Table B1. Total energy supply, disposition, and price summary
(quadrillion Btu per year, unless otherwise noted)

Supply, disposition, and prices	2016	Projections								
		2025			2040			2050		
		Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth
Production										
Crude oil and lease condensate	18.28	21.56	21.69	21.74	21.39	21.56	21.70	20.33	20.53	20.62
Natural gas plant liquids	4.78	6.37	6.45	6.46	6.22	6.36	6.47	6.13	6.29	6.49
Dry natural gas	27.40	33.75	34.15	34.10	38.22	38.98	40.04	40.31	41.61	43.31
Coal[1]	15.18	14.95	15.06	15.08	12.69	12.59	12.57	11.94	11.99	11.89
Nuclear / uranium[2]	8.34	8.09	8.09	8.09	7.34	7.34	7.34	6.29	6.36	6.36
Conventional hydroelectric power	2.50	2.94	2.95	2.96	2.97	2.99	3.02	2.99	3.02	3.05
Biomass[3]	4.20	4.36	4.45	4.55	3.89	4.48	4.88	3.92	4.54	5.58
Other renewable energy[4]	3.04	5.65	6.20	6.68	6.69	8.04	9.25	7.55	9.73	11.85
Other[5]	0.92	1.01	1.03	1.01	0.83	0.91	0.97	0.82	0.92	1.00
Total	**84.64**	**98.69**	**100.06**	**100.66**	**100.26**	**103.24**	**106.24**	**100.29**	**104.98**	**110.16**
Imports										
Crude oil	17.49	15.92	16.63	17.21	14.33	17.12	19.31	14.12	18.87	22.44
Petroleum and other liquids[6]	4.18	4.13	4.26	4.32	3.76	3.94	4.14	3.58	3.75	3.95
Natural gas[7]	3.08	1.72	1.74	1.73	1.26	1.31	1.39	1.18	1.29	1.41
Other imports[8]	0.45	0.29	0.29	0.29	0.18	0.18	0.19	0.17	0.18	0.19
Total	**25.20**	**22.07**	**22.93**	**23.54**	**19.53**	**22.55**	**25.03**	**19.05**	**24.08**	**27.99**
Exports										
Petroleum and other liquids[9]	10.19	14.65	14.60	14.63	14.88	15.16	15.29	13.07	13.17	13.24
Natural gas[10]	2.09	6.61	6.47	6.28	7.51	7.07	6.66	7.34	6.88	6.41
Coal	1.46	1.59	1.64	1.62	2.03	2.03	2.03	2.12	2.13	2.03
Total	**13.74**	**22.85**	**22.70**	**22.53**	**24.42**	**24.26**	**23.98**	**22.53**	**22.17**	**21.67**
Discrepancy[11]	**-0.37**	**0.05**	**0.05**	**0.07**	**0.19**	**0.15**	**0.17**	**0.26**	**0.20**	**0.22**
Consumption										
Petroleum and other liquids[12]	36.89	35.92	37.03	37.65	32.87	36.16	38.71	33.09	38.54	42.68
Natural gas	28.59	28.58	29.14	29.27	31.62	32.87	34.43	33.79	35.65	37.96
Coal[13]	13.93	13.40	13.47	13.50	10.65	10.55	10.53	9.80	9.85	9.87
Nuclear / uranium[2]	8.34	8.09	8.09	8.09	7.34	7.34	7.34	6.29	6.36	6.36
Conventional hydroelectric power	2.50	2.94	2.95	2.96	2.97	2.99	3.02	2.99	3.02	3.05
Biomass[14]	2.76	2.83	2.91	3.01	2.60	3.00	3.40	2.60	3.10	4.03
Other renewable energy[4]	3.04	5.65	6.20	6.68	6.69	8.04	9.25	7.55	9.73	11.85
Other[15]	0.42	0.44	0.45	0.45	0.43	0.43	0.44	0.43	0.44	0.45
Total	**96.47**	**97.86**	**100.24**	**101.60**	**95.18**	**101.38**	**107.12**	**96.55**	**106.70**	**116.25**
Prices (2016 dollars per unit)										
Crude oil spot prices (dollars per barrel)										
Brent	43	86	86	87	107	109	111	113	117	120
West Texas Intermediate	43	79	80	81	100	103	105	107	110	114
Natural gas at Henry Hub (dollars per million Btu)	2.50	4.45	4.51	4.42	4.91	5.07	5.28	5.43	5.83	6.33
Coal (dollars per ton) at the minemouth[16]	33.9	34.9	34.7	34.7	38.5	37.9	38.4	39.8	40.1	40.9
Coal (dollars per million Btu) at the minemouth[16]	1.69	1.76	1.75	1.75	1.90	1.87	1.89	1.96	1.96	1.99
Average end-use[17]	2.34	2.56	2.54	2.55	2.60	2.58	2.64	2.56	2.57	2.66
Average electricity (cents per kilowatthour)	10.3	11.3	11.2	11.2	11.4	11.4	11.4	11.5	11.6	11.8

Table B1. Total energy supply, disposition, and price summary (continued)
(quadrillion Btu per year, unless otherwise noted)

