

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

Sector and source	Reference case							Annual growth 2013-2040 (percent)
	2012	2013	2020	2025	2030	2035	2040	
Energy consumption								
Residential								
Propane	0.40	0.43	0.32	0.30	0.28	0.26	0.25	-2.0%
Kerosene	0.01	0.01	0.01	0.01	0.01	0.00	0.00	-3.0%
Distillate fuel oil	0.49	0.50	0.40	0.35	0.31	0.27	0.24	-2.7%
Petroleum and other liquids subtotal	0.90	0.93	0.73	0.66	0.59	0.54	0.49	-2.4%
Natural gas	4.25	5.05	4.63	4.54	4.52	4.43	4.31	-0.6%
Renewable energy ¹	0.44	0.58	0.41	0.39	0.38	0.36	0.35	-1.8%
Electricity	4.69	4.75	4.86	4.92	5.08	5.23	5.42	0.5%
Delivered energy	10.28	11.32	10.63	10.51	10.57	10.56	10.57	-0.3%
Electricity related losses	9.57	9.79	9.75	9.74	9.91	10.10	10.33	0.2%
Total	19.85	21.10	20.38	20.25	20.48	20.66	20.91	0.0%
Commercial								
Propane	0.14	0.15	0.16	0.17	0.17	0.17	0.18	0.7%
Motor gasoline ²	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.8%
Kerosene	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.4%
Distillate fuel oil	0.36	0.37	0.34	0.32	0.30	0.29	0.27	-1.1%
Residual fuel oil	0.03	0.03	0.07	0.07	0.07	0.07	0.06	3.3%
Petroleum and other liquids subtotal	0.57	0.59	0.62	0.61	0.60	0.59	0.58	-0.1%
Natural gas	2.97	3.37	3.30	3.29	3.43	3.57	3.71	0.4%
Coal	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.5%
Renewable energy ³	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.0%
Electricity	4.53	4.57	4.82	4.99	5.19	5.40	5.66	0.8%
Delivered energy	8.22	8.69	8.90	9.06	9.38	9.73	10.12	0.6%
Electricity related losses	9.24	9.42	9.68	9.88	10.13	10.43	10.80	0.5%
Total	17.46	18.10	18.58	18.94	19.52	20.16	20.92	0.5%
Industrial⁴								
Liquefied petroleum gases and other ⁵	2.42	2.51	3.20	3.56	3.72	3.69	3.67	1.4%
Motor gasoline ²	0.24	0.25	0.26	0.26	0.25	0.25	0.25	0.0%
Distillate fuel oil	1.28	1.31	1.42	1.38	1.36	1.34	1.35	0.1%
Residual fuel oil	0.07	0.06	0.10	0.14	0.13	0.13	0.13	2.9%
Petrochemical feedstocks	0.74	0.74	0.95	1.10	1.14	1.17	1.20	1.8%
Other petroleum ⁶	3.33	3.52	3.67	3.80	3.83	3.89	3.99	0.5%
Petroleum and other liquids subtotal	8.08	8.40	9.61	10.24	10.44	10.47	10.59	0.9%
Natural gas	7.39	7.62	8.33	8.47	8.65	8.76	8.90	0.6%
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	1.43	1.52	1.87	1.98	2.10	2.18	2.29	1.5%
Natural gas subtotal	8.82	9.14	10.20	10.44	10.75	10.94	11.19	0.8%
Metallurgical coal	0.59	0.62	0.61	0.59	0.56	0.53	0.51	-0.7%
Other industrial coal	0.87	0.88	0.93	0.95	0.96	0.97	0.99	0.4%
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Net coal coke imports	0.00	-0.02	0.00	-0.01	-0.03	-0.05	-0.06	4.5%
Coal subtotal	1.47	1.48	1.54	1.53	1.48	1.44	1.44	-0.1%
Biofuels heat and coproducts	0.73	0.72	0.80	0.80	0.80	0.81	0.86	0.6%
Renewable energy ⁸	1.51	1.48	1.53	1.60	1.59	1.58	1.63	0.4%
Electricity	3.36	3.26	3.74	3.98	4.04	4.05	4.12	0.9%
Delivered energy	23.97	24.48	27.42	28.58	29.10	29.29	29.82	0.7%
Electricity related losses	6.87	6.72	7.51	7.88	7.88	7.83	7.85	0.6%
Total	30.84	31.20	34.93	36.46	36.98	37.12	37.68	0.7%

