.6%
Asphalt and road oil	9.0	3.3	7.7	10.3	11.7	13.5	15.3	6.3%
Natural gas heat and power	5.2	3.5	5.2	5.8	5.8	5.6	5.6	1.8%
Natural gas feedstocks	5.6	3.9	5.5	6.1	6.1	5.9	5.8	1.6%
Metallurgical coal	5.3	5.4	6.0	6.5	7.0	7.2	7.3	1.2%
Other industrial coal	3.2	3.4	3.4	3.4	3.4	3.5	3.6	0.2%
Coal to liquids	--	--	--	--	--	--	--	--
Electricity	21.0	20.3	20.9	21.5	22.1	21.5	21.2	0.2%
(nominal dollars per million Btu)								
Propane	18.7	12.2	17.2	20.6	24.1	29.4	35.6	4.4%
Motor gasoline	27.2	20.4	24.9	30.2	35.9	43.7	53.6	3.9%
Distillate fuel oil	26.8	17.0	21.8	27.2	33.1	41.4	51.3	4.5%
Residual fuel oil	14.8	6.8	12.4	17.4	21.6	27.5	34.7	6.8%
Asphalt and road oil	8.9	3.3	8.5	12.6	15.9	20.4	25.8	8.5%
Natural gas heat and power	5.1	3.5	5.7	7.1	7.8	8.5	9.4	4.0%
Natural gas feedstocks	5.5	3.9	6.1	7.5	8.2	8.9	9.8	3.8%
Metallurgical coal	5.3	5.4	6.7	8.0	9.4	10.9	12.2	3.3%
Other industrial coal	3.2	3.4	3.7	4.2	4.6	5.2	6.0	2.4%
Coal to liquids	--	--	--	--	--	--	--	--
Electricity	20.8	20.3	23.1	26.3	29.9	32.5	35.7	2.3%
Energy consumption (quadrillion Btu) ¹								
Industrial consumption excluding refining								
Propane heat and power	0.42	0.35	0.37	0.38	0.37	0.37	0.38	0.3%
Liquefied petroleum gas and other feedstocks ² ..	2.00	2.02	2.73	3.13	3.29	3.55	3.85	2.6%
Motor gasoline	0.27	0.27	0.28	0.27	0.27	0.27	0.27	0.0%
Distillate fuel oil	1.36	1.34	1.44	1.45	1.44	1.45	1.47	0.4%
Residual fuel oil	0.03	0.03	0.04	0.06	0.06	0.05	0.05	1.9%
Petrochemical feedstocks	0.70	0.66	0.96	1.21	1.31	1.47	1.66	3.8%
Petroleum coke	0.12	0.16	0.22	0.23	0.23	0.23	0.23	1.4%
Asphalt and road oil	0.79	0.83	0.89	0.93	1.05	1.18	1.31	1.8%
Miscellaneous petroleum ³	0.30	0.40	0.42	0.50	0.52	0.53	0.55	1.3%
Petroleum and other liquids subtotal	5.99	6.08	7.34	8.15	8.53	9.11	9.76	1.9%
Natural gas heat and power	5.74	5.61	5.94	6.19	6.33	6.59	6.87	0.8%
Natural gas feedstocks	0.63	0.68	1.22	1.41	1.45	1.52	1.59	3.5%
Lease and plant fuel ⁴	1.55	1.63	1.76	1.94	2.06	2.19	2.31	1.4%
Natural gas liquefaction for export ⁵	0.00	0.00	0.26	0.48	0.53	0.64	0.69	--
Natural gas subtotal	7.92	7.92	9.17	10.01	10.38	10.94	11.45	1.5%
Metallurgical coal and coke ⁶	0.56	0.52	0.40	0.45	0.47	0.44	0.41	-1.0%
Other industrial coal	0.85	0.79	0.82	0.86	0.88	0.89	0.93	0.6%
Coal subtotal	1.41	1.31	1.23	1.31	1.35	1.33	1.34	0.1%
Renewables ⁷	1.52	1.48	1.48	1.59	1.67	1.70	1.79	0.8%
Purchased electricity	3.21	3.07	3.42	3.73	3.81	3.91	4.08	1.1%
Delivered energy	20.04	19.87	22.65	24.79	25.73	26.99	28.42	1.4%
Electricity related losses	6.49	6.07	6.74	7.09	6.91	7.03	7.18	0.7%
Total	26.53	25.94	29.38	31.87	32.64	34.02	35.60	1.3%

Table A6. Industrial sector key indicators and consumption (*continued*)

Shipments, prices, and consumption	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Refining consumption								
Liquefied petroleum gas heat and power ²	0.01	0.01	0.00	0.00	0.00	0.00	0.00	--
Distillate fuel oil.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Residual fuel oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Petroleum coke.....	0.53	0.50	0.36	0.36	0.35	0.35	0.36	-1.3%
Still gas.....	1.45	1.48	1.70	1.68	1.67	1.67	1.69	0.6%
Miscellaneous petroleum ³	0.01	0.01	0.00	0.00	0.00	0.00	0.01	1.9%
Petroleum and other liquids subtotal.....	2.00	2.00	2.06	2.04	2.02	2.02	2.06	0.1%
Natural gas heat and power.....	1.29	1.25	1.09	1.04	1.04	1.06	1.10	-0.5%
Natural gas feedstocks	0.19	0.22	0.31	0.30	0.31	0.32	0.34	1.8%
Natural-gas-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Natural gas subtotal.....	1.48	1.46	1.39	1.33	1.35	1.39	1.44	-0.1%
Other industrial coal.....	0.02	0.02	0.00	0.00	0.00	0.00	0.00	--
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Coal subtotal.....	0.02	0.02	0.00	0.00	0.00	0.00	0.00	--
Biofuels heat and coproducts	0.75	0.78	0.83	0.80	0.81	0.81	0.84	0.3%
Purchased electricity.....	0.20	0.20	0.19	0.18	0.17	0.17	0.18	-0.4%
Delivered energy	4.45	4.47	4.46	4.36	4.34	4.39	4.52	0.0%
Electricity related losses	0.40	0.39	0.37	0.33	0.31	0.31	0.32	-0.8%
Total	4.85	4.86	4.84	4.69	4.65	4.70	4.84	0.0%
Total industrial sector consumption								
Liquefied petroleum gas heat and power ²	0.43	0.36	0.37	0.38	0.37	0.37	0.38	0.2%
Liquefied petroleum gas and other feedstocks ² ..	2.00	2.02	2.73	3.13	3.29	3.55	3.85	2.6%
Motor gasoline	0.27	0.27	0.28	0.27	0.27	0.27	0.27	0.0%
Distillate fuel oil.....	1.36	1.34	1.44	1.45	1.44	1.45	1.47	0.4%
Residual fuel oil	0.03	0.04	0.04	0.06	0.06	0.05	0.05	1.6%
Petrochemical feedstocks.....	0.70	0.66	0.96	1.21	1.31	1.47	1.66	3.8%
Petroleum coke.....	0.65	0.67	0.57	0.59	0.58	0.58	0.59	-0.5%
Asphalt and road oil	0.79	0.83	0.89	0.93	1.05	1.18	1.31	1.8%
Still gas.....	1.45	1.48	1.70	1.68	1.67	1.67	1.69	0.6%
Miscellaneous petroleum ³	0.30	0.41	0.42	0.50	0.52	0.53	0.56	1.3%
Petroleum and other liquids subtotal.....	7.99	8.07	9.40	10.19	10.55	11.13	11.82	1.5%
Natural gas heat and power.....	7.03	6.85	7.03	7.23	7.37	7.65	7.96	0.6%
Natural gas feedstocks	0.81	0.90	1.52	1.70	1.76	1.84	1.93	3.1%
Natural-gas-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Lease and plant fuel ⁴	1.55	1.63	1.76	1.94	2.06	2.19	2.31	1.4%
Natural gas liquefaction for export ⁵	0.00	0.00	0.26	0.48	0.53	0.64	0.69	--
Natural gas subtotal.....	9.40	9.38	10.57	11.34	11.72	12.32	12.89	1.3%
Metallurgical coal and coke ⁶	0.56	0.52	0.40	0.45	0.47	0.44	0.41	-1.0%
Other industrial coal.....	0.87	0.82	0.82	0.86	0.88	0.89	0.93	0.5%
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Coal subtotal.....	1.43	1.34	1.23	1.31	1.35	1.33	1.34	0.0%
Biofuels heat and coproducts	0.75	0.78	0.83	0.80	0.81	0.81	0.84	0.3%
Renewables ⁷	1.52	1.48	1.48	1.59	1.67	1.70	1.79	0.8%
Purchased electricity.....	3.40	3.27	3.61	3.91	3.98	4.08	4.26	1.1%
Delivered energy	24.49	24.33	27.11	29.14	30.07	31.38	32.94	1.2%
Electricity related losses	6.89	6.46	7.11	7.42	7.22	7.34	7.50	0.6%
Total	31.38	30.79	34.22	36.56	37.29	38.72	40.44	1.1%

Table A6. Industrial sector key indicators and consumption (*continued*)

Key indicators and consumption	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Energy consumption per dollar of shipments (thousand Btu per 2009 dollar)								
Petroleum and other liquids	1.12	1.12	1.13	1.11	1.08	1.05	1.03	-0.3%
Natural gas	1.31	1.30	1.27	1.24	1.20	1.17	1.12	-0.6%
Coal	0.20	0.19	0.15	0.14	0.14	0.13	0.12	-1.8%
Renewable fuels ⁷	0.32	0.31	0.28	0.26	0.25	0.24	0.23	-1.2%
Purchased electricity.....	0.48	0.45	0.43	0.43	0.41	0.39	0.37	-0.8%
Delivered energy.....	3.42	3.37	3.25	3.19	3.08	2.97	2.87	-0.6%
Industrial combined heat and power¹								
Capacity (gigawatts)	25.7	25.8	27.0	28.9	31.5	34.3	36.0	1.3%
Generation (billion kilowatthours).....	138	139	158	168	182	196	206	1.6%

¹Includes combined heat and power plants that have a non-regulatory status, and small on-site generating systems.

²Includes ethane, natural gasoline, and refinery olefins.

³Includes lubricants and miscellaneous petroleum products.

⁴Represents natural gas used in well, field, and lease operations, and in natural gas processing plant machinery.

⁵Fuel used in facilities that liquefy natural gas for export.

⁶Includes net coal coke imports.

⁷Includes consumption of energy produced from hydroelectric, wood and wood waste, municipal waste, and other biomass sources.

Btu = British thermal unit.

-- = Not applicable.

Note: Includes estimated consumption for petroleum and other liquids. Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 prices for motor gasoline and distillate fuel oil are based on: U.S. Energy Information Administration (EIA), *Petroleum Marketing Monthly*, January 2015-December 2015. 2014 petrochemical feedstock and asphalt and road oil prices are based on: EIA, *State Energy Data Report 2013*. 2014 coal prices are based on: EIA, *Quarterly Coal Report, October-December 2014* and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. 2014 electricity prices: EIA, *Monthly Energy Review*, February 2016. 2014 natural gas prices: *Natural Gas Monthly*, July 2015. 2014 refining consumption based on: *Petroleum Supply Annual 2014*. Other 2014 consumption values are based on: EIA, *Monthly Energy Review*, February 2016. 2014 shipments: IHS Economics, Industry model, November 2015. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. **Projections:** EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A7. Transportation sector key indicators and delivered energy consumption

