

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

Sector and source	Reference case							Annual growth 2012-2040 (percent)
	2011	2012	2020	2025	2030	2035	2040	
Energy consumption								
Residential								
Propane	0.51	0.51	0.42	0.40	0.38	0.36	0.35	-1.3%
Kerosene	0.02	0.01	0.00	0.00	0.00	0.00	0.00	-2.5%
Distillate fuel oil.....	0.53	0.51	0.46	0.41	0.37	0.34	0.31	-1.7%
Liquid fuels and other petroleum subtotal	1.05	1.02	0.89	0.82	0.75	0.70	0.66	-1.5%
Natural gas	4.82	4.26	4.56	4.50	4.43	4.32	4.21	0.0%
Renewable energy ¹	0.54	0.45	0.46	0.45	0.44	0.43	0.42	-0.3%
Electricity	4.85	4.69	4.84	5.00	5.21	5.41	5.65	0.7%
Delivered energy	11.26	10.42	10.74	10.77	10.83	10.86	10.94	0.2%
Electricity related losses	10.13	9.68	9.64	9.81	10.00	10.22	10.55	0.3%
Total	21.39	20.10	20.38	20.58	20.83	21.09	21.48	0.2%
Commercial								
Propane	0.15	0.15	0.16	0.16	0.17	0.17	0.18	0.7%
Motor gasoline ²	0.05	0.05	0.04	0.05	0.05	0.05	0.05	0.6%
Kerosene	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.8%
Distillate fuel oil.....	0.42	0.40	0.40	0.39	0.38	0.37	0.37	-0.3%
Residual fuel oil	0.05	0.04	0.08	0.08	0.08	0.08	0.08	2.4%
Liquid fuels and other petroleum subtotal	0.67	0.63	0.68	0.68	0.67	0.67	0.68	0.2%
Natural gas	3.22	2.96	3.23	3.29	3.35	3.48	3.65	0.7%
Coal	0.06	0.04	0.04	0.04	0.04	0.04	0.04	0.0%
Renewable energy ³	0.11	0.13	0.13	0.13	0.13	0.13	0.13	0.0%
Electricity	4.53	4.52	4.69	4.94	5.18	5.42	5.72	0.8%
Delivered energy	8.60	8.29	8.78	9.08	9.38	9.75	10.22	0.7%
Electricity related losses	9.46	9.32	9.34	9.69	9.94	10.24	10.66	0.5%
Total	18.05	17.61	18.12	18.77	19.32	19.99	20.88	0.6%
Industrial⁴								
Liquefied petroleum gases and other ⁵	2.25	2.25	2.90	3.05	3.05	2.97	2.90	0.9%
Motor gasoline ²	0.26	0.26	0.30	0.30	0.30	0.29	0.29	0.4%
Distillate fuel oil.....	1.24	1.20	1.40	1.41	1.41	1.41	1.42	0.6%
Residual fuel oil	0.13	0.10	0.14	0.14	0.15	0.15	0.15	1.4%
Petrochemical feedstocks	0.88	0.75	1.27	1.52	1.62	1.62	1.59	2.7%
Other petroleum ⁶	3.36	3.50	3.56	3.53	3.58	3.63	3.75	0.2%
Liquid fuels and other petroleum subtotal	8.13	8.06	9.56	9.95	10.10	10.08	10.10	0.8%
Natural gas	7.06	7.29	8.26	8.59	8.71	8.78	8.87	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	1.35	1.45	1.77	1.99	2.16	2.29	2.41	1.8%
Natural gas subtotal.....	8.41	8.75	10.04	10.58	10.87	11.07	11.28	0.9%
Metallurgical coal.....	0.56	0.55	0.58	0.58	0.55	0.50	0.47	-0.5%
Other industrial coal.....	0.95	0.93	0.99	1.00	1.00	1.00	1.01	0.3%
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Net coal coke imports	0.01	0.00	0.00	-0.01	-0.03	-0.05	-0.05	--
Coal subtotal.....	1.53	1.48	1.57	1.57	1.52	1.45	1.44	-0.1%
Biofuels heat and coproducts.....	0.46	0.52	0.76	0.79	0.79	0.79	0.79	1.5%
Renewable energy ⁸	1.49	1.48	1.74	1.88	2.01	2.13	2.28	1.6%
Electricity	3.38	3.35	4.04	4.27	4.33	4.32	4.34	0.9%
Delivered energy	23.40	23.63	27.71	29.05	29.62	29.84	30.22	0.9%
Electricity related losses	7.06	6.91	8.05	8.38	8.33	8.16	8.10	0.6%
Total	30.46	30.54	35.76	37.43	37.94	38.00	38.33	0.8%