Supply, disposition, and prices	2016	Projections								
		2025			2040			2050		
		Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth
Prices (nominal dollars per unit)										
Crude oil spot prices (dollars per barrel)										
Brent	43	111	104	103	229	179	173	343	236	230
West Texas Intermediate	43	104	97	95	215	169	162	323	223	218
Natural gas at Henry Hub (dollars per million Btu)	2.50	5.80	5.45	5.23	10.52	8.31	8.20	16.44	11.80	12.13
Coal (dollars per ton)										
at the minemouth[16]	33.9	45.5	42.0	41.1	82.4	62.1	59.6	120.4	81.1	78.3
Coal (dollars per million Btu)										
at the minemouth[16]	1.69	2.29	2.11	2.07	4.07	3.07	2.94	5.94	3.97	3.82
Average end-use[17]	2.34	3.33	3.07	3.01	5.57	4.23	4.10	7.75	5.20	5.10
Average electricity (cents per kilowatthour)	10.3	14.7	13.5	13.2	24.3	18.6	17.7	34.9	23.5	22.5

[1]Includes waste coal.
[2]These 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.
[3]Includes 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.
[4]Includes 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.
[5]Includes non-biogenic municipal waste, liquid hydrogen, methanol, and some domestic inputs to refineries.
[6]Includes imports of finished petroleum products, unfinished oils, alcohols, ethers, blending components, and renewable fuels such as ethanol.
[7]Includes imports of liquefied natural gas that are later re-exported.
[8]Includes coal, coal coke (net), and electricity (net). Excludes imports of fuel used in nuclear power plants.
[9]Includes crude oil, petroleum products, ethanol, and biodiesel.
[10]Includes re-exported liquefied natural gas.
[11]Balancing item. Includes unaccounted for supply, losses, gains, and net storage withdrawals.
[12]Estimated 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.
[13]Excludes coal converted to coal-based synthetic liquids and natural gas.
[14]Includes 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.
[15]Includes non-biogenic municipal waste, liquid hydrogen, and net electricity imports.
[16]Includes 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.
[17]Prices weighted by consumption; weighted average excludes export free-alongside-ship (f.a.s.) prices.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2016 are model results and may differ from official EIA data reports.
Sources: 2016: EIA, *Short-Term Energy Outlook*, October 2016 and EIA, AEO2017 National Energy Modeling System run ref2017.d120816a. **Projections:** EIA, AEO2017 National Energy Modeling System runs lowmacro.d120816a, ref2017.d120816a, and highmacro.d120816a.

Table B2. Energy consumption by sector and source
(quadrillion Btu per year, unless otherwise noted)

Sector and source	2016	Projections								
		2025			2040			2050		
		Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth
Energy consumption										
Residential										
Propane	0.43	0.43	0.43	0.43	0.38	0.38	0.38	0.36	0.36	0.36
Kerosene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01
Distillate fuel oil	0.43	0.40	0.40	0.40	0.30	0.30	0.30	0.25	0.25	0.25
Petroleum and other liquids subtotal	0.87	0.84	0.84	0.84	0.68	0.69	0.69	0.62	0.62	0.62
Natural gas	4.56	4.74	4.80	4.82	4.52	4.69	4.76	4.46	4.69	4.80