Key indicators and consumption	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Key indicators								
Travel indicators								
(billion vehicle miles traveled)								
Light-duty vehicles less than 8,501 pounds	2,665	2,752	3,031	3,126	3,232	3,336	3,438	0.9%
Commercial light trucks ¹	94	96	110	118	125	133	143	1.6%
Freight trucks greater than 10,000 pounds	270	280	304	329	349	375	407	1.5%
(billion seat miles available)								
Air	1,053	1,070	1,168	1,261	1,364	1,452	1,531	1.4%
(billion ton miles traveled)								
Rail	1,690	1,690	1,810	1,956	2,006	2,054	2,128	0.9%
Domestic shipping	497	482	453	423	404	402	407	-0.7%
Energy efficiency indicators								
(miles per gallon)								
New light-duty vehicle CAFE standard ²	30.9	31.5	36.2	46.1	46.4	46.6	46.9	1.6%
New car ²	34.9	36.0	43.7	54.3	54.3	54.3	54.3	1.7%
New light truck ²	26.9	27.9	30.9	39.5	39.5	39.5	39.5	1.4%
Compliance new light-duty vehicle ³	31.6	31.7	37.0	46.5	47.2	47.6	47.8	1.7%
New car ³	36.0	36.3	44.2	54.6	55.1	55.2	55.1	1.7%
New light truck ³	27.3	28.0	31.8	40.1	40.4	40.5	40.4	1.5%
Tested new light-duty vehicle ⁴	30.8	30.9	36.9	46.5	47.2	47.6	47.8	1.8%
New car ⁴	35.6	35.9	44.2	54.6	55.1	55.2	55.1	1.7%
New light truck ⁴	26.1	27.0	31.7	40.0	40.4	40.5	40.4	1.6%
On-road new light-duty vehicle ⁵	24.9	25.0	29.8	37.6	38.2	38.5	38.6	1.8%
New car ⁵	29.1	29.3	36.1	44.6	45.0	45.1	45.0	1.7%
New light truck ⁵	20.9	21.6	25.4	32.1	32.3	32.4	32.3	1.6%
Light-duty stock ⁶	21.4	21.7	24.1	27.6	31.5	34.4	36.3	2.1%
New commercial light truck ¹	17.0	17.3	19.5	23.7	24.0	24.1	24.0	1.3%
Stock commercial light truck ¹	14.8	15.0	16.6	18.7	20.8	22.2	23.2	1.7%
Freight truck	6.9	6.9	7.3	7.6	7.8	7.9	8.0	0.6%
(seat miles per gallon)								
Aircraft	65.9	66.1	67.5	68.7	70.1	71.9	74.1	0.5%
(ton miles per thousand Btu)								
Rail	3.5	3.5	3.6	3.8	3.9	4.1	4.2	0.7%
Domestic shipping	4.8	4.8	5.0	5.2	5.4	5.6	5.8	0.8%
Energy use by mode								
(quadrillion Btu)								
Light-duty vehicles	15.60	15.86	15.73	14.12	12.82	12.10	11.83	-1.2%
Commercial light trucks ¹	0.80	0.80	0.82	0.79	0.75	0.75	0.77	-0.1%
Bus transportation	0.26	0.26	0.27	0.28	0.29	0.30	0.31	0.6%
Freight trucks	5.39	5.57	5.76	5.96	6.16	6.52	6.98	0.9%
Rail, passenger	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.9%
Rail, freight	0.49	0.48	0.50	0.52	0.51	0.51	0.51	0.2%
Shipping, domestic	0.11	0.10	0.09	0.08	0.08	0.07	0.07	-1.4%
Shipping, international	0.64	0.73	0.64	0.68	0.70	0.73	0.74	0.1%
Recreational boats	0.24	0.25	0.27	0.28	0.29	0.29	0.30	0.8%
Air	2.35	2.37	2.52	2.66	2.82	2.93	3.00	0.9%
Military use	0.65	0.65	0.65	0.66	0.69	0.73	0.78	0.8%
Lubricants	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.2%
Pipeline fuel	0.87	0.89	0.83	0.89	0.94	1.00	1.07	0.7%
Total	27.56	28.14	28.28	27.11	26.24	26.13	26.57	-0.2%

Table A7. Transportation sector key indicators and delivered energy consumption (continued)

Key indicators and consumption	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Energy use by mode (million barrels per day oil equivalent)								
Light-duty vehicles	8.45	8.60	8.52	7.66	6.98	6.60	6.47	-1.1%
Commercial light trucks¹	0.42	0.42	0.43	0.41	0.39	0.39	0.40	-0.2%
Bus transportation.....	0.13	0.13	0.13	0.14	0.14	0.14	0.15	0.6%
Freight trucks	2.59	2.67	2.77	2.87	2.96	3.14	3.36	0.9%
Rail, passenger.....	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.9%
Rail, freight	0.23	0.23	0.24	0.25	0.24	0.24	0.24	0.2%
Shipping, domestic	0.05	0.05	0.04	0.04	0.04	0.03	0.03	-1.4%
Shipping, international	0.29	0.33	0.29	0.31	0.31	0.33	0.34	0.1%
Recreational boats.....	0.13	0.13	0.14	0.15	0.16	0.16	0.16	0.8%
Air	1.14	1.15	1.22	1.29	1.36	1.42	1.45	0.9%
Military use	0.31	0.31	0.31	0.31	0.33	0.35	0.38	0.8%
Lubricants	0.06	0.06	0.07	0.06	0.07	0.07	0.07	0.2%
Pipeline fuel.....	0.41	0.42	0.39	0.42	0.44	0.47	0.51	0.7%
Total	14.23	14.52	14.57	13.92	13.45	13.36	13.58	-0.3%

¹Commercial trucks 8,501 to 10,000 pounds gross vehicle weight rating.

²CAFE standard based on projected new vehicle sales.

³Includes CAFE credits for alternative fueled vehicle sales and credit banking.

⁴Environmental Protection Agency rated miles per gallon.

⁵Tested new vehicle efficiency revised for on-road performance.

⁶Combined "on-the-road" estimate for all cars and light trucks.

CAFE = Corporate average fuel economy.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, February 2016; EIA, Alternatives to Traditional Transportation Fuels 2009 (Part II - User and Fuel Data), April 2011; Federal Highway Administration, *Highway Statistics 2012*; Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 34*; National Highway Traffic and Safety Administration, *Summary of Fuel Economy Performance* June 2015; U.S. Department of Commerce, Bureau of the Census, "Vehicle Inventory and Use Survey," EC02TV; EIA, U.S. Department of Transportation, Research and Special Programs Administration, *Air Carrier Statistics Monthly, December 2010/2009*; and United States Department of Defense, Defense Fuel Supply Center, Factbook January, 2010. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. **Projections:** EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A8. Electricity supply, disposition, prices, and emissions
(billion kilowatthours, unless otherwise noted)

Supply, disposition, prices, and emissions	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Net generation by fuel type								
Electric power sector ¹								
Power only ²								
Coal	1,549	1,320	1,355	1,145	938	928	884	-1.6%
Petroleum	26	23	13	11	9	8	7	-4.6%
Natural gas ³	911	1,114	947	1,129	1,412	1,460	1,618	1.5%
Nuclear power.....	797	798	777	789	789	789	789	0.0%
Pumped storage/other ⁴	1	3	3	3	3	3	3	0.1%
Renewable sources ⁵	505	493	757	918	969	1,094	1,205	3.6%
Distributed generation (natural gas).....	0	0	0	1	1	1	2	--
Total	3,790	3,751	3,853	3,996	4,121	4,284	4,508	0.7%
Combined heat and power ⁶								
Coal	20	23	21	21	21	21	21	-0.4%
Petroleum	2	1	1	1	1	1	1	0.0%
Natural gas	120	136	143	143	147	142	139	0.1%
Renewable sources	4	4	4	4	4	4	4	0.1%
Total	150	164	168	169	173	169	165	0.0%
Total net electric power sector generation.....	3,939	3,915	4,021	4,165	4,294	4,452	4,673	0.7%
Less direct use.....	16	18	18	17	17	17	17	-0.1%
Net available to the grid	3,924	3,897	4,004	4,148	4,276	4,435	4,656	0.7%
End-use sector ⁷								
Coal	12	12	12	13	13	13	14	0.6%
Petroleum	2	2	1	1	1	1	2	-0.4%
Natural gas	97	99	111	124	143	165	183	2.5%
Other gaseous fuels ⁸	11	11	21	21	21	21	21	2.5%
Renewable sources ⁹	45	49	75	93	115	139	165	5.0%
Other ¹⁰	3	3	3	3	3	3	3	0.0%
Total end-use sector net generation	170	176	223	255	296	343	387	3.2%
Less direct use.....	121	127	181	210	246	286	324	3.8%
Total sales to the grid.....	49	49	42	45	51	57	63	1.0%
Total net electricity generation by fuel								
Coal	1,582	1,355	1,388	1,179	972	962	919	-1.5%
Petroleum	30	26	15	13	11	10	9	-4.0%
Natural gas	1,129	1,348	1,201	1,396	1,702	1,768	1,942	1.5%
Nuclear power.....	797	798	777	789	789	789	789	0.0%
Renewable sources ^{5,9}	554	546	836	1,015	1,088	1,238	1,374	3.8%
Other ¹¹	18	17	27	27	27	27	27	1.8%
Total net electricity generation	4,109	4,090	4,244	4,420	4,590	4,795	5,060	0.9%
Net generation to the grid	3,972	3,946	4,046	4,193	4,327	4,492	4,719	0.7%
Net imports.....	52	57	57	58	50	46	43	-1.1%
Electricity sales by sector								
Residential	1,407	1,402	1,395	1,393	1,416	1,457	1,523	0.3%
Commercial	1,352	1,360	1,374	1,425	1,491	1,562	1,647	0.8%
Industrial	998	959	1,059	1,145	1,166	1,197	1,249	1.1%
Transportation.....	8	9	13	23	32	40	45	6.7%
Total	3,765	3,729	3,841	3,986	4,105	4,256	4,464	0.7%
Direct use	137	144	199	227	263	303	341	3.5%
Total electricity use	3,902	3,873	4,039	4,213	4,368	4,559	4,805	0.9%

Table A8. Electricity supply, disposition, prices, and emissions (*continued*)
(billion kilowatthours, unless otherwise noted)

Supply, disposition, prices, and emissions	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
End-use prices								
(2015 cents per kilowatthour)								
Residential	12.7	12.4	12.9	13.2	13.4	13.2	13.0	0.2%
Commercial	10.9	10.5	10.7	10.9	11.0	10.7	10.5	0.0%
Industrial	7.2	6.9	7.1	7.3	7.5	7.3	7.2	0.2%
Transportation.....	11.0	10.1	11.3	12.3	12.7	12.4	12.1	0.7%
All sectors average.....	10.5	10.3	10.5	10.7	10.9	10.6	10.5	0.1%
(nominal cents per kilowatthour)								
Residential	12.5	12.4	14.2	16.2	18.2	19.9	21.9	2.3%
Commercial	10.7	10.5	11.9	13.4	14.9	16.2	17.6	2.1%
Industrial	7.1	6.9	7.9	9.0	10.2	11.1	12.2	2.3%
Transportation.....	10.9	10.1	12.5	15.1	17.2	18.8	20.4	2.9%
All sectors average.....	10.4	10.3	11.6	13.1	14.7	16.1	17.6	2.2%
Prices by service category								
(2015 cents per kilowatthour)								
Generation	6.8	6.4	6.4	6.8	7.3	6.8	6.6	0.1%
Transmission	1.0	1.1	1.2	1.2	1.3	1.3	1.3	0.7%
Distribution	2.7	2.8	3.0	2.7	2.3	2.6	2.6	-0.3%
(nominal cents per kilowatthour)								
Generation	6.7	6.4	7.0	8.4	9.9	10.3	11.1	2.2%
Transmission	1.0	1.1	1.3	1.5	1.7	1.9	2.2	2.8%
Distribution.....	2.7	2.8	3.3	3.3	3.2	3.9	4.4	1.8%
Electric power sector emissions¹								
Sulfur dioxide (million short tons).....	4.05	3.57	1.20	1.07	0.77	0.84	0.79	-5.9%
Nitrogen oxide (million short tons)	1.63	1.41	1.16	1.00	0.91	0.90	0.88	-1.9%
Mercury (short tons).....	26.77	23.74	5.55	4.62	3.76	3.82	3.57	-7.3%

¹Includes electricity-only and combined heat and power plants that have a regulatory status.

²Includes plants that only produce electricity and that have a regulatory status.

³Includes electricity generation from fuel cells.

⁴Includes non-biogenic municipal waste. The U.S. Energy Information Administration estimates that in 2015 approximately 7 billion kilowatthours of electricity were generated from a municipal waste stream containing petroleum-derived plastics and other non-renewable sources. See U.S. Energy Information Administration, *Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy*, (Washington, DC, May 2007).

⁵Includes conventional hydroelectric, geothermal, wood, wood waste, biogenic municipal waste, landfill gas, other biomass, solar, and wind power.

⁶Includes combined heat and power plants whose primary business is to sell electricity and heat to the public (i.e., those that report North American Industry Classification System code 22 or that have a regulatory status).

⁷Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors that have a non-regulatory status; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

⁸Includes refinery gas and still gas.

⁹Includes conventional hydroelectric, geothermal, wood, wood waste, all municipal waste, landfill gas, other biomass, solar, and wind power.

¹⁰Includes batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, and miscellaneous technologies.

¹¹Includes pumped storage, non-biogenic municipal waste, refinery gas, still gas, batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, and miscellaneous technologies.

-- = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 electric power sector generation; sales to the grid; net imports; electricity sales; and electricity end-use prices: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, February 2016, and supporting databases. 2014 emissions: U.S. Environmental Protection Agency, Clean Air Markets Database. 2014 electricity prices by service category: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A9. Electricity generating capacity
(gigawatts)

Net summer capacity ¹	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Electric power sector²								
Power only³								
Coal ⁴	290.8	277.7	208.4	189.3	177.0	172.2	169.5	-2.0%
Oil and natural gas steam ^{4,5}	91.9	91.0	89.9	65.6	54.0	52.4	52.4	-2.2%
Combined cycle.....	198.1	202.3	220.6	231.5	267.7	287.9	318.7	1.8%
Combustion turbine/diesel.....	138.7	138.3	140.1	137.4	134.2	136.8	141.8	0.1%
Nuclear power ⁶	99.1	99.8	99.1	99.1	99.1	99.1	99.1	0.0%
Pumped storage.....	22.6	22.6	22.6	22.6	22.6	22.6	22.6	0.0%
Fuel cells.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0%
Renewable sources ⁷	162.1	176.2	237.7	287.3	304.3	356.1	398.4	3.3%
Distributed generation (natural gas) ⁸	0.0	0.0	0.2	0.5	1.0	1.8	2.9	--
Total	1,003.4	1,007.8	1,018.7	1,033.4	1,060.0	1,128.9	1,205.3	0.7%
Combined heat and power⁹								
Coal.....	3.8	3.7	3.3	3.3	3.3	3.3	3.3	-0.4%
Oil and natural gas steam ⁵	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0%
Combined cycle.....	25.1	25.0	26.8	26.7	26.7	26.7	26.7	0.3%
Combustion turbine/diesel.....	2.9	2.9	2.9	2.9	2.9	2.9	2.9	0.0%
Renewable sources ⁷	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0%
Total	33.1	32.9	34.4	34.3	34.3	34.3	34.3	0.2%
Cumulative planned additions¹⁰								
Coal.....	--	--	0.3	0.3	0.3	0.3	0.3	--
Oil and natural gas steam ⁵	--	--	0.0	0.0	0.0	0.0	0.0	--
Combined cycle.....	--	--	21.5	21.5	21.5	21.5	21.5	--
Combustion turbine/diesel.....	--	--	5.0	5.0	5.0	5.0	5.0	--
Nuclear power.....	--	--	4.4	4.4	4.4	4.4	4.4	--
Pumped storage.....	--	--	0.0	0.0	0.0	0.0	0.0	--
Fuel cells.....	--	--	0.0	0.0	0.0	0.0	0.0	--
Renewable sources ⁷	--	--	19.7	19.7	19.7	19.7	19.7	--
Distributed generation ⁸	--	--	0.0	0.0	0.0	0.0	0.0	--
Total	--	--	50.8	50.8	50.8	50.8	50.8	--
Cumulative unplanned additions¹⁰								
Coal.....	--	--	0.2	0.2	0.2	0.2	0.2	--
Oil and natural gas steam ⁵	--	--	0.0	0.0	0.0	0.0	0.0	--
Combined cycle.....	--	--	5.2	26.0	63.4	85.1	117.2	--
Combustion turbine/diesel.....	--	--	2.3	2.4	3.0	7.0	14.5	--
Nuclear power.....	--	--	0.0	0.0	0.0	0.0	0.0	--
Pumped storage.....	--	--	0.0	0.0	0.0	0.0	0.0	--
Fuel cells.....	--	--	0.0	0.0	0.0	0.0	0.0	--
Renewable sources ⁷	--	--	42.3	91.8	108.9	160.7	203.1	--
Distributed generation ⁸	--	--	0.2	0.5	1.0	1.8	2.9	--
Total	--	--	50.3	121.0	176.6	254.8	337.8	--
Cumulative electric power sector additions¹⁰ ..	--	--	101.1	171.8	227.4	305.6	388.6	--
Cumulative retirements¹¹								
Coal.....	--	--	61.6	79.7	92.1	96.9	99.6	--
Oil and natural gas steam ⁵	--	--	9.7	34.9	46.4	48.1	48.1	--
Combined cycle.....	--	--	6.5	16.5	17.7	19.2	20.5	--
Combustion turbine/diesel.....	--	--	5.5	8.3	12.2	13.5	16.0	--
Nuclear power.....	--	--	5.2	5.2	5.2	5.2	5.2	--
Pumped storage.....	--	--	0.0	0.0	0.0	0.0	0.0	--
Fuel cells.....	--	--	0.0	0.0	0.0	0.0	0.0	--
Renewable sources ⁷	--	--	0.4	0.4	0.4	0.5	0.5	--
Total	--	--	88.9	144.9	174.0	183.3	189.8	--
Total electric power sector capacity	1,037	1,041	1,053	1,068	1,094	1,163	1,240	0.7%

Table A9. Electricity generating capacity (continued)
(gigawatts)

Net summer capacity ¹	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
End-use generators¹²								
Coal	2.9	2.9	2.9	3.0	3.1	3.2	3.3	0.5%
Petroleum	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.0%
Natural gas	16.2	16.5	17.4	19.7	22.9	26.6	29.5	2.4%
Other gaseous fuels ¹³	2.4	2.4	3.0	3.0	3.0	3.0	3.0	1.0%
Renewable sources ⁷	15.0	18.4	36.6	49.1	63.6	80.3	97.4	6.9%
Other ¹⁴	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.0%
Total	37.8	41.3	61.1	76.0	93.9	114.4	134.5	4.8%
Cumulative capacity additions¹⁰	- -	- -	21.0	35.9	53.8	74.2	94.3	- -

¹Net summer capacity is the steady hourly output that generating equipment is expected to supply to system load (exclusive of auxiliary power), as demonstrated by tests during summer peak demand.

²Includes electricity-only and combined heat and power plants that have a regulatory status.

³Includes plants that only produce electricity and that have a regulatory status. Includes capacity increases (uprates) at existing units.

⁴Total coal and oil and natural gas steam capacity account for the conversion of coal capacity to gas steam capacity, but the conversions are not included explicitly as additions or retirements. The totals reflect 8.8 gigawatts of planned conversions as well as additional model-projected conversions.

⁵Includes oil-, gas-, and dual-fired capacity.

⁶Nuclear capacity includes 0.1 gigawatts of uprates.

⁷Includes conventional hydroelectric, geothermal, wood, wood waste, all municipal waste, landfill gas, other biomass, solar, and wind power. Facilities co-firing biomass and coal are classified as coal.

⁸Primarily peak load capacity fueled by natural gas.

⁹Includes combined heat and power plants whose primary business is to sell electricity and heat to the public (i.e., those that report North American Industry Classification System code 22 or that have a regulatory status).

¹⁰Cumulative additions after December 31, 2015.

¹¹Cumulative retirements after December 31, 2015.

¹²Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors that have a non-regulatory status; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

¹³Includes refinery gas and still gas.

¹⁴Includes batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, and miscellaneous technologies.

- - = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 capacity and projected planned additions: U.S. Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generator Report" (preliminary). 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. **Projections:** EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A10. Electricity trade
(billion kilowatthours, unless otherwise noted)

Electricity trade	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Interregional electricity trade								
Gross domestic sales								
Firm power.....	105	102	95	92	73	53	49	-2.9%
Economy.....	165	233	216	257	239	226	222	-0.2%
Total	271	336	311	349	312	278	270	-0.9%
Gross domestic sales (million 2015 dollars)								
Firm power.....	6,761	6,568	6,088	5,871	4,683	3,375	3,120	-2.9%
Economy.....	8,385	7,704	9,139	12,921	13,756	11,896	11,460	1.6%
Total	15,147	14,273	15,227	18,792	18,439	15,270	14,580	0.1%
International electricity trade								
Imports from Canada and Mexico								
Firm power.....	20.3	28.3	29.5	28.5	26.6	23.2	20.2	-1.4%
Economy.....	45.3	37.5	41.0	43.8	37.6	36.0	35.9	-0.2%
Total	65.6	65.9	70.5	72.4	64.2	59.2	56.1	-0.6%
Exports to Canada and Mexico								
Firm power.....	2.6	1.8	1.8	1.8	0.9	0.0	0.0	--
Economy.....	10.6	7.5	11.9	12.7	13.0	13.2	13.2	2.3%
Total	13.3	9.3	13.7	14.5	13.9	13.2	13.2	1.4%

-- = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports. Firm power sales are capacity sales, meaning the delivery of the power is scheduled as part of the normal operating conditions of the affected electric systems. Economy sales are subject to curtailment or cessation of delivery by the supplier in accordance with prior agreements or under specified conditions.

Sources: 2014 interregional firm electricity trade data: Federal Energy Regulatory Commission, Form 1, "Electric Utility Annual Report", and 2014 seasonal reliability assessments from North American Electric Reliability Council regional entities and Independent System Operators, and Federal Energy Regulatory Commission, Form 1. 2014 interregional economy electricity trade are model results. 2014 Mexican electricity trade data: U.S. Energy Information Administration (EIA), *Electric Power Annual 2014*. 2014 Canadian international electricity trade data: National Energy Board, *Electricity Exports and Imports Statistics, 2014*. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A11. Petroleum and other liquids supply and disposition
(million barrels per day, unless otherwise noted)

Supply and disposition	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Crude oil								
Domestic crude production ¹	8.71	9.42	9.38	9.43	10.06	10.66	11.26	0.7%
Alaska.....	0.50	0.48	0.41	0.32	0.24	0.19	0.15	-4.7%
Lower 48 states.....	8.21	8.94	8.96	9.12	9.82	10.48	11.11	0.9%
Net imports.....	6.99	6.88	6.97	6.95	6.57	6.24	6.10	-0.5%
Gross imports.....	7.35	7.28	7.60	7.58	7.20	7.07	7.12	-0.1%
Exports.....	0.35	0.40	0.63	0.63	0.63	0.83	1.02	3.8%
Other crude supply ²	0.15	-0.11	0.01	0.07	0.00	0.00	0.00	--
Total crude supply.....	15.85	16.19	16.36	16.46	16.63	16.91	17.36	0.3%
Net product imports.....	-1.90	-2.24	-3.26	-3.69	-4.32	-4.52	-4.66	3.0%
Gross refined product imports ³	0.78	0.66	1.11	1.24	1.30	1.44	1.63	3.7%
Unfinished oil imports.....	0.55	0.55	0.53	0.50	0.46	0.43	0.39	-1.4%
Blending component imports.....	0.55	0.67	0.58	0.52	0.45	0.35	0.30	-3.2%
Exports.....	3.76	4.12	5.48	5.95	6.52	6.74	6.98	2.1%
Refinery processing gain ⁴	1.08	1.03	1.05	1.01	0.98	0.97	0.99	-0.2%
Product stock withdrawal.....	-0.18	0.00	0.00	0.00	0.00	0.00	0.00	--
Natural gas plant liquids.....	3.02	3.25	4.57	4.77	4.90	4.95	4.99	1.7%
Supply from renewable sources.....	0.96	1.01	1.08	1.03	1.03	1.05	1.12	0.4%
Ethanol.....	0.86	0.89	0.89	0.85	0.84	0.86	0.93	0.2%
Domestic production.....	0.91	0.94	0.90	0.87	0.87	0.88	0.91	-0.1%
Net imports.....	-0.05	-0.05	-0.01	-0.03	-0.03	-0.03	0.02	--
Stock withdrawal.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Biodiesel.....	0.10	0.11	0.15	0.10	0.10	0.10	0.10	-0.5%
Domestic production.....	0.08	0.08	0.11	0.06	0.06	0.06	0.06	-1.6%
Net imports.....	0.02	0.03	0.04	0.04	0.04	0.04	0.04	1.7%
Stock withdrawal.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Other biomass-derived liquids ⁵	0.00	0.00	0.04	0.09	0.09	0.09	0.09	18.1%
Domestic production.....	0.00	0.00	0.04	0.09	0.09	0.09	0.09	18.1%
Net imports.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Stock withdrawal.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Liquids from gas.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Liquids from coal.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Other ⁶	0.21	0.21	0.28	0.28	0.30	0.31	0.32	1.7%
Total primary supply⁷.....	19.04	19.46	20.08	19.87	19.52	19.66	20.12	0.1%
Product supplied								
by fuel								
Liquefied petroleum gases and other ⁸	2.45	2.46	2.90	3.22	3.34	3.55	3.80	1.8%
Motor gasoline ⁹	8.94	9.18	8.97	8.08	7.35	6.96	6.84	-1.2%
of which: E85 ¹⁰	0.02	0.03	0.03	0.09	0.15	0.18	0.19	7.3%
Jet fuel ¹¹	1.47	1.54	1.56	1.64	1.73	1.80	1.86	0.8%
Distillate fuel oil ¹²	4.04	3.96	4.31	4.40	4.46	4.57	4.67	0.7%
of which: Diesel.....	3.83	3.76	3.97	4.10	4.19	4.32	4.43	0.7%
Residual fuel oil.....	0.26	0.26	0.25	0.27	0.27	0.28	0.28	0.2%
Other ¹³	2.01	2.02	2.11	2.29	2.39	2.53	2.70	1.2%
by sector								
Residential and commercial.....	0.93	0.90	0.89	0.84	0.80	0.77	0.74	-0.8%
Industrial ¹⁴	4.46	4.47	5.35	5.88	6.10	6.46	6.89	1.8%
Transportation.....	13.76	14.04	14.11	13.40	12.84	12.65	12.69	-0.4%
Electric power ¹⁵	0.14	0.12	0.07	0.06	0.05	0.04	0.04	-4.3%
Unspecified sector ¹⁶	-0.31	-0.30	-0.31	-0.28	-0.25	-0.23	-0.23	-1.1%
Total product supplied.....	19.16	19.42	20.11	19.90	19.54	19.69	20.14	0.1%
Discrepancy ¹⁷	-0.12	0.04	-0.03	-0.03	-0.03	-0.03	-0.03	-

Table A11. Petroleum and other liquids supply and disposition (*continued*)
(million barrels per day, unless otherwise noted)

Supply and disposition	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Domestic refinery distillation capacity ¹⁸	17.9	18.0	19.0	19.0	19.0	19.0	19.0	0.2%
Capacity utilization rate (percent) ¹⁹	90.4	91.1	87.7	88.2	88.9	90.2	92.5	0.1%
Net import share of product supplied (percent)	26.6	23.7	18.6	16.5	11.6	8.8	7.4	-4.5%
Net expenditures for imported crude oil and petroleum products (billion 2015 dollars)	262	128	207	250	268	303	348	4.1%

¹Includes lease condensate.