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

Sector and source	Reference case							Annual growth 2012-2040 (percent)
	2011	2012	2020	2025	2030	2035	2040	
Transportation								
Propane.....	0.05	0.05	0.05	0.05	0.06	0.06	0.07	1.1%
E85 ⁹	0.00	0.01	0.19	0.38	0.46	0.43	0.33	11.9%
Motor gasoline ²	16.36	16.32	14.81	13.31	12.23	11.81	11.76	-1.2%
Jet fuel ¹⁰	3.01	3.00	3.08	3.14	3.20	3.24	3.28	0.3%
Distillate fuel oil ¹¹	6.04	5.82	6.70	7.04	7.25	7.44	7.54	0.9%
Residual fuel oil.....	0.78	0.58	0.58	0.59	0.59	0.60	0.60	0.2%
Other petroleum ¹²	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.1%
Liquid fuels and other petroleum subtotal.....	26.40	25.93	25.55	24.66	23.94	23.73	23.73	-0.3%
Pipeline fuel natural gas.....	0.70	0.73	0.74	0.76	0.82	0.83	0.85	0.5%
Compressed / liquefied natural gas.....	0.04	0.04	0.08	0.14	0.28	0.48	0.86	11.3%
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	3.6%
Delivered energy	27.16	26.72	26.40	25.60	25.08	25.10	25.50	-0.2%
Electricity related losses.....	0.05	0.05	0.06	0.07	0.08	0.10	0.12	3.2%
Total	27.21	26.77	26.47	25.67	25.17	25.20	25.62	-0.2%
Delivered energy consumption for all sectors								
Liquefied petroleum gases and other ⁵	2.95	2.96	3.53	3.67	3.65	3.56	3.49	0.6%
E85 ⁹	0.00	0.01	0.19	0.38	0.46	0.43	0.33	11.9%
Motor gasoline ²	16.67	16.62	15.15	13.66	12.57	12.16	12.11	-1.1%
Jet fuel ¹⁰	3.01	3.00	3.08	3.14	3.20	3.24	3.28	0.3%
Kerosene.....	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.9%
Distillate fuel oil.....	8.23	7.93	8.95	9.24	9.41	9.56	9.63	0.7%
Residual fuel oil.....	0.97	0.72	0.80	0.81	0.82	0.82	0.83	0.5%
Petrochemical feedstocks.....	0.88	0.75	1.27	1.52	1.62	1.62	1.59	2.7%
Other petroleum ¹³	3.52	3.64	3.70	3.68	3.73	3.78	3.89	0.2%
Liquid fuels and other petroleum subtotal.....	36.25	35.64	36.68	36.10	35.47	35.18	35.17	0.0%
Natural gas.....	15.14	14.56	16.14	16.52	16.77	17.07	17.59	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	1.35	1.45	1.77	1.99	2.16	2.29	2.41	1.8%
Pipeline fuel natural gas.....	0.70	0.73	0.74	0.76	0.82	0.83	0.85	0.5%
Natural gas subtotal.....	17.19	16.74	18.65	19.28	19.75	20.19	20.84	0.8%
Metallurgical coal.....	0.56	0.55	0.58	0.58	0.55	0.50	0.47	-0.5%
Other coal.....	1.01	0.98	1.03	1.04	1.04	1.04	1.05	0.3%
Coal-to-liquids heat and power.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Net coal coke imports.....	0.01	0.00	0.00	-0.01	-0.03	-0.05	-0.05	--
Coal subtotal.....	1.59	1.53	1.61	1.62	1.56	1.50	1.48	-0.1%
Biofuels heat and coproducts.....	0.46	0.52	0.76	0.79	0.79	0.79	0.79	1.5%
Renewable energy ¹⁴	2.14	2.06	2.33	2.47	2.58	2.70	2.83	1.1%
Liquid hydrogen.....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Electricity.....	12.79	12.58	13.60	14.26	14.76	15.20	15.77	0.8%
Delivered energy	70.42	69.07	73.63	74.50	74.91	75.56	76.88	0.4%
Electricity related losses.....	26.69	25.95	27.10	27.95	28.35	28.73	29.43	0.5%
Total	97.11	95.02	100.73	102.45	103.27	104.28	106.31	0.4%
Electric power¹⁵								
Distillate fuel oil.....	0.06	0.05	0.09	0.09	0.09	0.09	0.09	1.8%
Residual fuel oil.....	0.25	0.18	0.09	0.09	0.09	0.10	0.10	-2.1%
Liquid fuels and other petroleum subtotal.....	0.32	0.23	0.18	0.18	0.18	0.18	0.19	-0.8%
Natural gas.....	7.72	9.46	9.00	9.69	10.28	10.91	11.48	0.7%
Steam coal.....	18.03	15.82	16.95	17.41	17.44	17.32	17.27	0.3%
Nuclear / uranium ¹⁶	8.26	8.05	8.15	8.15	8.18	8.23	8.49	0.2%
Renewable energy ¹⁷	4.80	4.59	6.08	6.42	6.68	6.95	7.44	1.7%
Non-biogenic municipal waste.....	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.0%
Electricity imports.....	0.13	0.16	0.11	0.12	0.12	0.10	0.12	-1.1%
Total	39.49	38.53	40.70	42.21	43.12	43.92	45.20	0.6%