Renewable energy[1]	0.37	0.39	0.40	0.40	0.32	0.33	0.34	0.29	0.30	0.32
Electricity	4.81	4.62	4.72	4.78	4.88	5.05	5.19	5.02	5.19	5.35
Delivered energy	**10.62**	**10.59**	**10.75**	**10.85**	**10.42**	**10.75**	**10.98**	**10.39**	**10.80**	**11.08**
Electricity related losses	9.39	8.95	9.10	9.22	8.82	8.96	9.13	8.63	8.82	9.02
Total	**20.01**	**19.54**	**19.85**	**20.07**	**19.24**	**19.71**	**20.11**	**19.01**	**19.63**	**20.10**
Commercial										
Propane	0.19	0.19	0.19	0.19	0.22	0.22	0.21	0.23	0.23	0.23
Motor gasoline[2]	0.07	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.08
Kerosene	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Distillate fuel oil	0.41	0.40	0.40	0.40	0.36	0.37	0.37	0.35	0.35	0.35
Residual fuel oil	0.06	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06
Petroleum and other liquids subtotal	0.73	0.72	0.72	0.73	0.71	0.72	0.72	0.73	0.74	0.73
Natural gas	3.23	3.23	3.24	3.25	3.46	3.48	3.52	3.77	3.79	3.85
Coal	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Renewable energy[3]	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Electricity	4.64	4.57	4.62	4.65	4.85	4.99	5.12	5.31	5.53	5.75
Delivered energy	**8.77**	**8.69**	**8.76**	**8.81**	**9.20**	**9.37**	**9.54**	**9.98**	**10.23**	**10.50**
Electricity related losses	9.06	8.84	8.91	8.97	8.76	8.87	8.99	9.12	9.41	9.69
Total	**17.82**	**17.54**	**17.67**	**17.77**	**17.96**	**18.24**	**18.53**	**19.10**	**19.64**	**20.19**
Industrial[4]										
Liquefied petroleum gases and other[5]	2.49	3.17	3.27	3.29	3.40	3.65	3.74	3.42	3.82	3.85
Motor gasoline[2]	0.22	0.22	0.23	0.23	0.22	0.23	0.24	0.22	0.24	0.25
Distillate fuel oil	1.29	1.47	1.54	1.57	1.53	1.63	1.71	1.61	1.75	1.85
Residual fuel oil	0.05	0.05	0.05	0.05	0.04	0.04	0.05	0.04	0.05	0.05
Petrochemical feedstocks	0.66	0.95	0.98	0.99	1.05	1.13	1.17	1.07	1.19	1.21
Other petroleum[6]	3.42	3.44	3.57	3.65	3.50	3.87	4.12	3.57	4.19	4.57
Petroleum and other liquids subtotal	8.14	9.30	9.63	9.78	9.76	10.56	11.02	9.94	11.24	11.79
Natural gas	7.95	8.90	9.17	9.24	8.98	9.77	10.52	9.27	10.44	11.66
Natural-gas-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lease and plant fuel[7]	1.62	1.77	1.79	1.78	1.95	1.98	2.03	2.03	2.09	2.16
Natural gas liquefaction for export[8]	0.02	0.40	0.38	0.36	0.50	0.46	0.42	0.50	0.46	0.42
Natural gas subtotal	9.58	11.07	11.34	11.38	11.43	12.21	12.96	11.80	12.98	14.23
Metallurgical coal	0.52	0.43	0.43	0.44	0.26	0.28	0.38	0.12	0.20	0.32
Other industrial coal	0.73	0.72	0.75	0.77	0.61	0.66	0.75	0.58	0.66	0.79
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net coal coke imports	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.01	0.03
Coal subtotal	1.25	1.16	1.19	1.22	0.87	0.95	1.15	0.70	0.87	1.14
Biofuels heat and coproducts	0.90	0.86	0.86	0.86	0.71	0.84	0.83	0.73	0.80	0.87
Renewable energy[9]	1.45	1.50	1.60	1.68	1.44	1.70	2.09	1.43	1.84	2.61
Electricity	3.23	3.65	3.80	3.89	3.65	3.96	4.38	3.66	4.22	4.89
Delivered energy	**24.55**	**27.54**	**28.42**	**28.80**	**27.85**	**30.23**	**32.44**	**28.26**	**31.95**	**35.54**
Electricity related losses	6.30	7.06	7.32	7.49	6.59	7.04	7.69	6.29	7.17	8.25
Total	**30.85**	**34.60**	**35.74**	**36.30**	**34.44**	**37.27**	**40.13**	**34.55**	**39.12**	**43.78**