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

Sector and source	Reference case							Annual growth 2013-2040 (percent)
	2012	2013	2020	2025	2030	2035	2040	
Transportation								
Propane	0.05	0.05	0.04	0.05	0.05	0.06	0.07	1.3%
Motor gasoline ²	15.82	15.94	15.35	14.22	13.30	12.82	12.55	-0.9%
of which: E85 ⁹	0.01	0.02	0.03	0.12	0.20	0.24	0.28	10.0%
Jet fuel ¹⁰	2.86	2.80	3.01	3.20	3.40	3.54	3.64	1.0%
Distillate fuel oil ¹¹	5.80	6.50	7.35	7.59	7.76	7.94	7.97	0.8%
Residual fuel oil	0.67	0.57	0.35	0.36	0.36	0.36	0.36	-1.6%
Other petroleum ¹²	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.2%
Petroleum and other liquids subtotal	25.35	26.00	26.27	25.57	25.03	24.88	24.76	-0.2%
Pipeline fuel natural gas	0.75	0.88	0.85	0.90	0.94	0.94	0.96	0.3%
Compressed / liquefied natural gas	0.04	0.05	0.07	0.10	0.17	0.31	0.71	10.3%
Liquid hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Electricity	0.02	0.02	0.03	0.04	0.04	0.05	0.06	3.4%
Delivered energy	26.16	26.96	27.22	26.60	26.18	26.19	26.49	-0.1%
Electricity related losses	0.05	0.05	0.06	0.07	0.08	0.10	0.12	3.1%
Total	26.20	27.01	27.29	26.67	26.27	26.29	26.61	-0.1%
Unspecified sector ¹³	0.04	-0.27	-0.34	-0.36	-0.37	-0.38	-0.38	--
Delivered energy consumption for all sectors								
Liquefied petroleum gases and other ⁵	3.01	3.14	3.73	4.08	4.23	4.19	4.17	1.1%
Motor gasoline ²	16.10	16.36	15.79	14.65	13.72	13.23	12.96	-0.9%
of which: E85 ⁹	0.01	0.02	0.03	0.12	0.20	0.24	0.28	10.0%
Jet fuel ¹⁰	2.90	2.97	3.20	3.39	3.61	3.76	3.86	1.0%
Kerosene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-1.0%
Distillate fuel oil	7.92	8.10	8.86	8.97	9.05	9.14	9.13	0.4%
Residual fuel oil	0.77	0.65	0.53	0.56	0.56	0.55	0.56	-0.6%
Petrochemical feedstocks	0.74	0.74	0.95	1.10	1.14	1.17	1.20	1.8%
Other petroleum ¹⁴	3.47	3.67	3.82	3.96	3.98	4.05	4.15	0.5%
Petroleum and other liquids subtotal	34.93	35.65	36.89	36.72	36.30	36.09	36.03	0.0%
Natural gas	14.65	16.10	16.32	16.40	16.76	17.07	17.64	0.3%
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	1.43	1.52	1.87	1.98	2.10	2.18	2.29	1.5%
Pipeline fuel natural gas	0.75	0.88	0.85	0.90	0.94	0.94	0.96	0.3%
Natural gas subtotal	16.82	18.50	19.05	19.28	19.80	20.19	20.88	0.4%
Metallurgical coal	0.59	0.62	0.61	0.59	0.56	0.53	0.51	-0.7%
Other coal	0.91	0.92	0.98	1.00	1.00	1.01	1.04	0.4%
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Net coal coke imports	0.00	-0.02	0.00	-0.01	-0.03	-0.05	-0.06	4.5%
Coal subtotal	1.51	1.52	1.59	1.58	1.53	1.49	1.49	-0.1%
Biofuels heat and coproducts	0.73	0.72	0.80	0.80	0.80	0.81	0.86	0.6%
Renewable energy ¹⁵	2.06	2.18	2.06	2.11	2.09	2.06	2.10	-0.1%
Liquid hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Electricity	12.61	12.60	13.45	13.91	14.35	14.74	15.25	0.7%
Delivered energy	68.66	71.17	73.84	74.39	74.87	75.39	76.62	0.3%
Electricity related losses	25.73	25.97	27.00	27.58	28.01	28.46	29.10	0.4%
Total	94.40	97.14	100.84	101.97	102.87	103.85	105.73	0.3%
Electric power ¹⁶								
Distillate fuel oil	0.05	0.05	0.09	0.09	0.08	0.08	0.08	1.6%
Residual fuel oil	0.17	0.21	0.08	0.09	0.09	0.09	0.09	-3.0%
Petroleum and other liquids subtotal	0.22	0.26	0.17	0.17	0.17	0.17	0.18	-1.5%
Natural gas	9.31	8.36	7.80	8.33	9.03	9.40	9.61	0.5%
Steam coal	15.82	16.49	17.59	17.75	17.63	17.54	17.52	0.2%
Nuclear / uranium ¹⁷	8.06	8.27	8.42	8.46	8.47	8.51	8.73	0.2%
Renewable energy ¹⁸	4.53	4.78	6.13	6.43	6.72	7.26	7.99	1.9%
Non-biogenic municipal waste	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.0%
Electricity imports	0.16	0.18	0.11	0.12	0.10	0.09	0.11	-1.8%
Total	38.34	38.57	40.45	41.49	42.35	43.19	44.36	0.5%