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

Sector and source	Reference case							Annual growth 2012-2040 (percent)
	2011	2012	2020	2025	2030	2035	2040	
Total energy consumption								
Liquefied petroleum gases and other ⁵	2.95	2.96	3.53	3.67	3.65	3.56	3.49	0.6%
E85 ⁹	0.00	0.01	0.19	0.38	0.46	0.43	0.33	11.9%
Motor gasoline ²	16.67	16.62	15.15	13.66	12.57	12.16	12.11	-1.1%
Jet fuel ¹⁰	3.01	3.00	3.08	3.14	3.20	3.24	3.28	0.3%
Kerosene	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.9%
Distillate fuel oil	8.29	7.98	9.03	9.33	9.50	9.64	9.72	0.7%
Residual fuel oil	1.22	0.90	0.89	0.90	0.91	0.92	0.93	0.1%
Petrochemical feedstocks	0.88	0.75	1.27	1.52	1.62	1.62	1.59	2.7%
Other petroleum ¹³	3.52	3.64	3.70	3.68	3.73	3.78	3.89	0.2%
Liquid fuels and other petroleum subtotal	36.56	35.87	36.86	36.28	35.65	35.37	35.35	-0.1%
Natural gas	22.86	24.02	25.14	26.22	27.05	27.97	29.07	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	1.35	1.45	1.77	1.99	2.16	2.29	2.41	1.8%
Pipeline fuel natural gas	0.70	0.73	0.74	0.76	0.82	0.83	0.85	0.5%
Natural gas subtotal	24.91	26.20	27.65	28.97	30.03	31.10	32.32	0.8%
Metallurgical coal	0.56	0.55	0.58	0.58	0.55	0.50	0.47	-0.5%
Other coal	19.05	16.79	17.98	18.45	18.49	18.36	18.32	0.3%
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Net coal coke imports	0.01	0.00	0.00	-0.01	-0.03	-0.05	-0.05	--
Coal subtotal	19.62	17.34	18.56	19.03	19.01	18.82	18.75	0.3%
Nuclear / uranium ¹⁶	8.26	8.05	8.15	8.15	8.18	8.23	8.49	0.2%
Biofuels heat and coproducts	0.46	0.52	0.76	0.79	0.79	0.79	0.79	1.5%
Renewable energy ¹⁸	6.95	6.65	8.40	8.88	9.26	9.65	10.27	1.6%
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	0.13	0.16	0.11	0.12	0.12	0.10	0.12	-1.1%
Total	97.11	95.02	100.73	102.45	103.27	104.28	106.31	0.4%
Energy use and related statistics								
Delivered energy use	70.42	69.07	73.63	74.50	74.91	75.56	76.88	0.4%
Total energy use	97.11	95.02	100.73	102.45	103.27	104.28	106.31	0.4%
Ethanol consumed in motor gasoline and E85	1.09	1.09	1.22	1.25	1.25	1.25	1.29	0.6%
Population (millions)	312.32	314.58	334.47	346.98	359.03	370.19	380.53	0.7%
Gross domestic product (billion 2005 dollars)	13,299	13,593	16,753	18,769	21,139	23,751	26,670	2.4%
Carbon dioxide emissions (million metric tons)	5,498.1	5,289.9	5,475.9	5,526.2	5,526.9	5,545.7	5,599.1	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 (blends of 15 percent or less) 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 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 blends (15 percent or less) 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.

¹³Includes aviation gasoline, petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.

¹⁴Includes 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.

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

¹⁶These 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.

¹⁷Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes net electricity imports.

¹⁸Includes 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: Totals may not equal sum of components due to independent rounding. Data for 2011 and 2012 are model results and may differ from official EIA data reports.

Sources: 2011 and 2012 consumption based on: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, DOE/EIA-0035(2013/09) (Washington, DC, September 2013). 2011 and 2012 population and gross domestic product: IHS Global Insight Industry and Employment models, May 2013. 2011 and 2012 carbon dioxide emissions and emission factors: EIA, *Monthly Energy Review*, DOE/EIA-0035(2013/09) (Washington, DC, September 2013).

Projections: EIA, AEO2014 National Energy Modeling System run REF2014.D102413A.