Table B2. Energy consumption by sector and source (continued)

(quadrillion Btu per year, unless otherwise noted)

Sector and source	2016	Projections								
		2025			2040			2050		
		Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth
Transportation										
Propane	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Motor gasoline[2]	17.27	15.00	15.38	15.54	11.38	13.04	14.03	10.69	13.56	15.37
of which: E85[10]	0.03	0.11	0.07	0.06	0.32	0.16	0.09	0.26	0.17	0.19
Jet fuel[11]	2.83	3.18	3.29	3.39	3.82	4.08	4.38	4.27	4.66	5.14
Distillate fuel oil[12]	6.54	6.49	6.78	6.98	5.87	6.40	7.17	6.11	6.96	8.23
Residual fuel oil	0.60	0.51	0.52	0.53	0.60	0.66	0.72	0.64	0.74	0.86
Other petroleum[13]	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.15	0.16	0.17
Petroleum and other liquids subtotal	27.40	25.34	26.14	26.61	21.83	24.36	26.48	21.88	26.10	29.78
Pipeline fuel natural gas	0.69	0.70	0.71	0.71	0.76	0.78	0.81	0.81	0.83	0.87
Compressed / liquefied natural gas	0.07	0.12	0.13	0.13	0.27	0.29	0.31	0.40	0.42	0.48
Liquid hydrogen	0.00	0.03	0.03	0.03	0.06	0.06	0.07	0.06	0.08	0.09
Electricity	0.04	0.14	0.14	0.15	0.29	0.33	0.36	0.33	0.41	0.47
Delivered energy	**28.20**	**26.33**	**27.15**	**27.63**	**23.22**	**25.82**	**28.02**	**23.48**	**27.85**	**31.69**
Electricity related losses	0.07	0.27	0.28	0.28	0.53	0.59	0.63	0.56	0.70	0.79
Total	**28.27**	**26.60**	**27.43**	**27.91**	**23.75**	**26.41**	**28.65**	**24.04**	**28.54**	**32.48**
Unspecified sector[14]	**-0.48**	**-0.42**	**-0.44**	**-0.44**	**-0.21**	**-0.25**	**-0.30**	**-0.15**	**-0.23**	**-0.31**
Delivered energy consumption for all sectors										
Liquefied petroleum gases and other[5]	3.13	3.80	3.90	3.93	4.01	4.27	4.36	4.03	4.44	4.46
Motor gasoline[2]	17.28	14.95	15.33	15.49	11.43	13.06	14.03	10.76	13.58	15.37
of which: E85[10]	0.03	0.11	0.07	0.06	0.32	0.16	0.09	0.26	0.17	0.19
Jet fuel[11]	3.28	3.58	3.70	3.81	4.30	4.60	4.93	4.81	5.25	5.78
Kerosene	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Distillate fuel oil	8.02	8.28	8.61	8.83	7.62	8.20	9.00	7.86	8.78	10.06
Residual fuel oil	0.71	0.62	0.63	0.64	0.70	0.77	0.83	0.75	0.86	0.97
Petrochemical feedstocks	0.66	0.95	0.98	0.99	1.05	1.13	1.17	1.07	1.19	1.21
Other petroleum[15]	3.58	3.59	3.73	3.81	3.66	4.04	4.28	3.73	4.36	4.74
Petroleum and other liquids subtotal	36.67	35.79	36.89	37.51	32.78	36.07	38.62	33.01	38.47	42.61
Natural gas	15.81	16.99	17.33	17.44	17.24	18.23	19.10	17.90	19.33	20.78
Natural-gas-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lease and plant fuel[7]	1.62	1.77	1.79	1.78	1.95	1.98	2.03	2.03	2.09	2.16
Pipeline natural gas	0.02	0.40	0.38	0.36	0.50	0.46	0.42	0.50	0.46	0.42
Natural gas liquefaction for export[8]	0.69	0.70	0.71	0.71	0.76	0.78	0.81	0.81	0.83	0.87
Natural gas subtotal	18.13	19.86	20.22	20.30	20.45	21.45	22.35	21.23	22.71	24.23
Metallurgical coal	0.52	0.43	0.43	0.44	0.26	0.28	0.38	0.12	0.20	0.32
Other coal	0.77	0.77	0.80	0.82	0.65	0.71	0.80	0.62	0.71	0.83
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net coal coke imports	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.01	0.03
Coal subtotal	1.29	1.20	1.23	1.26	0.92	0.99	1.20	0.75	0.92	1.19
Biofuels heat and coproducts	0.90	0.86	0.86	0.86	0.71	0.84	0.83	0.73	0.80	0.87
Renewable energy[16]	1.95	2.03	2.13	2.21	1.90	2.17	2.56	1.86	2.27	3.06
Liquid hydrogen	0.00	0.03	0.03	0.03	0.06	0.06	0.07	0.06	0.08	0.09
Electricity	12.72	12.97	13.28	13.47	13.67	14.34	15.05	14.30	15.35	16.46
Delivered energy	**71.66**	**72.74**	**74.63**	**75.64**	**70.48**	**75.92**	**80.68**	**71.95**	**80.60**	**88.49**
Electricity related losses	24.81	25.12	25.61	25.97	24.70	25.46	26.44	24.60	26.10	27.76
Total	**96.47**	**97.86**	**100.24**	**101.60**	**95.18**	**101.38**	**107.12**	**96.55**	**106.70**	**116.25**
Electric power[17]										
Distillate fuel oil	0.09	0.09	0.09	0.09	0.06	0.06	0.06	0.05	0.05	0.05
Residual fuel oil	0.13	0.05	0.05	0.05	0.03	0.03	0.03	0.02	0.02	0.02
Petroleum and other liquids subtotal	0.22	0.13	0.13	0.13	0.09	0.09	0.09	0.07	0.07	0.07
Natural gas	10.46	8.72	8.93	8.97	11.17	11.43	12.08	12.56	12.94	13.72
Steam coal	12.64	12.20	12.24	12.24	9.74	9.55	9.33	9.06	8.93	8.68
Nuclear / uranium[18]	8.34	8.09	8.09	8.09	7.34	7.34	7.34	6.29	6.36	6.36
Renewable energy[19]	5.44	8.53	9.08	9.59	9.66	11.02	12.28	10.56	12.78	15.01
Non-biogenic municipal waste	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Electricity imports	0.19	0.19	0.19	0.19	0.14	0.14	0.14	0.14	0.14	0.14
Total	**37.53**	**38.10**	**38.89**	**39.44**	**38.37**	**39.80**	**41.49**	**38.90**	**41.45**	**44.21**

Table B2. Energy consumption by sector and source (continued)

(quadrillion Btu per year, unless otherwise noted)