²Strategic petroleum reserve stock additions plus unaccounted for crude oil and crude oil stock withdrawals.

³Includes other hydrocarbons and alcohols.

⁴The volumetric amount by which total output is greater than input due to the processing of crude oil into products which, in total, have a lower specific gravity than the crude oil processed.

⁵Includes pyrolysis oils, biomass-derived Fischer-Tropsch liquids, biobutanol, and renewable feedstocks used for the on-site production of diesel and gasoline.

⁶Includes domestic sources of other blending components, other hydrocarbons, and ethers.

⁷Total crude supply, net product imports, refinery processing gain, product stock withdrawal, natural gas plant liquids, supply from renewable sources, liquids from gas, liquids from coal, and other supply.

⁸Includes ethane, natural gasoline, and refinery olefins.

⁹Includes ethanol and ethers blended into gasoline.

¹⁰E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.

¹¹Includes only kerosene type.

¹²Includes distillate fuel oil from petroleum and biomass feedstocks.

¹³Includes kerosene, aviation gasoline, petrochemical feedstocks, lubricants, waxes, asphalt, road oil, still gas, special naphthas, petroleum coke, crude oil product supplied, methanol, and miscellaneous petroleum products.

¹⁴Includes energy for combined heat and power plants that have a non-regulatory status, and small on-site generating systems.

¹⁵Includes consumption of energy by electricity-only and combined heat and power plants that have a regulatory status.

¹⁶Represents consumption unattributed to the sectors above.

¹⁷Balancing item. Includes unaccounted for supply, losses, and gains.

¹⁸End-of-year operable capacity.

¹⁹Rate is calculated by dividing the gross annual input to atmospheric crude oil distillation units by their operable refining capacity in barrels per calendar day.

-- = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 product supplied based on: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, February 2016. Other 2014 data: EIA, *Petroleum Supply Annual 2014*. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A12. Petroleum and other liquids prices
(2015 dollars per gallon, unless otherwise noted)

Sector and fuel	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Crude oil prices (2015 dollars per barrel)								
Brent spot	100	52	77	92	104	120	136	3.9%
West Texas Intermediate spot	94	49	71	85	97	112	129	4.0%
Average imported refiners acquisition cost ¹	91	46	69	83	95	110	126	4.1%
Brent / West Texas Intermediate spread	5.8	3.7	5.4	6.2	6.9	7.2	7.1	2.7%
Delivered sector product prices								
Residential								
Propane	2.13	1.55	1.84	1.95	2.04	2.19	2.33	1.7%
Distillate fuel oil	3.71	2.66	3.08	3.51	3.82	4.23	4.65	2.3%
Commercial								
Distillate fuel oil	3.63	2.34	2.71	3.05	3.36	3.77	4.19	2.4%
Residual fuel oil	2.50	1.04	1.64	2.02	2.29	2.63	2.98	4.3%
Residual fuel oil (2015 dollars per barrel)	105	44	69	85	96	110	125	4.3%
Industrial²								
Propane	1.72	1.12	1.42	1.54	1.63	1.78	1.93	2.2%
Distillate fuel oil	3.72	2.34	2.71	3.05	3.36	3.76	4.19	2.4%
Residual fuel oil	2.24	1.01	1.68	2.13	2.39	2.73	3.08	4.6%
Residual fuel oil (2015 dollars per barrel)	94	42	71	89	100	115	130	4.6%
Transportation								
Propane	2.23	1.64	1.94	2.05	2.14	2.28	2.43	1.6%
E85 ³	3.15	2.21	3.05	2.97	2.93	3.08	3.33	1.6%
Ethanol wholesale price	2.25	2.22	2.77	2.38	2.28	2.39	2.60	0.6%
Motor gasoline ⁴	3.42	2.52	2.74	2.97	3.19	3.47	3.81	1.7%
Jet fuel ⁵	2.81	1.62	2.18	2.56	2.87	3.30	3.74	3.4%
Diesel fuel (distillate fuel oil) ⁶	3.82	2.72	3.18	3.55	3.85	4.25	4.68	2.2%
Residual fuel oil	2.19	1.21	1.75	2.01	2.25	2.54	2.87	3.5%
Residual fuel oil (2015 dollars per barrel)	92	51	73	85	94	107	121	3.5%
Electric power⁷								
Distillate fuel oil	3.27	2.07	2.53	2.92	3.23	3.63	4.04	2.7%
Residual fuel oil	2.73	1.53	2.06	2.43	2.70	3.03	3.36	3.2%
Residual fuel oil (2015 dollars per barrel)	115	64	87	102	114	127	141	3.2%
Average prices, all sectors⁸								
Propane	1.94	1.36	1.65	1.75	1.83	1.97	2.12	1.8%
Motor gasoline ⁴	3.42	2.52	2.74	2.97	3.19	3.47	3.81	1.7%
Jet fuel ⁵	2.81	1.62	2.18	2.56	2.87	3.30	3.74	3.4%
Distillate fuel oil	3.78	2.63	3.07	3.44	3.75	4.16	4.58	2.2%
Residual fuel oil	2.37	1.26	1.76	2.06	2.30	2.60	2.93	3.4%
Residual fuel oil (2015 dollars per barrel)	99	53	74	87	97	109	123	3.4%
Average	3.12	2.18	2.44	2.65	2.85	3.13	3.42	1.8%

Table A12. Petroleum and other liquids prices (*continued*)
(nominal dollars per gallon, unless otherwise noted)

Sector and fuel	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Crude oil prices (nominal dollars per barrel)								
Brent spot	99	52	85	112	141	181	229	6.1%
West Texas Intermediate spot	93	49	79	105	131	170	217	6.2%
Average imported refiners acquisition cost ¹	90	46	76	102	128	166	212	6.3%
Delivered sector product prices								
Residential								
Propane	2.11	1.55	2.03	2.39	2.76	3.30	3.93	3.8%
Distillate fuel oil	3.67	2.66	3.40	4.29	5.16	6.39	7.83	4.4%
Commercial								
Distillate fuel oil	3.59	2.34	2.99	3.74	4.54	5.69	7.04	4.5%
Residual fuel oil	2.47	1.04	1.81	2.47	3.09	3.97	5.02	6.5%
Residual fuel oil (nominal dollars per barrel)	104	44	76	104	130	167	211	6.5%
Industrial²								
Propane	1.70	1.12	1.57	1.88	2.20	2.69	3.25	4.4%
Distillate fuel oil	3.68	2.34	2.99	3.74	4.54	5.69	7.04	4.5%
Residual fuel oil	2.22	1.01	1.86	2.60	3.23	4.12	5.19	6.8%
Residual fuel oil (nominal dollars per barrel)	93	42	78	109	136	173	218	6.8%
Transportation								
Propane	2.21	1.64	2.14	2.51	2.89	3.45	4.09	3.7%
E85 ³	3.12	2.21	3.37	3.63	3.97	4.65	5.60	3.8%
Ethanol wholesale price	2.23	2.22	3.06	2.91	3.09	3.62	4.38	2.8%
Motor gasoline ⁴	3.38	2.52	3.02	3.64	4.32	5.25	6.40	3.8%
Jet fuel ⁵	2.78	1.62	2.41	3.14	3.89	4.99	6.29	5.6%
Diesel fuel (distillate fuel oil) ⁶	3.78	2.72	3.51	4.34	5.21	6.43	7.88	4.3%
Residual fuel oil	2.17	1.21	1.93	2.46	3.04	3.84	4.83	5.7%
Residual fuel oil (nominal dollars per barrel)	91	51	81	103	128	161	203	5.7%
Electric power⁷								
Distillate fuel oil	3.24	2.07	2.80	3.57	4.37	5.48	6.79	4.9%
Residual fuel oil	2.71	1.53	2.28	2.98	3.66	4.57	5.65	5.4%
Residual fuel oil (nominal dollars per barrel)	114	64	96	125	154	192	237	5.4%
Average prices, all sectors⁸								
Propane	1.92	1.36	1.82	2.14	2.48	2.98	3.56	3.9%
Motor gasoline ⁴	3.38	2.52	3.02	3.64	4.32	5.24	6.40	3.8%
Jet fuel ⁵	2.78	1.62	2.41	3.14	3.89	4.99	6.29	5.6%
Distillate fuel oil	3.75	2.63	3.39	4.22	5.08	6.28	7.71	4.4%
Residual fuel oil	2.34	1.26	1.94	2.52	3.11	3.93	4.93	5.6%
Residual fuel oil (nominal dollars per barrel)	98	53	81	106	131	165	207	5.6%
Average	3.09	2.18	2.70	3.25	3.86	4.72	5.76	4.0%

¹Weighted average price delivered to U.S. refiners.

²Includes combined heat and power plants that have a non-regulatory status, and small on-site generating systems.

³E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.

⁴Sales weighted-average price for all grades. Includes Federal, State, and local taxes.

⁵Includes only kerosene type.

⁶Diesel fuel for on-road use. Includes Federal and State taxes while excluding county and local taxes.

⁷Includes electricity-only and combined heat and power plants that have a regulatory status.

⁸Weighted averages of end-use fuel prices are derived from the prices in each sector and the corresponding sectoral consumption.

Note: Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 Brent and West Texas Intermediate crude oil spot prices: Thomson Reuters. 2014 average imported crude oil price: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, February 2016. 2014 prices for motor gasoline, distillate fuel oil, and jet fuel are based on: EIA, *Petroleum Marketing Monthly*, January 2105-December 2015. 2014 residential, commercial, industrial, and transportation sector petroleum product prices are derived from: EIA, Form EIA-782A, "Refiners/Gas Plant Operators' Monthly Petroleum Product Sales Report." 2014 electric power prices based on: EIA, *Monthly Energy Review*, February 2016. 2014 E85 prices derived from: U.S. Department of Energy, Clean Cities Alternative Fuel Price Report. 2014 wholesale ethanol prices derived from Bloomberg U.S. average rack price. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. **Projections:** EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A13. Natural gas supply, disposition, and prices
(trillion cubic feet, unless otherwise noted)

Supply, disposition, and prices	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Supply								
Dry gas production ¹	25.73	27.19	30.50	34.81	37.76	39.92	42.12	1.8%
Supplemental natural gas ²	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.3%
Net imports	1.18	0.95	-2.89	-5.32	-6.02	-7.18	-7.55	--
Pipeline ³	1.14	0.89	-0.48	-0.76	-0.97	-0.99	-0.89	--
Liquefied natural gas	0.04	0.06	-2.42	-4.56	-5.06	-6.19	-6.66	--
Total supply	26.97	28.20	27.67	29.55	31.80	32.80	34.63	0.8%
Consumption by sector								
Residential	5.09	4.62	4.71	4.67	4.65	4.62	4.58	0.0%
Commercial	3.47	3.22	3.34	3.35	3.42	3.55	3.69	0.5%
Industrial ⁴	7.60	7.51	8.29	8.65	8.85	9.19	9.58	1.0%
Natural-gas-to-liquids heat and power ⁵	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Natural gas to liquids production ⁶	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Electric power ⁷	8.14	9.61	8.26	9.33	11.02	11.13	11.96	0.9%
Transportation ⁸	0.06	0.06	0.09	0.14	0.22	0.38	0.66	9.8%
Pipeline fuel	0.84	0.86	0.81	0.86	0.91	0.97	1.04	0.7%
Lease and plant fuel ⁹	1.50	1.58	1.71	1.88	2.00	2.12	2.24	1.4%
Liquefaction for export ¹⁰	0.00	0.00	0.25	0.46	0.51	0.63	0.67	--
Total consumption	26.70	27.47	27.46	29.35	31.59	32.59	34.42	0.9%
Discrepancy¹¹	0.27	0.73	0.21	0.21	0.21	0.21	0.21	--
Natural gas spot price at Henry Hub								
(2015 dollars per million Btu)	4.44	2.62	4.43	5.12	5.06	4.91	4.86	2.5%
(nominal dollars per million Btu)	4.39	2.62	4.90	6.27	6.84	7.42	8.17	4.7%
Delivered prices								
(2015 dollars per thousand cubic feet)								
Residential	11.08	10.40	11.08	11.99	12.41	12.50	12.74	0.8%
Commercial	9.24	7.92	9.58	10.39	10.72	10.66	10.73	1.2%
Industrial ⁴	5.57	3.84	5.53	6.15	6.14	5.95	5.89	1.7%
Electric power ⁷	5.20	3.35	4.83	5.55	5.74	5.54	5.52	2.0%
Transportation ¹²	19.03	17.18	17.18	16.90	16.05	15.87	16.37	-0.2%
Average¹³	7.15	5.42	6.95	7.58	7.65	7.55	7.59	1.4%
(nominal dollars per thousand cubic feet)								
Residential	10.96	10.40	12.24	14.67	16.78	18.87	21.44	2.9%
Commercial	9.15	7.92	10.59	12.72	14.51	16.09	18.05	3.4%
Industrial ⁴	5.51	3.84	6.11	7.53	8.31	8.98	9.91	3.9%
Electric power ⁷	5.15	3.35	5.33	6.80	7.76	8.36	9.29	4.2%
Transportation ¹²	18.83	17.18	18.98	20.68	21.71	23.96	27.54	1.9%
Average¹³	7.08	5.42	7.67	9.28	10.35	11.40	12.77	3.5%

¹Marketed production (wet) minus extraction losses.

²Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.

³Includes any natural gas regasified in the Bahamas and transported via pipeline to Florida, as well as gas from Canada and Mexico.

⁴Includes energy for combined heat and power plants that have a non-regulatory status, and small on-site generating systems. Excludes use for lease and plant fuel.

⁵Includes any natural gas used in the process of converting natural gas to liquid fuel that is not actually converted.

⁶Includes any natural gas converted into liquid fuel.

⁷Includes consumption of energy by electricity-only and combined heat and power plants that have a regulatory status.

⁸Natural gas used as fuel in motor vehicles, trains, and ships.

⁹Represents natural gas used in well, field, and lease operations, and in natural gas processing plant machinery.

¹⁰Fuel used in facilities that liquefy natural gas for export.

¹¹Balancing item. Natural gas lost as a result of converting flow data measured at varying temperatures and pressures to a standard temperature and pressure and the merger of different data reporting systems which vary in scope, format, definition, and respondent type. In addition, 2014 and 2015 values include net storage injections.

¹²Natural gas used as fuel in motor vehicles, trains, and ships. Price includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.

¹³Weighted average prices. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.

-- = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 supply values; lease, plant, and pipeline fuel consumption; and residential, commercial, and industrial delivered prices: U.S. Energy Information Administration (EIA), *Natural Gas Monthly*, July 2015. Other 2014 consumption based on: EIA, *Monthly Energy Review*, February 2016. 2014 natural gas spot price at Henry Hub: Thomson Reuters. 2014 electric power prices: EIA, *Electric Power Monthly*, April 2014 and April 2015, Table 4.2, and EIA, *State Energy Data Report 2013*. 2014 transportation sector delivered prices derived from: U.S. Department of Energy, Clean Cities Alternative Fuel Price Report. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A14. Oil and gas supply

Production and supply	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Crude oil								
Lower 48 average wellhead price¹ (2015 dollars per barrel).....	88	49	74	88	99	114	130	4.0%
Production (million barrels per day)²								
United States total	8.71	9.42	9.38	9.43	10.06	10.66	11.26	0.7%
Lower 48 onshore	6.71	7.30	6.99	7.38	8.22	8.85	9.53	1.1%
Tight oil ³	4.28	4.89	5.08	5.51	6.25	6.72	7.08	1.5%
Carbon dioxide enhanced oil recovery.....	0.28	0.28	0.32	0.43	0.55	0.63	0.72	3.8%
Other.....	2.15	2.13	1.59	1.44	1.41	1.50	1.73	-0.8%
Lower 48 offshore	1.50	1.64	1.98	1.74	1.60	1.63	1.58	-0.2%
State	0.07	0.07	0.05	0.04	0.04	0.03	0.03	-3.6%
Federal	1.43	1.57	1.92	1.69	1.57	1.60	1.55	0.0%
Alaska.....	0.50	0.48	0.41	0.32	0.24	0.19	0.15	-4.7%
Onshore.....	0.40	0.41	0.28	0.22	0.17	0.14	0.11	-5.0%
State offshore	0.10	0.07	0.13	0.10	0.07	0.05	0.03	-3.2%
Federal offshore.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-10.7%
Natural gas plant liquids production (million barrels per day)								
United States total	3.02	3.25	4.57	4.77	4.90	4.96	4.99	1.7%
Lower 48 onshore.....	2.65	2.86	4.15	4.39	4.50	4.51	4.54	1.9%
Lower 48 offshore.....	0.34	0.37	0.40	0.36	0.39	0.44	0.44	0.8%
Alaska.....	0.03	0.03	0.02	0.02	0.01	0.01	0.01	-4.9%
Natural gas Natural gas spot price at Henry Hub (2015 dollars per million Btu).....								
	4.44	2.62	4.43	5.12	5.06	4.91	4.86	2.5%
Dry production (trillion cubic feet)⁴								
United States total	25.73	27.19	30.50	34.81	37.76	39.92	42.12	1.8%
Lower 48 onshore	24.05	25.20	28.82	33.31	36.15	37.99	40.18	1.9%
Tight gas.....	4.81	5.00	4.92	5.43	6.08	6.30	6.55	1.1%
Shale gas and tight oil plays ³	12.29	13.64	17.96	22.50	25.16	27.04	29.00	3.1%
Coalbed methane	1.16	1.24	1.04	1.02	0.94	0.85	0.78	-1.9%
Other.....	5.79	5.32	4.90	4.36	3.97	3.79	3.85	-1.3%
Lower 48 offshore	1.36	1.70	1.39	1.21	1.33	1.65	1.67	-0.1%
State	0.10	0.14	0.07	0.04	0.03	0.02	0.02	-7.3%
Federal	1.25	1.56	1.32	1.17	1.30	1.63	1.64	0.2%
Alaska.....	0.32	0.29	0.29	0.29	0.28	0.28	0.28	-0.2%
Onshore.....	0.32	0.29	0.29	0.29	0.28	0.28	0.28	-0.2%
State offshore	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Federal offshore.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Supplemental gas supplies (trillion cubic feet)⁵	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.3%
Total lower 48 wells drilled (thousands).....	47.4	32.3	32.3	36.8	41.8	44.6	47.4	1.5%

¹Represents lower 48 onshore and offshore supplies.

²Includes lease condensate.

³Tight oil represents resources in low-permeability reservoirs, including shale and chalk formations. The specific plays included in the tight oil category are Bakken/Three Forks/Sanish, Eagle Ford, Woodford, Austin Chalk, Spraberry, Niobrara, Avalon/Bone Springs, and Monterey.

⁴Marketed production (wet) minus extraction losses.

⁵Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 crude oil lower 48 average wellhead price: U.S. Energy Information Administration (EIA), *Petroleum Marketing Monthly*, January 2105-December 2015. 2014 lower 48 onshore, lower 48 offshore, and Alaska crude oil production: EIA, *Petroleum Supply Annual 2014*. 2014 natural gas spot price at Henry Hub: Thomson Reuters. 2014 Alaska and total natural gas production, and supplemental gas supplies: EIA, *Natural Gas Monthly*, July 2015. Other 2014: EIA, Office of Energy Analysis. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A15. Coal supply, disposition, and prices
(million short tons, unless otherwise noted)

Supply, disposition, and prices	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Production¹								
Appalachia	270	223	202	165	138	154	144	-1.7%
Interior	190	165	197	193	148	172	170	0.1%
West	542	484	473	408	378	335	329	-1.5%
East of the Mississippi	413	346	351	307	243	281	276	-0.9%
West of the Mississippi	590	526	521	460	422	380	367	-1.4%
Total	1,002	873	872	766	664	661	643	-1.2%
Waste coal supplied²	9	9	11	9	9	8	9	-0.3%
Net imports								
Imports ³	11	11	0	0	0	0	0	-19.2%
Exports	97	75	70	70	74	87	94	0.9%
Total	-86	-63	-70	-70	-74	-87	-94	1.6%
Total supply⁴	925	819	813	705	599	583	557	-1.5%
Consumption by sector								
Commercial and institutional	2	3	2	2	2	2	2	-0.4%
Coke plants	20	19	14	16	16	15	14	-1.2%
Other industrial ⁵	43	40	42	44	45	45	47	0.6%
Coal-to-liquids heat and power	0	0	0	0	0	0	0	--
Coal to liquids production	0	0	0	0	0	0	0	--
Electric power ⁶	852	739	754	643	536	520	494	-1.6%
Total	917	801	813	705	599	583	557	-1.4%
Discrepancy and stock change⁷	8	17	0	0	0	0	0	--
Average minemouth price⁸								
(2015 dollars per short ton)	35.2	33.8	33.6	34.0	33.8	37.6	38.7	0.5%
(2015 dollars per million Btu)	1.73	1.69	1.68	1.71	1.71	1.86	1.91	0.5%
Delivered prices⁹								
(2015 dollars per short ton)								
Commercial and institutional	91.2	85.6	85.0	86.0	85.7	87.2	89.2	0.2%
Coke plants	153.0	153.7	173.4	186.8	200.2	207.3	208.1	1.2%
Other industrial ⁵	68.9	69.7	70.6	71.5	71.2	72.3	74.9	0.3%
Coal to liquids	--	--	--	--	--	--	--	--
Electric power ⁶								
(2015 dollars per short ton)	46.1	41.6	43.1	42.7	41.8	43.8	45.2	0.3%
(2015 dollars per million Btu)	2.38	2.19	2.26	2.26	2.26	2.32	2.38	0.3%
Average	49.7	45.8	47.0	47.8	48.5	50.4	51.9	0.5%
Exports ¹⁰	85.3	86.7	84.0	81.7	81.2	84.8	83.9	-0.1%

Table A15. Coal supply, disposition, and prices (continued)
(million short tons, unless otherwise noted)

Supply, disposition, and prices	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Average minemouth price⁸								
(nominal dollars per short ton).....	34.9	33.8	37.1	41.6	45.8	56.8	65.1	2.7%
(nominal dollars per million Btu).....	1.71	1.69	1.86	2.09	2.31	2.81	3.21	2.6%
Delivered prices⁹								
(nominal dollars per short ton)								
Commercial and institutional.....	90.3	85.6	93.9	105.2	116.0	131.6	150.0	2.3%
Coke plants.....	151.4	153.7	191.6	228.7	270.9	313.1	350.2	3.3%
Other industrial ⁵	68.2	69.7	78.0	87.5	96.3	109.2	126.0	2.4%
Coal to liquids.....	--	--	--	--	--	--	--	--
Electric power ⁶								
(nominal dollars per short ton).....	45.7	41.6	47.6	52.3	56.5	66.1	76.0	2.4%
(nominal dollars per million Btu).....	2.35	2.19	2.50	2.77	3.05	3.50	4.01	2.5%
Average.....	49.2	45.8	51.9	58.6	65.5	76.1	87.3	2.6%
Exports ¹⁰	84.4	86.7	92.8	100.0	109.8	128.0	141.2	2.0%

¹Includes anthracite, bituminous coal, subbituminous coal, and lignite.

²Includes waste coal consumed by the electric power and industrial sectors. Waste coal supplied is counted as a supply-side item to balance the same amount of waste coal included in the consumption data.

³Excludes imports to Puerto Rico and the U.S. Virgin Islands.

⁴Production plus waste coal supplied plus net imports.

⁵Includes consumption for combined heat and power plants that have a non-regulatory status, and small on-site generating systems. Excludes all coal use in the coal-to-liquids process.

⁶Includes all electricity-only and combined heat and power plants that have a regulatory status.

⁷Balancing item: the sum of production, net imports, and waste coal supplied minus total consumption.

⁸Includes reported prices for both open market and captive mines. Prices weighted by production, which differs from average minemouth prices published in EIA data reports where it is weighted by reported sales.

⁹Prices weighted by consumption; weighted average excludes commercial and institutional prices, and export free-alongside-ship prices.

¹⁰Free-alongside-ship price at U.S. port of exit.

