Appendix D

High oil and gas resource case comparisons

Table D1. Total energy supply, disposition, and price summary

(quadrillion Btu per year, unless otherwise noted)

Supply, disposition, and prices	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Production							
Crude oil and lease condensate	15.6	22.2	26.3	21.1	32.6	19.9	34.6
Natural gas plant liquids	3.6	5.5	6.3	5.7	7.9	5.5	9.0
Dry natural gas	25.1	29.6	33.1	33.9	43.8	36.4	52.0
Coal[1]	20.0	21.7	18.8	22.5	19.8	22.6	20.3
Nuclear / uranium[2]	8.3	8.4	8.4	8.5	8.5	8.7	8.5
Conventional hydroelectric power	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Biomass[3]	4.2	4.4	4.5	4.6	4.7	5.0	5.1
Other renewable energy[4]	2.3	3.2	3.2	3.6	3.4	4.6	3.6
Other[5]	1.3	0.9	0.9	0.9	1.0	1.0	1.0
Total	**82.7**	**98.7**	**104.3**	**103.7**	**124.4**	**106.6**	**136.8**
Imports							
Crude oil	17.0	13.6	13.5	15.7	11.7	18.2	11.3
Petroleum and other liquids[6]	4.3	4.6	4.4	4.4	4.7	4.1	4.4
Natural gas[7]	2.9	1.9	1.8	1.6	1.7	1.7	2.5
Other imports[8]	0.3	0.1	0.1	0.1	0.1	0.1	0.0
Total	**24.5**	**20.2**	**19.9**	**21.7**	**18.2**	**24.1**	**18.3**
Exports							
Petroleum and other liquids[9]	7.3	11.2	15.4	12.6	21.6	13.7	24.3
Natural gas[10]	1.6	4.5	4.6	6.4	10.8	7.4	15.7
Coal	2.9	2.5	2.5	3.3	3.4	3.5	4.0
Total	**11.7**	**18.1**	**22.5**	**22.4**	**35.7**	**24.6**	**44.0**
Discrepancy[11]	**-1.6**	**-0.1**	**-0.1**	**0.2**	**0.1**	**0.3**	**0.3**
Consumption							
Petroleum and other liquids[12]	35.9	37.1	37.5	36.5	37.8	36.2	37.5
Natural gas	26.9	26.8	30.1	28.8	34.4	30.5	38.4
Coal[13]	18.0	19.2	16.3	19.2	16.3	19.0	16.3
Nuclear / uranium[2]	8.3	8.4	8.4	8.5	8.5	8.7	8.5
Conventional hydroelectric power	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Biomass[14]	2.9	3.0	3.1	3.2	3.3	3.5	3.5
Other renewable energy[4]	2.3	3.2	3.2	3.6	3.4	4.6	3.6
Other[15]	0.4	0.3	0.3	0.3	0.3	0.3	0.3
Total	**97.1**	**100.8**	**101.8**	**102.9**	**106.8**	**105.7**	**110.8**
Prices (2013 dollars per unit)							
Crude oil spot prices (dollars per barrel)							
Brent	109	79	76	106	98	141	129
West Texas Intermediate	98	73	64	99	84	136	115
Natural gas at Henry Hub (dollars per million Btu)	3.73	4.88	3.12	5.69	3.67	7.85	4.38
Coal (dollars per ton) at the minemouth[16]	37.2	37.9	37.2	43.7	42.3	49.2	47.8
Coal (dollars per million Btu) at the minemouth[16]	1.84	1.88	1.84	2.18	2.10	2.44	2.36
Average end-use[17]	2.50	2.54	2.43	2.84	2.66	3.09	2.88
Average electricity (cents per kilowatthour)	10.1	10.5	10.0	11.1	10.0	11.8	10.3

Table D1. Total energy supply, disposition, and price summary (continued)

(quadrillion Btu per year, unless otherwise noted)