Sector and source	2016	Projections								
		2025			2040			2050		
		Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth
Total energy consumption										
Liquefied petroleum gases and other[5]	3.13	3.80	3.90	3.93	4.01	4.27	4.36	4.03	4.44	4.46
Motor gasoline[2]	17.28	14.95	15.33	15.49	11.43	13.06	14.03	10.76	13.58	15.37
of which: E85[10]	0.03	0.11	0.07	0.06	0.32	0.16	0.09	0.26	0.17	0.19
Jet fuel[11]	3.28	3.58	3.70	3.81	4.30	4.60	4.93	4.81	5.25	5.78
Kerosene	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Distillate fuel oil	8.11	8.36	8.69	8.91	7.68	8.26	9.06	7.91	8.83	10.11
Residual fuel oil	0.83	0.67	0.68	0.69	0.73	0.80	0.86	0.77	0.88	0.99
Petrochemical feedstocks	0.66	0.95	0.98	0.99	1.05	1.13	1.17	1.07	1.19	1.21
Other petroleum[15]	3.58	3.59	3.73	3.81	3.66	4.04	4.28	3.73	4.36	4.74
Petroleum and other liquids subtotal	36.89	35.92	37.03	37.65	32.87	36.16	38.71	33.09	38.54	42.68
Natural gas	26.27	25.71	26.26	26.41	28.41	29.65	31.18	30.46	32.27	34.51
Natural-gas-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lease and plant fuel[7]	1.62	1.77	1.79	1.78	1.95	1.98	2.03	2.03	2.09	2.16
Natural gas liquefaction for export[8]	0.02	0.40	0.38	0.36	0.50	0.46	0.42	0.50	0.46	0.42
Pipeline natural gas	0.69	0.70	0.71	0.71	0.76	0.78	0.81	0.81	0.83	0.87
Natural gas subtotal	28.59	28.58	29.14	29.27	31.62	32.87	34.43	33.79	35.65	37.96
Metallurgical coal	0.52	0.43	0.43	0.44	0.26	0.28	0.38	0.12	0.20	0.32
Other coal	13.41	12.97	13.04	13.05	10.39	10.26	10.13	9.68	9.64	9.52
Coal-to-liquids heat and power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net coal coke imports	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.01	0.03
Coal subtotal	13.93	13.40	13.47	13.50	10.65	10.55	10.53	9.80	9.85	9.87
Nuclear / uranium[18]	8.34	8.09	8.09	8.09	7.34	7.34	7.34	6.29	6.36	6.36
Biofuels heat and coproducts	0.90	0.86	0.86	0.86	0.71	0.84	0.83	0.73	0.80	0.87
Renewable energy[20]	7.39	10.56	11.20	11.79	11.56	13.18	14.84	12.41	15.05	18.07
Liquid hydrogen	0.00	0.03	0.03	0.03	0.06	0.06	0.07	0.06	0.08	0.09
Non-biogenic municipal waste	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Electricity imports	0.19	0.19	0.19	0.19	0.14	0.14	0.14	0.14	0.14	0.14
Total	**96.47**	**97.86**	**100.24**	**101.60**	**95.18**	**101.38**	**107.12**	**96.55**	**106.70**	**116.25**
Energy use and related statistics										
Delivered energy use	71.66	72.74	74.63	75.64	70.48	75.92	80.68	71.95	80.60	88.49
Total energy use	96.47	97.86	100.24	101.60	95.18	101.38	107.12	96.55	106.70	116.25
Ethanol consumed in motor gasoline and E85	1.22	1.17	1.17	1.17	1.04	1.10	1.14	1.04	1.25	1.42
Population (millions)	324	345	348	351	370	381	394	385	399	420
Gross domestic product (billion 2009 dollars)	16,652	19,276	20,558	21,430	24,566	27,852	31,115	28,401	33,653	39,612
Carbon dioxide emissions (million metric tons)	5,157	4,965	5,069	5,119	4,616	4,878	5,128	4,647	5,084	5,481

[1]Includes 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.
[2]Includes ethanol and ethers blended into gasoline.
[3]Excludes 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.
[4]Includes energy for combined heat and power plants that have a non-regulatory status, and small on-site generating systems.
[5]Includes ethane, natural gasoline, and refinery olefins.
[6]Includes petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.
[7]Represents natural gas used in well, field, and lease operations, and in natural gas processing plant machinery.
[8]Fuel used in facilities that liquefy natural gas for export.
[9]Includes consumption of energy produced from hydroelectric, wood and wood waste, municipal waste, and other biomass sources. Excludes ethanol in motor gasoline.
[10]E85 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 these projections.
[11]Includes only kerosene type.
[12]Diesel fuel for on- and off- road use.
[13]Includes aviation gasoline and lubricants.
[14]Represents consumption unattributed to the sectors above.
[15]Includes aviation gasoline, petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.
[16]Includes 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.
[17]Includes consumption of energy by electricity-only and combined heat and power plants that have a regulatory status.
[18]These 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.
[19]Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes net electricity imports.
[20]Includes 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.
Note: Includes estimated consumption for petroleum and other liquids. Totals may not equal sum of components due to independent rounding. Data for 2016 are model results and may differ from official EIA data reports.
Sources: 2016: EIA, *Short-Term Energy Outlook*, October 2016 and EIA, AEO2017 National Energy Modeling System run ref2017.d120816a. **Projections:** EIA, AEO2017 National Energy Modeling System runs lowmacro.d120816a, ref2017.d120816a, and highmacro.d120816a.

Table B3. Energy prices by sector and source

(2016 dollars per million Btu, unless otherwise noted)