-- = Not applicable.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 data based on: U.S. Energy Information Administration (EIA), *Annual Coal Report 2013*; EIA, *Quarterly Coal Report, October-December 2014*; and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A16. Renewable energy generating capacity and generation
(gigawatts, unless otherwise noted)

Net summer capacity and generation	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Electric power sector¹								
Net summer capacity								
Conventional hydroelectric power.....	79.0	79.2	79.8	80.0	80.1	80.1	80.4	0.1%
Geothermal ²	2.5	2.5	3.1	4.5	5.6	6.7	7.2	4.3%
Municipal waste ³	3.7	3.8	3.9	3.9	3.9	3.9	3.9	0.0%
Wood and other biomass ⁴	3.4	3.4	3.6	3.6	3.6	3.7	4.1	0.7%
Solar thermal.....	1.9	2.0	2.5	2.5	2.5	2.5	2.5	0.8%
Solar photovoltaic ⁵	8.4	11.7	25.5	52.5	67.6	117.6	155.6	10.9%
Wind.....	64.1	74.4	120.4	141.3	142.0	142.6	145.7	2.7%
Offshore wind.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--
Total electric power sector capacity.....	163.0	177.1	238.7	288.2	305.2	357.0	399.4	3.3%
Generation (billion kilowatthours)								
Conventional hydroelectric power.....	262.3	245.5	292.7	293.7	294.2	294.8	296.3	0.8%
Geothermal ²	15.9	16.7	21.5	32.6	42.3	51.4	55.5	4.9%
Biogenic municipal waste ⁶	17.6	19.4	20.9	20.8	20.8	21.7	21.9	0.5%
Wood and other biomass.....	15.1	6.2	9.4	13.1	14.8	13.8	17.7	4.3%
Dedicated plants.....	14.0	5.4	8.7	12.4	14.1	13.1	17.0	4.7%
Cofiring.....	1.1	0.7	0.7	0.7	0.7	0.7	0.7	-0.3%
Solar thermal.....	2.5	3.3	4.5	4.6	4.6	4.7	4.8	1.5%
Solar photovoltaic ⁵	15.0	18.8	47.8	107.5	143.5	256.2	345.0	12.3%
Wind.....	180.9	187.5	364.5	449.9	453.1	456.0	468.3	3.7%
Offshore wind.....	0.0	0.0	0.1	0.1	0.1	0.1	0.1	--
Total electric power sector generation.....	509.2	497.4	761.4	922.2	973.4	1,098.6	1,209.5	3.6%
End-use sectors⁷								
Net summer capacity								
Conventional hydroelectric power.....	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.0%
Geothermal.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--
Municipal waste ⁸	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.0%
Biomass.....	4.7	4.7	4.7	4.9	5.0	5.0	5.0	0.3%
Solar photovoltaic ⁵	8.6	11.2	28.7	41.0	55.1	71.5	88.3	8.6%
Wind.....	0.9	1.6	2.3	2.4	2.6	2.9	3.2	2.8%
Total end-use sector capacity.....	15.0	18.4	36.6	49.1	63.6	80.3	97.4	6.9%
Generation (billion kilowatthours)								
Conventional hydroelectric power.....	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.0%
Geothermal.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--
Municipal waste ⁸	4.1	4.1	4.1	4.1	4.1	4.1	4.1	0.0%
Biomass.....	26.1	26.0	25.9	26.6	27.4	27.4	27.6	0.2%
Solar photovoltaic ⁵	11.8	15.5	40.2	58.1	78.7	102.7	127.2	8.8%
Wind.....	1.2	2.1	3.1	3.1	3.5	3.9	4.3	3.0%
Total end-use sector generation.....	44.5	49.0	74.6	93.2	115.0	139.4	164.6	5.0%

Table A16. Renewable energy generating capacity and generation (*continued*)
(gigawatts, unless otherwise noted)

Net summer capacity and generation	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Total, all sectors								
Net summer capacity								
Conventional hydroelectric power.....	79.3	79.5	80.1	80.3	80.3	80.4	80.7	0.1%
Geothermal.....	2.5	2.5	3.1	4.5	5.6	6.7	7.2	4.3%
Municipal waste.....	4.3	4.4	4.4	4.4	4.4	4.4	4.4	0.0%
Wood and other biomass ⁴	8.1	8.1	8.3	8.4	8.6	8.7	9.1	0.5%
Solar ⁵	18.9	24.9	56.6	95.9	125.3	191.6	246.4	9.6%
Wind.....	65.0	76.0	122.7	143.7	144.6	145.5	149.0	2.7%
Total capacity, all sectors.....	178.1	195.4	275.3	337.3	368.8	437.3	496.8	3.8%
Generation (billion kilowatthours)								
Conventional hydroelectric power.....	263.6	246.8	294.1	295.0	295.6	296.1	297.6	0.8%
Geothermal.....	15.9	16.7	21.5	32.6	42.3	51.4	55.5	4.9%
Municipal waste.....	21.7	23.5	25.0	24.9	24.9	25.8	26.0	0.4%
Wood and other biomass.....	41.2	32.1	35.3	39.7	42.2	41.2	45.2	1.4%
Solar ⁵	29.3	37.6	92.5	170.1	226.8	363.6	477.1	10.7%
Wind.....	182.1	189.6	367.6	453.2	456.7	459.9	472.8	3.7%
Total generation, all sectors.....	553.7	546.4	836.0	1,015.5	1,088.4	1,238.1	1,374.1	3.8%

¹Includes electricity-only and combined heat and power plants that have a regulatory status.

²Includes both hydrothermal resources (hot water and steam) and near-field enhanced geothermal systems (EGS). Near-field EGS potential occurs on known hydrothermal sites, however this potential requires the addition of external fluids for electricity generation and is only available after 2025.

³Includes municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities. All municipal waste is included, although a portion of the municipal waste stream contains petroleum-derived plastics and other non-renewable sources.

⁴Facilities co-firing biomass and coal are classified as coal.

⁵Does not include off-grid photovoltaics (PV). Based on annual PV shipments from 1989 through 2015, EIA estimates that as much as 274 megawatts of remote electricity generation PV applications (i.e., off-grid power systems) were in service in 2015, plus an additional 573 megawatts in communications, transportation, and assorted other non-grid-connected, specialized applications. See U.S. Energy Information Administration, *Annual Energy Review 2011*, DOE/EIA-0384(2011) (Washington, DC, September 2012), Table 10.9 (annual PV shipments, 1989-2010), and Table 12 (U.S. photovoltaic module shipments by end use, sector, and type) in U.S. Energy Information Administration, *Solar Photovoltaic Cell/Module Shipments Report, 2011* (Washington, DC, September 2012) and U.S. Energy Information Administration, *Solar Photovoltaic Cell/Module Shipments Report, 2012* (Washington, DC, December 2013). The approach used to develop the estimate, based on shipment data, provides an upper estimate of the size of the PV stock, including both grid-based and off-grid PV. It will overestimate the size of the stock, because shipments include a substantial number of units that are exported, and each year some of the PV units installed earlier will be retired from service or abandoned.

⁶Includes biogenic municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities. Only biogenic municipal waste is included. The U.S. Energy Information Administration estimates that in 2015 approximately 7 billion kilowatthours of electricity were generated from a municipal waste stream containing petroleum-derived plastics and other non-renewable sources. See U.S. Energy Information Administration, *Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy* (Washington, DC, May 2007).

⁷Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors that have a non-regulatory status; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

⁸Includes municipal waste, landfill gas, and municipal sewage sludge. All municipal waste is included, although a portion of the municipal waste stream contains petroleum-derived plastics and other non-renewable sources.

-- = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 capacity: U.S. Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generator Report" (preliminary). 2014 generation: EIA, *Monthly Energy Review*, February 2016. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A17. Renewable energy consumption by sector and source
(quadrillion Btu per year)

Sector and source	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Marketed renewable energy ¹								
Residential (wood).....	0.59	0.44	0.42	0.41	0.39	0.38	0.37	-0.7%
Commercial (biomass)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.0%
Industrial ²	2.26	2.26	2.30	2.39	2.47	2.52	2.63	0.6%
Conventional hydroelectric power.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Municipal waste ³	0.19	0.20	0.22	0.23	0.23	0.24	0.26	1.1%
Biomass.....	1.32	1.29	1.25	1.35	1.43	1.46	1.53	0.7%
Biofuels heat and coproducts	0.75	0.78	0.83	0.80	0.81	0.81	0.84	0.3%
Transportation	1.30	1.38	1.53	1.48	1.47	1.50	1.59	0.6%
Ethanol used in E85 ⁴	0.02	0.03	0.03	0.08	0.14	0.18	0.18	7.3%
Ethanol used in gasoline blending	1.09	1.12	1.12	1.01	0.94	0.93	1.01	-0.4%
Biodiesel used in distillate blending	0.19	0.22	0.30	0.19	0.19	0.19	0.19	-0.5%
Biobutanol.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Liquids from biomass.....	0.00	0.00	0.00	0.00	0.01	0.01	0.01	--
Renewable diesel and gasoline ⁵	0.00	0.00	0.08	0.19	0.19	0.19	0.19	17.9%
Electric power ⁶	5.01	4.86	7.37	8.91	9.41	10.60	11.67	3.6%
Conventional hydroelectric power.....	2.50	2.34	2.79	2.80	2.81	2.81	2.83	0.8%
Geothermal	0.15	0.16	0.21	0.31	0.41	0.49	0.53	4.9%
Biogenic municipal waste ⁷	0.24	0.25	0.28	0.28	0.28	0.29	0.29	0.6%
Biomass.....	0.23	0.10	0.15	0.21	0.24	0.22	0.27	3.9%
Dedicated plants	0.15	0.06	0.09	0.13	0.15	0.14	0.18	4.7%
Cofiring	0.08	0.05	0.06	0.08	0.09	0.08	0.09	2.7%
Solar thermal	0.02	0.03	0.04	0.04	0.04	0.04	0.05	1.5%
Solar photovoltaic.....	0.14	0.18	0.46	1.03	1.37	2.44	3.29	12.3%
Wind	1.73	1.79	3.43	4.24	4.27	4.30	4.41	3.7%
Total marketed renewable energy	9.31	9.08	11.76	13.32	13.88	15.13	16.40	2.4%
Sources of ethanol								
from corn and other starch.....	1.18	1.21	1.16	1.12	1.12	1.13	1.17	-0.1%
from cellulose.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.4%
Net imports	-0.07	-0.06	-0.01	-0.04	-0.04	-0.03	0.02	--
Total	1.11	1.15	1.15	1.09	1.09	1.11	1.20	0.2%

Table A17. Renewable energy consumption by sector and source (continued)
(quadrillion Btu per year)

Sector and source	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Nonmarketed renewable energy ⁸								
Selected consumption								
Residential	0.08	0.11	0.35	0.50	0.63	0.78	0.94	8.8%
Solar hot water heating	0.01	0.01	0.01	0.02	0.02	0.02	0.02	3.4%
Geothermal heat pumps	0.01	0.01	0.02	0.02	0.02	0.02	0.02	2.8%
Solar photovoltaic	0.05	0.08	0.30	0.43	0.57	0.71	0.86	10.2%
Wind	0.01	0.02	0.03	0.03	0.03	0.03	0.03	2.0%
Commercial	0.15	0.16	0.18	0.22	0.29	0.38	0.47	4.4%
Solar thermal	0.08	0.09	0.09	0.10	0.10	0.11	0.11	1.0%
Solar photovoltaic	0.06	0.07	0.09	0.12	0.19	0.27	0.35	6.5%
Wind	0.00	0.00	0.00	0.00	0.00	0.01	0.01	9.0%

¹Includes nonelectric renewable energy groups for which the energy source is bought and sold in the marketplace, although all transactions may not necessarily be marketed, and marketed renewable energy inputs for electricity entering the marketplace on the electric power grid. Excludes electricity imports; see Table A2. Actual heat rates used to determine fuel consumption for all renewable fuels except hydroelectric, geothermal, solar, and wind. Consumption at hydroelectric, solar, and wind facilities is determined by using the fossil fuel equivalent of 9,541 Btu per kilowatthour.

²Includes combined heat and power plants that have a non-regulatory status, and small on-site generating systems.

³Includes municipal waste, landfill gas, and municipal sewage sludge. All municipal waste is included, although a portion of the municipal waste stream contains petroleum-derived plastics and other non-renewable sources.

⁴Excludes motor gasoline component of E85.

⁵Renewable feedstocks for the on-site production of diesel and gasoline.

⁶Includes consumption of energy by electricity-only and combined heat and power plants that have a regulatory status.

⁷Includes biogenic municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities. Only biogenic municipal waste is included. The U.S. Energy Information Administration estimates that in 2015 approximately 0.3 quadrillion Btus were consumed from a municipal waste stream containing petroleum-derived plastics and other non-renewable sources. See U.S. Energy Information Administration, *Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy* (Washington, DC, May 2007).

⁸Includes selected renewable energy consumption data for which the energy is not bought or sold, either directly or indirectly as an input to marketed energy. The U.S. Energy Information Administration does not estimate or project total consumption of nonmarketed renewable energy.