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

Sector and source	Reference case							Annual growth 2013-2040 (percent)
	2012	2013	2020	2025	2030	2035	2040	
Total energy consumption								
Liquefied petroleum gases and other ⁵	3.01	3.14	3.73	4.08	4.23	4.19	4.17	1.1%
Motor gasoline ²	16.10	16.36	15.79	14.65	13.72	13.23	12.96	-0.9%
of which: E85 ⁹	0.01	0.02	0.03	0.12	0.20	0.24	0.28	10.0%
Jet fuel ¹⁰	2.90	2.97	3.20	3.39	3.61	3.76	3.86	1.0%
Kerosene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-1.0%
Distillate fuel oil	7.98	8.15	8.95	9.06	9.13	9.22	9.21	0.5%
Residual fuel oil	0.94	0.87	0.61	0.65	0.64	0.64	0.65	-1.1%
Petrochemical feedstocks	0.74	0.74	0.95	1.10	1.14	1.17	1.20	1.8%
Other petroleum ¹⁴	3.47	3.67	3.82	3.96	3.98	4.05	4.15	0.5%
Petroleum and other liquids subtotal	35.16	35.91	37.06	36.89	36.47	36.26	36.21	0.0%
Natural gas	23.96	24.46	24.12	24.73	25.79	26.47	27.25	0.4%
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	1.43	1.52	1.87	1.98	2.10	2.18	2.29	1.5%
Pipeline fuel natural gas	0.75	0.88	0.85	0.90	0.94	0.94	0.96	0.3%
Natural gas subtotal	26.14	26.86	26.85	27.60	28.83	29.59	30.50	0.5%
Metallurgical coal	0.59	0.62	0.61	0.59	0.56	0.53	0.51	-0.7%
Other coal	16.73	17.41	18.57	18.75	18.63	18.55	18.56	0.2%
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Net coal coke imports	0.00	-0.02	0.00	-0.01	-0.03	-0.05	-0.06	4.5%
Coal subtotal	17.33	18.01	19.18	19.33	19.16	19.03	19.01	0.2%
Nuclear / uranium ¹⁷	8.06	8.27	8.42	8.46	8.47	8.51	8.73	0.2%
Biofuels heat and coproducts	0.73	0.72	0.80	0.80	0.80	0.81	0.86	0.6%
Renewable energy ¹⁹	6.59	6.96	8.19	8.54	8.81	9.32	10.09	1.4%
Liquid hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Non-biogenic municipal waste	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.0%
Electricity imports	0.16	0.18	0.11	0.12	0.10	0.09	0.11	-1.8%
Total	94.40	97.14	100.84	101.97	102.87	103.85	105.73	0.3%
Energy use and related statistics								
Delivered energy use	68.66	71.17	73.84	74.39	74.87	75.39	76.62	0.3%
Total energy use	94.40	97.14	100.84	101.97	102.87	103.85	105.73	0.3%
Ethanol consumed in motor gasoline and E85	1.09	1.12	1.12	1.12	1.12	1.16	1.27	0.5%
Population (millions)	315	317	334	347	359	370	380	0.7%
Gross domestic product (billion 2009 dollars)	15,369	15,710	18,801	21,295	23,894	26,659	29,898	2.4%
Carbon dioxide emissions (million metric tons)	5,272	5,405	5,499	5,511	5,514	5,521	5,549	0.1%

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, in natural gas processing plant machinery, and for liquefaction in export facilities.

⁸Includes consumption of energy produced from hydroelectric, wood and wood waste, municipal waste, and other biomass sources. Excludes ethanol in motor gasoline.

⁹E85 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.

¹⁰Includes only kerosene type.

¹¹Diesel fuel for on- and off- road use.

¹²Includes aviation gasoline and lubricants.

¹³Represents consumption unattributed to the sectors above.

¹⁴Includes aviation gasoline, petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.

¹⁵Includes 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.

¹⁶Includes consumption of energy by electricity-only and combined heat and power plants that have a regulatory status.

¹⁷These 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.

¹⁸Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes net electricity imports.

¹⁹Includes 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 2012 and 2013 are model results and may differ from official EIA data reports.

Sources: 2012 and 2013 consumption based on: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, DOE/EIA-0035(2014/11) (Washington, DC, November 2014). 2012 and 2013 population and gross domestic product: IHS Economics, Industry and Employment models, November 2014. 2012 and 2013 carbon dioxide emissions and emission factors: EIA, *Monthly Energy Review*, DOE/EIA-0035(2014/11) (Washington, DC, November 2014).

Projections: EIA, AEO2015 National Energy Modeling System run REF2015.D021915A.