Sector and source	2016	Projections								
		2025			2040			2050		
		Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth
Residential										
Propane	16.26	17.70	18.13	18.57	19.58	20.85	23.07	20.16	22.50	27.16
Distillate fuel oil	15.40	23.68	24.05	24.19	27.33	28.02	28.44	28.62	29.37	31.46
Natural gas	9.91	11.32	11.42	11.61	12.92	13.18	13.51	13.76	14.34	14.91
Electricity	36.47	40.79	40.10	40.15	40.63	40.69	41.15	41.58	42.18	43.31
Commercial										
Propane	14.54	15.78	16.15	16.52	17.39	18.49	20.40	17.90	19.91	23.93
Distillate fuel oil	13.52	20.15	20.37	20.42	23.93	24.22	24.48	24.97	25.40	27.45
Residual fuel oil	5.38	10.83	11.01	11.03	13.87	14.16	14.51	14.85	15.28	16.77
Natural gas	7.19	10.06	10.14	10.30	11.19	11.44	11.78	11.72	12.27	12.85
Electricity	30.38	34.00	33.61	33.75	33.68	33.75	34.14	33.62	33.98	34.84
Industrial[1]										
Propane	11.49	12.96	13.41	13.85	14.89	16.20	18.48	15.49	17.89	22.68
Distillate fuel oil	13.53	20.62	20.80	20.85	24.46	24.69	24.92	25.50	25.86	27.91
Residual fuel oil	5.15	12.79	12.95	12.96	15.83	16.09	16.39	16.80	17.20	18.66
Natural gas[2]	3.50	5.44	5.48	5.37	5.83	5.93	6.12	6.24	6.58	6.96
Metallurgical coal	5.64	6.59	6.58	6.58	7.42	7.40	7.40	7.08	7.13	7.17
Other industrial coal	3.34	3.50	3.46	3.50	3.46	3.45	3.51	3.50	3.55	3.69
Coal to liquids	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Electricity	20.36	22.20	22.10	22.13	22.61	22.74	23.03	22.96	23.33	23.97
Transportation										
Propane	17.33	18.76	19.19	19.63	20.64	21.91	24.13	21.23	23.56	28.22
E85[3]	25.93	26.29	29.80	31.39	23.04	28.74	33.84	25.72	31.15	33.10
Motor gasoline[4]	18.34	23.91	24.31	24.48	26.62	27.47	28.18	26.91	28.60	30.74
Jet fuel[5]	9.75	17.37	17.68	17.94	21.70	22.10	22.49	23.45	23.92	26.05
Diesel fuel (distillate fuel oil)[6]	16.80	25.60	25.73	25.76	29.52	29.62	29.78	30.48	30.75	32.82
Residual fuel oil	5.96	11.53	11.71	11.83	14.57	15.08	15.54	15.71	16.35	17.93
Natural gas[7]	16.45	16.23	16.44	16.74	14.73	15.09	15.40	15.03	15.63	16.19
Electricity	29.68	40.00	39.36	39.45	39.13	39.24	39.67	38.62	38.89	39.68
Electric power[8]										
Distillate fuel oil	11.95	19.12	19.48	19.64	22.59	23.26	23.75	23.91	24.62	26.68
Residual fuel oil	8.09	15.20	15.41	15.43	18.02	18.53	18.93	18.24	18.90	20.43
Natural gas	3.02	4.73	4.81	4.72	5.32	5.44	5.67	5.79	6.13	6.59
Steam coal	2.14	2.35	2.33	2.33	2.41	2.37	2.36	2.43	2.39	2.39
Uranium	0.56	0.74	0.74	0.74	1.08	1.08	1.08	1.43	1.43	1.43
Average price to all users[9]										
Propane	14.05	15.56	15.95	16.36	17.28	18.49	20.65	17.79	20.02	24.57
E85[3]	25.93	26.29	29.80	31.39	23.04	28.74	33.84	25.72	31.15	33.10
Motor gasoline[4]	18.33	23.91	24.31	24.48	26.62	27.48	28.18	26.91	28.60	30.74
Jet fuel[5]	9.75	17.37	17.68	17.94	21.70	22.10	22.49	23.45	23.92	26.05
Distillate fuel oil	15.98	24.30	24.47	24.53	28.11	28.30	28.57	29.13	29.49	31.66
Residual fuel oil	6.19	11.80	11.98	12.07	14.75	15.20	15.65	15.76	16.37	17.95
Natural gas	4.91	6.93	6.98	6.97	7.52	7.65	7.83	7.97	8.34	8.73
Metallurgical coal	5.64	6.59	6.58	6.58	7.42	7.40	7.40	7.08	7.13	7.17
Other coal	2.21	2.42	2.40	2.41	2.48	2.45	2.46	2.50	2.48	2.51
Coal to liquids	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Electricity	30.14	33.17	32.69	32.73	33.33	33.28	33.46	33.80	33.96	34.50
Non-renewable energy expenditures by sector (billion 2016 dollars)										
Residential	234	259	262	266	273	284	296	285	302	321
Commercial	174	201	202	204	217	224	233	239	252	269
Industrial[1]	158	237	248	253	270	299	334	287	340	407
Transportation	450	581	609	624	571	656	729	594	739	906
Total non-renewable expenditures	1,016	1,279	1,320	1,347	1,331	1,463	1,591	1,403	1,633	1,902
Transportation renewable expenditures	1	3	2	2	7	5	3	7	5	6
Total expenditures	**1,017**	**1,282**	**1,322**	**1,349**	**1,338**	**1,468**	**1,594**	**1,410**	**1,638**	**1,909**

Table B3. Energy prices by sector and source (continued)

(nominal dollars per million Btu, unless otherwise noted)