Supply, disposition, and prices	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Prices (nominal dollars per unit)							
Crude oil spot prices (dollars per barrel)							
Brent	109	90	85	142	127	229	205
West Texas Intermediate	98	83	72	133	109	220	182
Natural gas at Henry Hub (dollars per million Btu)	3.73	5.54	3.51	7.63	4.76	12.73	6.93
Coal (dollars per ton)							
at the minemouth[16]	37.2	43.0	41.7	58.6	54.8	79.8	75.6
Coal (dollars per million Btu)							
at the minemouth[16]	1.84	2.14	2.07	2.92	2.72	3.96	3.73
Average end-use[17]	2.50	2.88	2.73	3.81	3.45	5.00	4.56
Average electricity (cents per kilowatthour)	10.1	11.9	11.2	14.8	13.0	19.2	16.2

[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 2013 are model results and may differ from official EIA data reports.
Sources: 2013 natural gas supply values: U.S. Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2014/07) (Washington, DC, July 2014). 2013 coal minemouth and delivered coal prices: EIA, *Annual Coal Report 2013*, DOE/EIA-0584(2013) (Washington, DC, January 2015). 2013 petroleum supply values: EIA, *Petroleum Supply Annual 2013*, DOE/EIA-0340(2013)/1 (Washington, DC, September 2014). 2013 crude oil spot prices and natural gas spot price at Henry Hub: Thomson Reuters. Other 2013 coal values: *Quarterly Coal Report, October-December 2013*, DOE/EIA-0121(2013/4Q) (Washington, DC, March 2014). Other 2013 values: EIA, *Monthly Energy Review*, DOE/EIA-0035(2014/11) (Washington, DC, November 2014). **Projections:** EIA, AEO2015 National Energy Modeling System runs REF2015.D021915A and HIGHRESOURCE.D021915B.

Table D2. Energy consumption by sector and source
(quadrillion Btu per year, unless otherwise noted)

Sector and source	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Energy consumption							
Residential							
Propane	0.43	0.32	0.33	0.28	0.28	0.25	0.25
Kerosene	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Distillate fuel oil	0.50	0.40	0.40	0.31	0.31	0.24	0.24
Petroleum and other liquids subtotal	0.93	0.73	0.74	0.59	0.60	0.49	0.49
Natural gas	5.05	4.63	4.75	4.52	4.70	4.31	4.52
Renewable energy[1]	0.58	0.41	0.41	0.38	0.37	0.35	0.35
Electricity	4.75	4.86	4.90	5.08	5.20	5.42	5.61
Delivered energy	**11.32**	**10.63**	**10.80**	**10.57**	**10.86**	**10.57**	**10.97**
Electricity related losses	9.79	9.75	9.53	9.91	9.76	10.33	10.20
Total	**21.10**	**20.38**	**20.33**	**20.48**	**20.62**	**20.91**	**21.17**
Commercial							
Propane	0.15	0.16	0.16	0.17	0.17	0.18	0.18
Motor gasoline[2]	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Kerosene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Distillate fuel oil	0.37	0.34	0.34	0.30	0.31	0.27	0.28
Residual fuel oil	0.03	0.07	0.07	0.07	0.07	0.06	0.07
Petroleum and other liquids subtotal	0.59	0.62	0.63	0.60	0.61	0.58	0.59
Natural gas	3.37	3.30	3.49	3.43	3.71	3.71	4.11
Coal	0.04	0.05	0.05	0.05	0.05	0.05	0.05
Renewable energy[3]	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Electricity	4.57	4.82	4.85	5.19	5.32	5.66	5.85
Delivered energy	**8.69**	**8.90**	**9.14**	**9.38**	**9.81**	**10.12**	**10.72**
Electricity related losses	9.42	9.68	9.44	10.13	9.99	10.80	10.64
Total	**18.10**	**18.58**	**18.58**	**19.52**	**19.81**	**20.92**	**21.37**
Industrial[4]							
Liquefied petroleum gases and other[5]	2.51	3.20	3.26	3.72	3.81	3.67	3.82
Motor gasoline[2]	0.25	0.26	0.27	0.25	0.29	0.25	0.29
Distillate fuel oil	1.31	1.42	1.41	1.36	1.46	1.35	1.48
Residual fuel oil	0.06	0.10	0.10	0.13	0.12	0.13	0.11
Petrochemical feedstocks	0.74	0.95	0.95	1.14	1.14	1.20	1.12
Other petroleum[6]	3.52	3.67	3.94	3.83	4.28	3.99	4.46
Petroleum and other liquids subtotal	8.40	9.61	9.94	10.44	11.09	10.59	11.29
Natural gas	7.62	8.33	8.56	8.65	9.17	8.90	9.43
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]	1.52	1.87	2.02	2.10	3.05	2.29	3.84
Natural gas subtotal	9.14	10.20	10.58	10.75	12.21	11.19	13.28
Metallurgical coal	0.62	0.61	0.59	0.56	0.59	0.51	0.53
Other industrial coal	0.88	0.93	0.93	0.96	0.97	0.99	1.01
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	0.00	0.00	-0.03	-0.03	-0.06	-0.06
Coal subtotal	1.48	1.54	1.52	1.48	1.53	1.44	1.48
Biofuels heat and coproducts	0.72	0.80	0.81	0.80	0.82	0.86	0.88
Renewable energy[8]	1.48	1.53	1.56	1.59	1.64	1.63	1.70
Electricity	3.26	3.74	3.83	4.04	4.27	4.12	4.35
Delivered energy	**24.48**	**27.42**	**28.24**	**29.10**	**31.55**	**29.82**	**32.98**
Electricity related losses	6.72	7.51	7.45	7.88	8.01	7.85	7.92
Total	**31.20**	**34.93**	**35.69**	**36.98**	**39.56**	**37.68**	**40.90**