-- = Not applicable.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 ethanol: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, February 2016. 2014 electric power sector: EIA, Form EIA-860, "Annual Electric Generator Report" (preliminary). Other 2014 values: EIA, Office of Energy Analysis. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A18. Energy-related carbon dioxide emissions by sector and source
(million metric tons, unless otherwise noted)

Sector and source	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Residential								
Petroleum	69	64	59	53	49	45	41	-1.7%
Natural gas	278	253	258	256	255	253	251	0.0%
Electricity ¹	765	711	664	586	538	531	529	-1.2%
Total residential	1,112	1,028	981	895	841	829	821	-0.9%
Commercial								
Petroleum	39	47	50	49	49	48	47	0.0%
Natural gas	189	176	183	184	188	194	202	0.5%
Coal	5	6	5	5	5	5	5	-0.4%
Electricity ¹	735	690	654	599	566	569	572	-0.7%
Total commercial	968	918	893	836	807	817	826	-0.4%
Industrial²								
Petroleum	341	378	410	431	434	443	458	0.8%
Natural gas ³	476	478	524	560	579	609	636	1.2%
Coal	138	130	120	128	131	130	131	0.0%
Electricity ¹	542	486	504	481	443	436	434	-0.5%
Total industrial	1,497	1,472	1,558	1,600	1,587	1,618	1,660	0.5%
Transportation								
Petroleum ⁴	1,777	1,800	1,802	1,720	1,652	1,629	1,628	-0.4%
Natural gas ⁵	48	51	49	55	62	74	93	2.4%
Electricity ¹	4	5	6	10	12	15	16	5.1%
Total transportation	1,829	1,855	1,857	1,784	1,726	1,717	1,737	-0.3%
Electric power⁶								
Petroleum	26	20	11	10	8	7	6	-4.4%
Natural gas	444	524	451	509	602	608	653	0.9%
Coal	1,570	1,340	1,360	1,150	943	930	885	-1.6%
Other ⁷	6	6	6	6	6	6	6	0.0%
Total electric power	2,046	1,891	1,829	1,675	1,559	1,551	1,551	-0.8%
Total by fuel								
Petroleum ⁴	2,252	2,309	2,332	2,262	2,191	2,171	2,181	-0.2%
Natural gas	1,434	1,482	1,466	1,563	1,685	1,737	1,835	0.9%
Coal	1,713	1,476	1,485	1,283	1,079	1,065	1,021	-1.5%
Other ⁷	6	6	6	6	6	6	6	0.0%
Total	5,406	5,273	5,289	5,115	4,961	4,980	5,044	-0.2%
Carbon dioxide emissions (tons per person)	16.9	16.4	15.8	14.7	13.8	13.4	13.3	-0.8%

¹Emissions from the electric power sector are distributed to the end-use sectors.

²Includes combined heat and power plants that have a non-regulatory status, and small on-site generating systems.

³Includes lease and plant fuel.

⁴This includes carbon dioxide from international bunker fuels, both civilian and military, which are excluded from the accounting of carbon dioxide emissions under the United Nations convention. From 1990 through 2015, international bunker fuels accounted for 90 to 126 million metric tons annually.

⁵Includes pipeline fuel natural gas and natural gas used as fuel in motor vehicles, trains, and ships.

⁶Includes electricity-only and combined heat and power plants that have a regulatory status.

⁷Includes emissions from geothermal power and nonbiogenic emissions from municipal waste.

Note: By convention, the direct emissions from biogenic energy sources are excluded from energy-related carbon dioxide emissions. The release of carbon from these sources is assumed to be balanced by the uptake of carbon when the feedstock is grown, resulting in zero net emissions over some period of time. If, however, increased use of biomass energy results in a decline in terrestrial carbon stocks, a net positive release of carbon may occur. See Table A19, "Energy-Related Carbon Dioxide Emissions by End Use", for the emissions from biogenic energy sources as an indication of the potential net release of carbon dioxide in the absence of offsetting sequestration. Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 emissions and emission factors: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, February 2016. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A19. Energy-related carbon dioxide emissions by end use
(million metric tons)

Sector and end use	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Residential								
Space heating.....	314	262	263	248	237	230	223	-0.6%
Space cooling.....	104	120	104	94	89	90	92	-1.1%
Water heating.....	143	139	136	129	124	121	118	-0.6%
Refrigeration.....	57	53	47	41	37	36	36	-1.5%
Cooking.....	30	29	29	28	27	28	28	-0.1%
Clothes dryers.....	35	33	33	30	29	29	29	-0.5%
Freezers.....	12	11	10	8	7	7	6	-2.2%
Lighting.....	81	74	60	45	33	26	24	-4.4%
Clothes washers ¹	4	4	3	2	2	2	2	-3.4%
Dishwashers ¹	15	14	13	12	12	13	13	-0.3%
Televisions and related equipment ²	48	42	36	31	29	31	32	-1.1%
Computers and related equipment ³	18	17	13	10	8	7	5	-4.4%
Furnace fans and boiler circulation pumps.....	23	17	17	14	12	11	10	-2.0%
Other uses ⁴	230	213	216	201	194	198	202	-0.2%
Discrepancy ⁵	-3	0	0	0	0	0	0	-0.9%
Total residential.....	1,112	1,028	981	895	841	829	821	-0.9%
Commercial								
Space heating ⁶	139	125	124	117	112	109	107	-0.6%
Space cooling ⁶	78	85	75	67	61	60	60	-1.4%
Water heating ⁶	44	44	43	42	43	44	45	0.1%
Ventilation.....	82	77	76	69	63	62	62	-0.9%
Cooking.....	14	14	15	15	15	16	16	0.5%
Lighting.....	141	131	121	103	90	81	75	-2.2%
Refrigeration.....	58	54	46	38	33	32	32	-2.1%
Office equipment (PC).....	14	12	9	6	4	3	2	-6.3%
Office equipment (non-PC).....	34	33	33	32	34	37	39	0.7%
Other uses ⁷	362	343	352	349	352	372	389	0.5%
Total commercial.....	968	918	893	836	807	817	826	-0.4%
Industrial⁸								
Manufacturing								
Refining.....	261	257	247	238	233	235	241	-0.3%
Food products.....	99	94	97	96	97	100	104	0.4%
Paper products.....	79	72	65	65	64	61	60	-0.7%
Bulk chemicals.....	249	238	300	326	325	338	351	1.6%
Glass.....	15	16	17	17	17	17	17	0.1%
Cement and lime.....	24	24	30	32	32	34	38	1.8%
Iron and steel.....	115	108	94	106	105	104	107	0.0%
Aluminum.....	42	40	44	42	40	38	35	-0.5%
Fabricated metal products.....	33	33	31	29	27	28	29	-0.5%
Machinery.....	19	19	19	21	20	21	22	0.6%
Computers and electronics.....	19	18	18	17	17	18	19	0.3%
Transportation equipment.....	40	40	38	36	34	35	36	-0.4%
Electrical equipment.....	9	9	10	11	11	11	11	1.0%
Wood products.....	14	13	15	15	14	14	15	0.5%
Plastics.....	34	33	34	33	31	32	32	0.0%
Balance of manufacturing.....	137	131	127	122	117	116	116	-0.5%
Total manufacturing.....	1,190	1,144	1,186	1,205	1,186	1,202	1,233	0.3%
Nonmanufacturing								
Agriculture.....	86	85	82	79	76	74	72	-0.7%
Construction.....	69	64	83	83	81	82	82	1.0%
Mining.....	123	111	115	115	114	117	120	0.3%
Total nonmanufacturing.....	277	261	281	277	271	272	274	0.2%
Discrepancy ⁵	29	67	92	117	130	144	153	3.3%
Total industrial.....	1,497	1,472	1,558	1,600	1,587	1,618	1,660	0.5%

Table A19. Energy-related carbon dioxide emissions by end use (continued)
(million metric tons)

Sector and end use	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Transportation								
Light-duty vehicles.....	1,043	1,050	1,040	929	837	785	759	-1.3%
Commercial light trucks ⁹	54	54	55	53	51	51	52	-0.2%
Bus transportation.....	18	18	18	18	18	18	18	0.1%
Freight trucks.....	379	389	396	410	424	448	477	0.8%
Rail, passenger.....	6	5	5	5	5	5	5	0.0%
Rail, freight.....	34	34	34	36	35	33	33	-0.2%
Shipping, domestic.....	8	7	6	6	5	5	5	-1.5%
Shipping, international.....	49	55	48	50	52	54	56	0.1%
Recreational boats.....	16	17	18	19	19	20	20	0.7%
Air.....	166	168	178	189	200	207	212	0.9%
Military use.....	46	46	46	46	49	52	56	0.8%
Lubricants.....	5	5	5	5	5	5	5	0.2%
Pipeline fuel.....	46	47	44	47	50	53	57	0.7%
Discrepancy ⁵	-40	-40	-37	-30	-24	-20	-17	-3.4%
Total transportation.....	1,829	1,855	1,857	1,784	1,726	1,717	1,737	-0.3%
Biogenic energy combustion¹⁰								
Biomass.....	214	185	184	198	206	205	216	0.6%
Electric power sector.....	21	10	14	19	22	20	25	3.9%
Other sectors.....	193	175	169	178	184	185	191	0.3%
Biogenic waste.....	22	23	25	25	25	26	27	0.6%
Biofuels heat and coproducts.....	70	73	77	75	76	76	79	0.3%
Ethanol.....	76	79	79	75	74	76	82	0.2%
Biodiesel.....	14	16	22	14	14	14	14	-0.5%
Liquids from biomass.....	0	0	0	0	0	1	1	-
Renewable diesel and gasoline.....	0	0	6	14	14	14	14	17.9%
Total.....	396	376	393	401	409	413	432	0.6%

¹Does not include water heating portion of load.

²Includes televisions, set-top boxes, home theater systems, DVD players, and video game consoles.

³Includes desktop and laptop computers, monitors, and networking equipment.

⁴Includes small electric devices, heating elements, outdoor grills, exterior lights, pool heaters, spa heaters, backup electricity generators, and motors not listed above. Electric vehicles are included in the transportation sector.

⁵Represents differences between total emissions by end-use and total emissions by fuel as reported in Table A18. Emissions by fuel may reflect benchmarking and other modeling adjustments to energy use and the associated emissions that are not assigned to specific end uses.

⁶Includes emissions related to fuel consumption for district services.

⁷Includes emissions related to (but not limited to) miscellaneous uses such as transformers, medical imaging and other medical equipment, elevators, escalators, off-road electric vehicles, laboratory fume hoods, laundry equipment, coffee brewers, water services, emergency generators, combined heat and power in commercial buildings, manufacturing performed in commercial buildings, and cooking (distillate), plus residual fuel oil, propane, coal, motor gasoline, kerosene, and marketed renewable fuels (biomass).

⁸Includes combined heat and power plants that have a non-regulatory status, and small on-site generating systems.

⁹Commercial trucks 8,501 to 10,000 pounds gross vehicle weight rating.

¹⁰By convention, the direct emissions from biogenic energy sources are excluded from energy-related carbon dioxide emissions. The release of carbon from these sources is assumed to be balanced by the uptake of carbon when the feedstock is grown, resulting in zero net emissions over some period of time. If, however, increased use of biomass energy results in a decline in terrestrial carbon stocks, a net positive release of carbon may occur. Accordingly, the emissions from biogenic energy sources are reported here as an indication of the potential net release of carbon dioxide in the absence of offsetting sequestration.

-- = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 emissions and emission factors: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, February 2016. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A20. Macroeconomic indicators
(billion 2009 chain-weighted dollars, unless otherwise noted)