Sector and source	2016	Projections								
		2025			2040			2050		
		Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth
Residential										
Propane	16.26	23.06	21.94	21.97	41.89	34.19	35.85	61.06	45.53	52.02
Distillate fuel oil	15.40	30.84	29.10	28.62	58.49	45.96	44.20	86.65	59.44	60.25
Natural gas	9.91	14.75	13.81	13.74	27.65	21.62	21.00	41.68	29.03	28.55
Electricity	36.47	53.13	48.52	47.51	86.94	66.73	63.96	125.91	85.37	82.96
Commercial										
Propane	14.54	20.55	19.54	19.55	37.22	30.32	31.70	54.20	40.29	45.83
Distillate fuel oil	13.52	26.25	24.64	24.16	51.21	39.72	38.05	75.62	51.40	52.58
Residual fuel oil	5.38	14.11	13.32	13.04	29.69	23.22	22.55	44.98	30.92	32.12
Natural gas	7.19	13.10	12.27	12.19	23.94	18.75	18.30	35.48	24.83	24.62
Electricity	30.38	44.29	40.67	39.93	72.07	55.34	53.07	101.80	68.78	66.74
Industrial[1]										
Propane	11.49	16.89	16.22	16.39	31.86	26.56	28.71	46.92	36.21	43.44
Distillate fuel oil	13.53	26.85	25.17	24.67	52.35	40.48	38.73	77.22	52.34	53.46
Residual fuel oil	5.15	16.66	15.67	15.33	33.87	26.38	25.47	50.87	34.80	35.74
Natural gas[2]	3.50	7.09	6.64	6.36	12.48	9.73	9.51	18.89	13.32	13.34
Metallurgical coal	5.64	8.59	7.96	7.78	15.87	12.13	11.51	21.43	14.44	13.73
Other industrial coal	3.34	4.56	4.19	4.14	7.40	5.65	5.45	10.61	7.19	7.07
Coal to liquids	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Electricity	20.36	28.92	26.75	26.18	48.38	37.29	35.79	69.53	47.22	45.91
Transportation										
Propane	17.33	24.44	23.22	23.23	44.17	35.93	37.50	64.27	47.68	54.05
E85[3]	25.93	34.25	36.06	37.13	49.30	47.13	52.60	77.89	63.05	63.39
Motor gasoline[4]	18.34	31.14	29.42	28.96	56.97	45.06	43.80	81.48	57.88	58.89
Jet fuel[5]	9.75	22.62	21.39	21.22	46.44	36.24	34.96	71.02	48.41	49.90
Diesel fuel (distillate fuel oil)[6]	16.80	33.34	31.14	30.48	63.17	48.58	46.28	92.30	62.23	62.86
Residual fuel oil	5.96	15.02	14.17	13.99	31.18	24.73	24.15	47.56	33.08	34.35
Natural gas[7]	16.45	21.13	19.89	19.81	31.52	24.75	23.94	45.51	31.63	31.01
Electricity	29.68	52.09	47.63	46.68	83.73	64.34	61.65	116.95	78.72	76.00
Electric power[8]										
Distillate fuel oil	11.95	24.90	23.57	23.24	48.34	38.14	36.91	72.39	49.84	51.11
Residual fuel oil	8.09	19.80	18.65	18.26	38.57	30.38	29.42	55.23	38.25	39.14
Natural gas	3.02	6.17	5.82	5.59	11.39	8.92	8.81	17.54	12.41	12.62
Steam coal	2.14	3.06	2.82	2.76	5.16	3.89	3.67	7.35	4.83	4.58
Uranium	0.56	0.96	0.89	0.87	2.31	1.77	1.68	4.34	2.90	2.74

Table B3. Energy prices by sector and source (continued)

(nominal dollars per million Btu, unless otherwise noted)

Sector and source	2016	Projections								
		2025			2040			2050		
		Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth
Average price to all users[9]										
Propane	14.05	20.26	19.29	19.36	36.97	30.32	32.09	53.87	40.52	47.06
E85[3]	25.93	34.25	36.06	37.13	49.30	47.13	52.60	77.89	63.05	63.39
Motor gasoline[4]	18.33	31.14	29.42	28.96	56.97	45.06	43.80	81.48	57.88	58.89
Jet fuel[5]	9.75	22.62	21.39	21.22	46.44	36.24	34.96	71.02	48.41	49.90
Distillate fuel oil	15.98	31.65	29.61	29.02	60.15	46.41	44.40	88.19	59.68	60.65
Residual fuel oil	6.19	15.37	14.49	14.28	31.55	24.93	24.32	47.73	33.13	34.39
Natural gas	4.91	9.03	8.45	8.24	16.09	12.54	12.16	24.14	16.88	16.73
Metallurgical coal	5.64	8.59	7.96	7.78	15.87	12.13	11.51	21.43	14.44	13.73
Other coal	2.21	3.16	2.91	2.85	5.31	4.02	3.82	7.58	5.02	4.81
Coal to liquids	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Electricity	30.14	43.20	39.55	38.73	71.32	54.57	52.00	102.35	68.73	66.09
Non-renewable energy expenditures by sector (billion nominal dollars)										
Residential	234	338	316	315	583	465	459	862	611	615
Commercial	174	262	244	242	465	368	362	723	509	515
Industrial[1]	158	309	300	299	578	491	519	868	689	779
Transportation	450	757	736	738	1,222	1,075	1,132	1,797	1,496	1,735
Total non-renewable expenditures	1,016	1,666	1,597	1,593	2,848	2,399	2,473	4,249	3,305	3,644
Transportation renewable expenditures	1	4	2	2	16	7	5	20	10	12
Total expenditures	**1,017**	**1,669**	**1,599**	**1,596**	**2,864**	**2,407**	**2,477**	**4,270**	**3,315**	**3,656**

[1]Includes energy for combined heat and power plants that have a non-regulatory status, and small on-site generating systems.
[2]Excludes use for lease and plant fuel.
[3]E85 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 these projections.
[4]Sales weighted-average price for all grades. Includes Federal, State, and local taxes.
[5]Kerosene-type jet fuel. Includes Federal and State taxes while excluding county and local taxes.
[6]Diesel fuel for on-road use. Includes Federal and State taxes while excluding county and local taxes.
[7]Natural gas used as fuel in motor vehicles, trains, and ships. Includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.
[8]Includes electricity-only and combined heat and power plants that have a regulatory status.
[9]Weighted 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 2016 are model results and may differ from official EIA data reports.
Sources: 2016: EIA, *Short-Term Energy Outlook*, October 2016 and EIA, AEO2017 National Energy Modeling System run ref2017.d120816a. **Projections:** EIA, AEO2017 National Energy Modeling System runs lowmacro.d120816a, ref2017.d120816a, and highmacro.d120816a.