Table D2. Energy consumption by sector and source (continued)
(quadrillion Btu per year, unless otherwise noted)

Sector and source	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Transportation							
Propane	0.05	0.04	0.04	0.05	0.05	0.07	0.07
Motor gasoline[2]	15.94	15.35	15.42	13.30	13.56	12.55	12.83
of which: E85[9]	0.02	0.03	0.03	0.20	0.17	0.28	0.28
Jet fuel[10]	2.80	3.01	3.01	3.40	3.42	3.64	3.65
Distillate fuel oil[11]	6.50	7.35	7.42	7.76	8.22	7.97	8.33
Residual fuel oil	0.57	0.35	0.35	0.36	0.36	0.36	0.36
Other petroleum[12]	0.15	0.16	0.16	0.16	0.16	0.16	0.16
Petroleum and other liquids subtotal	26.00	26.27	26.42	25.03	25.77	24.76	25.42
Pipeline fuel natural gas	0.88	0.85	0.93	0.94	1.13	0.96	1.26
Compressed / liquefied natural gas	0.05	0.07	0.07	0.17	0.18	0.71	0.96
Liquid hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.02	0.03	0.03	0.04	0.04	0.06	0.06
Delivered energy	**26.96**	**27.22**	**27.44**	**26.18**	**27.12**	**26.49**	**27.70**
Electricity related losses	0.05	0.06	0.06	0.08	0.08	0.12	0.11
Total	**27.01**	**27.29**	**27.50**	**26.27**	**27.20**	**26.61**	**27.81**
Unspecified sector[13]	**-0.27**	**-0.34**	**-0.34**	**-0.37**	**-0.41**	**-0.38**	**-0.41**
Delivered energy consumption for all sectors							
Liquefied petroleum gases and other[5]	3.14	3.73	3.80	4.23	4.31	4.17	4.33
Motor gasoline[2]	16.36	15.79	15.87	13.72	14.01	12.96	13.28
of which: E85[9]	0.02	0.03	0.03	0.20	0.17	0.28	0.28
Jet fuel[10]	2.97	3.20	3.20	3.61	3.63	3.86	3.88
Kerosene	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Distillate fuel oil	8.10	8.86	8.92	9.05	9.57	9.13	9.60
Residual fuel oil	0.65	0.53	0.53	0.56	0.55	0.56	0.54
Petrochemical feedstocks	0.74	0.95	0.95	1.14	1.14	1.20	1.12
Other petroleum[14]	3.67	3.82	4.10	3.98	4.44	4.15	4.62
Petroleum and other liquids subtotal	35.65	36.89	37.38	36.30	37.66	36.03	37.38
Natural gas	16.10	16.32	16.86	16.76	17.75	17.64	19.03
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]	1.52	1.87	2.02	2.10	3.05	2.29	3.84
Pipeline natural gas	0.88	0.85	0.93	0.94	1.13	0.96	1.26
Natural gas subtotal	18.50	19.05	19.81	19.80	21.93	20.88	24.13
Metallurgical coal	0.62	0.61	0.59	0.56	0.59	0.51	0.53
Other coal	0.92	0.98	0.98	1.00	1.01	1.04	1.05
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	0.00	0.00	-0.03	-0.03	-0.06	-0.06
Coal subtotal	1.52	1.59	1.57	1.53	1.57	1.49	1.53
Biofuels heat and coproducts	0.72	0.80	0.81	0.80	0.82	0.86	0.88
Renewable energy[15]	2.18	2.06	2.09	2.09	2.13	2.10	2.17
Liquid hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	12.60	13.45	13.62	14.35	14.83	15.25	15.87
Delivered energy	**71.17**	**73.84**	**75.27**	**74.87**	**78.94**	**76.62**	**81.97**
Electricity related losses	25.97	27.00	26.48	28.01	27.83	29.10	28.87
Total	**97.14**	**100.84**	**101.75**	**102.87**	**106.78**	**105.73**	**110.84**
Electric power[16]							
Distillate fuel oil	0.05	0.09	0.08	0.08	0.07	0.08	0.07
Residual fuel oil	0.21	0.08	0.09	0.09	0.09	0.09	0.10
Petroleum and other liquids subtotal	0.26	0.17	0.16	0.17	0.16	0.18	0.17
Natural gas	8.36	7.80	10.29	9.03	12.46	9.61	14.24
Steam coal	16.49	17.59	14.77	17.63	14.78	17.52	14.76
Nuclear / uranium[17]	8.27	8.42	8.42	8.47	8.46	8.73	8.46
Renewable energy[18]	4.78	6.13	6.11	6.72	6.50	7.99	6.82
Non-biogenic municipal waste	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Electricity imports	0.18	0.11	0.11	0.10	0.08	0.11	0.07
Total	**38.57**	**40.45**	**40.10**	**42.35**	**42.67**	**44.36**	**44.74**