Indicators	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Real gross domestic product	15,962	16,349	18,555	20,765	23,113	25,598	28,397	2.2%
Components of real gross domestic product								
Real consumption	10,876	11,221	12,861	14,348	16,092	17,881	19,870	2.3%
Real investment	2,718	2,842	3,513	4,068	4,520	5,051	5,661	2.8%
Real government spending	2,838	2,860	2,967	3,056	3,222	3,396	3,602	0.9%
Real exports	2,086	2,119	2,615	3,374	4,178	5,105	6,113	4.3%
Real imports	2,529	2,662	3,374	4,032	4,824	5,721	6,683	3.8%
Energy intensity (thousand Btu per 2009 dollar of GDP)								
Delivered energy	4.52	4.38	4.03	3.65	3.29	3.04	2.83	-1.7%
Total energy	6.15	5.92	5.42	4.89	4.39	4.06	3.77	-1.8%
Price indices								
GDP chain-type price index (2009=1.000)	1.09	1.10	1.21	1.34	1.49	1.66	1.85	2.1%
Consumer price index (1982-4=1.00)								
All-urban	2.37	2.37	2.65	2.99	3.35	3.78	4.27	2.4%
Energy commodities and services	2.43	2.02	2.41	2.87	3.34	3.92	4.61	3.4%
Wholesale price index (1982=1.00)								
All commodities	2.05	1.91	2.14	2.37	2.59	2.87	3.16	2.0%
Fuel and power	2.10	1.60	2.10	2.53	2.91	3.39	3.92	3.7%
Metals and metal products	2.15	2.01	2.15	2.35	2.55	2.80	3.06	1.7%
Industrial commodities excluding energy	1.98	1.94	2.13	2.33	2.53	2.76	3.01	1.8%
Interest rates (percent, nominal)								
Federal funds rate	0.09	0.13	3.32	3.22	3.24	3.23	3.08	--
10-year treasury note	2.54	2.14	3.83	3.66	3.77	3.82	3.72	--
AA utility bond rate	4.19	4.01	5.87	5.41	5.73	5.85	5.71	--
Value of shipments (billion 2009 dollars)								
Non-industrial and service sectors	23,338	24,085	26,750	29,265	32,042	34,833	37,701	1.8%
Total industrial	7,165	7,229	8,351	9,146	9,776	10,562	11,483	1.9%
Agriculture, mining, and construction	1,957	1,931	2,493	2,620	2,710	2,828	2,955	1.7%
Manufacturing	5,208	5,299	5,858	6,527	7,066	7,734	8,528	1.9%
Energy-intensive	1,718	1,704	1,892	2,046	2,147	2,267	2,417	1.4%
Non-energy-intensive	3,490	3,594	3,967	4,481	4,920	5,467	6,111	2.1%
Total shipments	30,504	31,314	35,101	38,411	41,818	45,396	49,184	1.8%
Population and employment (millions)								
Population, with armed forces overseas	319	322	335	348	360	371	381	0.7%
Population, aged 16 and over	254	257	269	281	292	302	311	0.8%
Population, aged 65 and over	46	48	57	66	74	79	82	2.2%
Employment, nonfarm	138	142	150	156	161	165	170	0.7%
Employment, manufacturing	12.2	12.5	13.1	13.4	13.0	12.6	12.3	-0.1%
Key labor indicators								
Labor force (millions)	156	157	167	171	177	183	188	0.7%
Nonfarm labor productivity (2009=1.00)	1.05	1.06	1.15	1.25	1.37	1.50	1.63	1.7%
Unemployment rate (percent)	6.15	5.31	4.72	4.90	4.78	4.76	4.78	--
Key indicators for energy demand								
Real disposable personal income	11,836	12,225	14,197	15,888	17,826	19,689	21,789	2.3%
Housing starts (millions)	1.06	1.18	1.74	1.71	1.66	1.66	1.65	1.3%
Commercial floorspace (billion square feet)	83.1	83.8	88.7	94.0	99.3	104.6	109.8	1.1%
Unit sales of light-duty vehicles (millions)	16.4	17.4	17.1	17.3	17.7	18.2	19.0	0.4%

GDP = Gross domestic product.

Btu = British thermal unit.

-- = Not applicable.

Sources: 2014 and 2015: IHS Economics, Industry and Employment models, November 2015. **Projections:** U.S. Energy Information Administration, AEO2016 National Energy Modeling System run ref2016.d032416a.

Table A21. International petroleum and other liquids supply, disposition, and prices
(million barrels per day, unless otherwise noted)

Supply, disposition, and prices	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Crude oil spot prices								
(2015 dollars per barrel)								
Brent	100	52	77	92	104	120	136	3.9%
West Texas Intermediate	94	49	71	85	97	112	129	4.0%
(nominal dollars per barrel)								
Brent	99	52	85	112	141	181	229	6.1%
West Texas Intermediate	93	49	79	105	131	170	217	6.2%
Petroleum and other liquids consumption¹								
OECD								
United States (50 states)	19.16	19.42	20.11	19.90	19.54	19.69	20.14	0.1%
United States territories	0.30	0.30	0.31	0.32	0.34	0.36	0.38	1.0%
Canada	2.41	2.39	2.39	2.38	2.39	2.44	2.51	0.2%
Mexico and Chile	2.29	2.30	2.38	2.36	2.50	2.67	2.87	0.9%
OECD Europe ²	13.66	13.83	13.70	13.57	13.65	13.79	13.98	0.0%
Japan	4.30	4.14	3.91	3.75	3.66	3.56	3.40	-0.8%
South Korea	2.35	2.38	2.41	2.42	2.44	2.48	2.55	0.3%
Australia and New Zealand	1.24	1.28	1.35	1.39	1.41	1.45	1.53	0.7%
Total OECD consumption	45.71	46.03	46.56	46.08	45.93	46.44	47.35	0.1%
Non-OECD								
Russia	3.56	3.35	3.65	3.79	3.75	3.73	3.59	0.3%
Other Europe and Eurasia ³	2.04	2.07	2.18	2.34	2.43	2.48	2.53	0.8%
China	10.85	11.18	12.71	13.81	14.81	15.65	16.36	1.5%
India	3.78	3.97	4.54	5.19	5.94	6.97	8.26	3.0%
Other Asia ⁴	8.04	8.15	9.40	10.35	11.42	12.73	14.29	2.3%
Middle East	8.13	8.29	9.96	10.42	11.28	12.31	13.23	1.9%
Africa	3.71	3.86	4.54	5.06	5.50	6.08	6.93	2.4%
Brazil	3.15	3.15	3.41	3.74	4.06	4.39	4.71	1.6%
Other Central and South America	3.83	3.85	4.11	4.28	4.41	4.60	4.89	1.0%
Total non-OECD consumption	47.08	47.87	54.49	58.99	63.60	68.93	74.79	1.8%
Total consumption	92.79	93.90	101.05	105.06	109.52	115.37	122.14	1.1%
Petroleum and other liquids production								
OPEC ⁵								
Middle East	26.66	27.76	30.87	32.33	34.29	36.87	39.38	1.4%
North Africa	2.24	2.13	1.99	2.12	2.32	2.58	2.94	1.3%
West Africa	4.18	4.21	4.35	4.41	4.58	4.72	5.07	0.8%
South America	3.24	3.24	2.96	3.10	3.33	3.60	3.88	0.7%
Total OPEC production	36.33	37.33	40.17	41.96	44.52	47.75	51.28	1.3%
Non-OPEC								
OECD								
United States (50 states)	14.01	14.95	16.33	16.52	17.26	17.93	18.62	0.9%
Canada	4.39	4.54	5.43	5.39	5.55	5.73	6.01	1.1%
Mexico and Chile	2.84	2.64	2.46	2.56	2.58	2.83	3.24	0.8%
OECD Europe ²	3.66	3.79	3.44	3.32	3.10	2.92	2.78	-1.2%
Japan and South Korea	0.22	0.22	0.20	0.21	0.21	0.22	0.22	0.0%
Australia and New Zealand	0.52	0.51	0.66	0.63	0.61	0.69	0.76	1.7%
Total OECD production	25.63	26.65	28.51	28.63	29.31	30.32	31.63	0.7%
Non-OECD								
Russia	10.85	10.95	10.62	10.99	11.22	11.51	12.21	0.4%
Other Europe and Eurasia ³	3.21	3.23	3.69	4.34	4.63	4.68	4.50	1.3%
China	4.60	4.69	4.90	5.23	5.44	5.91	6.24	1.1%
Other Asia ⁴	3.94	4.03	3.92	3.75	3.65	3.61	3.62	-0.4%
Middle East	1.17	1.14	1.02	0.91	0.83	0.76	0.69	-2.0%
Africa	2.33	2.33	2.48	2.58	2.73	2.79	2.83	0.8%
Brazil	2.97	3.15	3.59	4.59	5.00	5.46	6.15	2.7%
Other Central and South America	2.18	2.18	2.15	2.10	2.19	2.58	2.99	1.3%
Total non-OECD production	31.25	31.70	32.37	34.48	35.69	37.30	39.23	0.9%
Total petroleum and other liquids production	93.21	95.68	101.05	105.06	109.52	115.37	122.14	1.0%
OPEC market share (percent)	39.0	39.0	39.8	39.9	40.7	41.4	42.0	-

Table A21. International petroleum and other liquids supply, disposition, and prices (continued)
(million barrels per day, unless otherwise noted)

Supply, disposition, and prices	Reference case							Annual growth 2015-2040 (percent)
	2014	2015	2020	2025	2030	2035	2040	
Selected world production subtotals:								
Crude oil and equivalents ⁶	77.98	80.13	82.77	85.71	89.12	93.95	99.74	0.9%
Tight oil	4.69	5.34	5.44	5.85	6.96	8.50	10.35	2.7%
Bitumen ⁷	2.25	2.32	3.08	3.12	3.18	3.24	3.31	1.4%
Refinery processing gain ⁸	2.50	2.45	2.53	2.62	2.73	2.84	2.94	0.7%
Natural gas plant liquids	10.07	10.37	12.32	12.88	13.24	13.58	13.88	1.2%
Liquids from renewable sources ⁹	2.26	2.32	2.54	2.88	3.31	3.71	4.11	2.3%
Liquids from coal ¹⁰	0.20	0.25	0.27	0.16	0.26	0.36	0.50	2.8%
Liquids from natural gas ¹¹	0.27	0.29	0.32	0.52	0.57	0.62	0.65	3.3%
Liquids from kerogen ¹²	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.7%
Crude oil production⁶								
OPEC ⁵								
Middle East	23.32	24.38	27.07	28.31	30.10	32.42	34.74	1.4%
North Africa	1.89	1.78	1.61	1.71	1.82	1.97	2.20	0.9%
West Africa	4.16	4.19	4.28	4.34	4.51	4.64	4.99	0.7%
South America	3.06	3.05	2.75	2.85	3.09	3.35	3.64	0.7%
Total OPEC production	32.43	33.40	35.72	37.22	39.52	42.38	45.57	1.3%
Non-OPEC								
OECD								
United States (50 states)	8.71	9.42	9.38	9.43	10.06	10.66	11.26	0.7%
Canada	3.61	3.72	4.57	4.42	4.53	4.69	4.96	1.2%
Mexico and Chile	2.48	2.31	2.16	2.27	2.29	2.55	2.96	1.0%
OECD Europe ²	2.82	2.95	2.31	2.15	1.88	1.65	1.47	-2.7%
Japan and South Korea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-1.2%
Australia and New Zealand	0.39	0.39	0.53	0.51	0.49	0.56	0.64	1.9%
Total OECD production	18.01	18.81	18.96	18.78	19.24	20.12	21.29	0.5%
Non-OECD								
Russia	10.11	10.17	9.84	10.23	10.49	10.81	11.53	0.5%
Other Europe and Eurasia ³	2.99	3.00	3.43	4.07	4.36	4.40	4.23	1.4%
China	4.20	4.28	4.34	4.46	4.40	4.63	4.67	0.3%
Other Asia ⁴	3.10	3.18	2.98	2.73	2.52	2.38	2.25	-1.4%
Middle East	1.14	1.11	1.00	0.89	0.81	0.74	0.67	-2.0%
Africa	1.94	1.94	2.01	2.10	2.25	2.30	2.34	0.8%
Brazil	2.25	2.43	2.77	3.58	3.78	4.07	4.67	2.7%
Other Central and South America	1.80	1.81	1.72	1.65	1.75	2.12	2.52	1.3%
Total non-OECD production	27.54	27.92	28.09	29.72	30.36	31.45	32.87	0.7%
Total crude oil production⁶	77.98	80.13	82.77	85.71	89.12	93.95	99.74	0.9%
OPEC market share (percent)	41.6	41.7	43.2	43.4	44.3	45.1	45.7	--

¹Estimated consumption. Includes both OPEC and non-OPEC consumers in the regional breakdown.

²OECD Europe = Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

³Other Europe and Eurasia = Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Georgia, Kazakhstan, Kosovo, Kyrgyzstan, Latvia, Lithuania, Macedonia, Malta, Moldova, Montenegro, Romania, Serbia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

⁴Other Asia = Afghanistan, Bangladesh, Bhutan, Brunei, Cambodia (Kampuchea), Fiji, French Polynesia, Guam, Hong Kong, India (for production), Indonesia, Kiribati, Laos, Malaysia, Macau, Maldives, Mongolia, Myanmar (Burma), Nauru, Nepal, New Caledonia, Niue, North Korea, Pakistan, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Sri Lanka, Taiwan, Thailand, Tonga, Vanuatu, and Vietnam.

⁵OPEC = Organization of the Petroleum Exporting Countries = Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.

⁶Includes crude oil, lease condensate, tight oil (shale oil), extra-heavy oil, and bitumen (oil sands).

⁷Includes diluted and upgraded/synthetic bitumen (syncrude).

⁸The volumetric amount by which total output is greater than input due to the processing of crude oil into products which, in total, have a lower specific gravity than the crude oil processed.

⁹Includes liquids produced from energy crops.

¹⁰Includes liquids converted from coal via the Fischer-Tropsch coal-to-liquids process.

¹¹Includes liquids converted from natural gas via the Fischer-Tropsch gas-to-liquids process.

¹²Includes liquids produced from kerogen (oil shale, not to be confused with tight oil (shale oil)).

OECD = Organization for Economic Cooperation and Development.

- - = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2014 are model results and may differ from official EIA data reports.

Sources: 2014 Brent and West Texas Intermediate crude oil spot prices: Thomson Reuters. 2015: EIA, *Short-Term Energy Outlook*, February 2016 and EIA, AEO2016 National Energy Modeling System run ref2016.d032416a. Projections: EIA, AEO2016 National Energy Modeling System run ref2016.d032416a and EIA, Generate World Oil Balance application.