Table B4. Macroeconomic indicators
(billion 2009 chain-weighted dollars, unless otherwise noted)

Indicators	2016	Projections								
		2025			2040			2050		
		Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth	Low economic growth	Reference	High economic growth
Real gross domestic product	**16,652**	**19,276**	**20,558**	**21,430**	**24,566**	**27,852**	**31,115**	**28,401**	**33,653**	**39,612**
Components of real gross domestic product										
Real consumption	11,522	13,499	14,402	15,045	17,354	19,851	22,198	20,387	24,332	28,411
Real investment	2,816	3,525	3,913	4,108	4,770	5,477	6,087	5,785	6,806	7,905
Real government spending	2,919	2,964	3,036	3,122	3,374	3,585	3,831	3,732	4,013	4,424
Real exports	2,114	2,976	3,242	3,378	4,682	5,729	6,797	5,688	7,685	10,389
Real imports	2,692	3,678	4,015	4,192	5,645	6,775	7,686	7,379	9,200	11,276
Energy intensity (thousand Btu per 2009 dollar of GDP)										
Delivered energy	4.30	3.77	3.63	3.53	2.87	2.73	2.59	2.53	2.40	2.23
Total energy	5.79	5.08	4.88	4.74	3.87	3.64	3.44	3.40	3.17	2.93
Price indices										
GDP chain-type price index (2009=1.00)	1.12	1.45	1.35	1.32	2.39	1.83	1.73	3.38	2.26	2.14
Consumer price index (1982-4=1.00)										
All-urban	2.40	3.22	3.00	2.93	5.52	4.26	4.03	7.95	5.40	5.11
Energy commodities and services	1.87	3.05	2.84	2.79	5.43	4.23	4.09	7.91	5.46	5.47
Wholesale price index (1982=1.00)										
All commodities	1.85	2.50	2.31	2.24	3.87	2.94	2.79	5.20	3.46	3.33
Fuel and power	1.44	2.53	2.35	2.30	4.53	3.52	3.39	6.67	4.60	4.57
Metals and metal products	1.93	2.44	2.26	2.20	3.21	2.46	2.32	3.90	2.66	2.52
Industrial commodities excluding energy	1.93	2.45	2.26	2.20	3.68	2.76	2.61	4.82	3.15	3.00
Interest rates (percent, nominal)										
Federal funds rate	0.42	5.41	3.07	2.90	5.67	2.99	2.89	5.69	2.96	2.97
10-year treasury note	1.73	6.00	3.82	3.68	6.16	3.76	3.59	6.16	3.74	3.67
AA utility bond rate	3.65	8.36	5.79	5.64	8.74	5.73	5.55	8.94	5.71	5.61
Value of shipments (billion 2009 dollars)										
Non-industrial and service sectors	24,364	28,218	30,117	31,389	35,283	40,470	45,525	39,318	48,373	57,725
Total industrial	7,453	8,679	9,147	9,430	10,511	11,491	12,777	11,987	13,836	16,194
Agriculture, mining, and construction	2,079	2,396	2,545	2,615	2,767	2,978	3,142	3,077	3,395	3,654
Manufacturing	5,374	6,283	6,602	6,815	7,744	8,512	9,635	8,910	10,441	12,540
Energy-intensive	1,898	2,145	2,223	2,266	2,345	2,555	2,754	2,541	2,890	3,219
Non-energy-intensive	3,476	4,138	4,378	4,549	5,399	5,958	6,881	6,369	7,552	9,321
Total shipments	**31,817**	**36,897**	**39,264**	**40,819**	**45,794**	**51,961**	**58,302**	**51,305**	**62,209**	**73,919**
Population and employment (millions)										
Population, with armed forces overseas	324	345	348	351	370	381	394	385	399	420
Population, aged 16 and over	259	277	281	282	301	311	319	313	328	341
Population, aged 65 and over	50	65	66	67	79	82	83	83	88	89
Employment, nonfarm	144	152	158	162	165	173	182	171	181	194
Employment, manufacturing	12.1	13.6	13.6	13.7	12.5	12.6	13.0	11.6	12.3	13.1
Key labor indicators										
Labor force (millions)	159	168	171	171	181	188	193	188	198	207
Non-farm labor productivity (2009=1.00)	1.06	1.18	1.22	1.26	1.43	1.57	1.72	1.63	1.86	2.12
Unemployment rate (percent)	4.88	4.75	4.52	4.43	4.54	4.42	4.24	4.92	4.68	4.47
Key indicators for energy demand										
Real disposable personal income	12,663	15,382	16,041	16,589	20,143	21,866	23,609	23,545	26,219	29,213
Housing starts (millions)	1.26	1.59	1.85	2.05	1.47	1.76	2.04	1.43	1.77	2.01
Commercial floorspace (billion square feet)	90	98	99	100	112	116	119	121	127	132
Unit sales of light-duty vehicles (millions)	17.5	16.3	17.6	18.5	15.5	18.7	20.9	15.1	19.8	23.2

GDP = Gross domestic product.
Btu = British thermal unit.
Sources: 2016: IHS Markit, Macroeconomic, Industry, and Employment models, August 2016. **Projections:** U.S. Energy Information Administration, AEO2017 National Energy Modeling System runs lowmacro.d120816a, ref2017.d120816a, and highmacro.d120816a.