Table D2. Energy consumption by sector and source (continued)

(quadrillion Btu per year, unless otherwise noted)

Sector and source	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Total energy consumption							
Liquefied petroleum gases and other[5]	3.14	3.73	3.80	4.23	4.31	4.17	4.33
Motor gasoline[2]	16.36	15.79	15.87	13.72	14.01	12.96	13.28
of which: E85[9]	0.02	0.03	0.03	0.20	0.17	0.28	0.28
Jet fuel[10]	2.97	3.20	3.20	3.61	3.63	3.86	3.88
Kerosene	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Distillate fuel oil	8.15	8.95	9.00	9.13	9.65	9.21	9.67
Residual fuel oil	0.87	0.61	0.61	0.64	0.64	0.65	0.64
Petrochemical feedstocks	0.74	0.95	0.95	1.14	1.14	1.20	1.12
Other petroleum[14]	3.67	3.82	4.10	3.98	4.44	4.15	4.62
Petroleum and other liquids subtotal	35.91	37.06	37.54	36.47	37.82	36.21	37.54
Natural gas	24.46	24.12	27.15	25.79	30.21	27.25	33.27
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]	1.52	1.87	2.02	2.10	3.05	2.29	3.84
Pipeline natural gas	0.88	0.85	0.93	0.94	1.13	0.96	1.26
Natural gas subtotal	26.86	26.85	30.10	28.83	34.39	30.50	38.37
Metallurgical coal	0.62	0.61	0.59	0.56	0.59	0.51	0.53
Other coal	17.41	18.57	15.75	18.63	15.79	18.56	15.81
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	0.00	0.00	-0.03	-0.03	-0.06	-0.06
Coal subtotal	18.01	19.18	16.34	19.16	16.35	19.01	16.29
Nuclear / uranium[17]	8.27	8.42	8.42	8.47	8.46	8.73	8.46
Biofuels heat and coproducts	0.72	0.80	0.81	0.80	0.82	0.86	0.88
Renewable energy[19]	6.96	8.19	8.20	8.81	8.63	10.09	8.99
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
Electricity imports	0.18	0.11	0.11	0.10	0.08	0.11	0.07
Total	**97.14**	**100.84**	**101.75**	**102.87**	**106.78**	**105.73**	**110.84**
Energy use and related statistics							
Delivered energy use	71.17	73.84	75.27	74.87	78.94	76.62	81.97
Total energy use	97.14	100.84	101.75	102.87	106.78	105.73	110.84
Ethanol consumed in motor gasoline and E85	1.12	1.12	1.13	1.12	1.13	1.27	1.30
Population (millions)	317	334	334	359	359	380	380
Gross domestic product (billion 2009 dollars)	15,710	18,801	18,841	23,894	24,222	29,898	30,236
Carbon dioxide emissions (million metric tons)	5,405	5,499	5,435	5,514	5,636	5,549	5,800

[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, in natural gas processing plant machinery, and for liquefaction in export facilities.
[8]Includes consumption of energy produced from hydroelectric, wood and wood waste, municipal waste, and other biomass sources. Excludes ethanol in motor gasoline.
[9]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 this forecast.
[10]Includes only kerosene type.
[11]Diesel fuel for on- and off- road use.
[12]Includes aviation gasoline and lubricants.
[13]Represents consumption unattributed to the sectors above.
[14]Includes aviation gasoline, petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.
[15]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.
[16]Includes consumption of energy by electricity-only and combined heat and power plants that have a regulatory status.
[17]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.
[18]Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes net electricity imports.
[19]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 2013 are model results and may differ from official EIA data reports.
Sources: 2013 consumption based on: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, DOE-EIA-0035(2014/11) (Washington, DC, November 2014). 2013 population and gross domestic product: IHS Economics, Industry and Employment models, November 2014. 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 runs REF2015.D021915A and HIGHRESOURCE.D021915B.

Table D3. Energy prices by sector and source
(2013 dollars per million Btu, unless otherwise noted)

Sector and source	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Residential							
Propane	23.3	23.0	22.2	24.4	23.9	26.6	25.6
Distillate fuel oil	27.2	21.5	20.9	26.3	24.9	32.9	31.3
Natural gas	10.0	11.6	9.6	12.8	10.4	15.5	11.9
Electricity	35.6	37.8	36.1	40.0	36.9	42.4	37.6
Commercial							
Propane	20.0	19.4	18.5	21.1	20.4	23.9	22.6
Distillate fuel oil	26.7	21.0	20.3	25.8	24.3	32.5	31.0
Residual fuel oil	22.1	14.2	13.5	18.1	16.7	24.3	22.1
Natural gas	8.1	9.6	7.6	10.4	8.1	12.6	9.0
Electricity	29.7	31.1	29.6	32.6	29.4	34.5	29.8
Industrial[1]							
Propane	20.3	19.6	18.7	21.5	20.8	24.5	23.0
Distillate fuel oil	27.3	21.2	20.5	26.1	24.5	32.7	31.3
Residual fuel oil	20.0	13.3	12.6	17.2	15.7	23.5	21.1
Natural gas[2]	4.6	6.2	4.3	6.8	4.6	8.8	5.2
Metallurgical coal	5.5	5.8	5.8	6.7	6.6	7.2	7.1
Other industrial coal	3.2	3.3	3.2	3.6	3.4	3.9	3.7
Coal to liquids	- -	- -	- -	- -	- -	- -	- -
Electricity	20.2	21.3	19.9	22.6	20.0	24.7	20.7
Transportation							
Propane	24.6	24.0	23.3	25.5	24.9	27.6	26.6
E85[3]	33.1	30.4	29.9	31.2	30.2	35.4	34.5
Motor gasoline[4]	29.3	22.5	21.8	26.4	25.0	32.3	31.2
Jet fuel[5]	21.8	16.1	15.5	21.3	19.4	28.3	26.1
Diesel fuel (distillate fuel oil)[6]	28.2	23.1	22.5	28.0	26.4	34.7	33.2
Residual fuel oil	19.3	11.7	11.1	15.4	14.1	20.3	19.0
Natural gas[7]	17.6	17.8	16.0	15.7	13.9	19.6	16.8
Electricity	28.5	30.2	28.2	32.9	28.9	36.0	30.5
Electric power[8]							
Distillate fuel oil	24.0	18.8	18.1	23.6	22.1	30.2	28.7
Residual fuel oil	18.9	11.5	10.7	15.4	14.0	21.6	19.3
Natural gas	4.4	5.4	3.7	6.2	4.1	8.3	4.7
Steam coal	2.3	2.4	2.2	2.7	2.4	2.9	2.7
Average price to all users[9]							
Propane	21.9	21.1	20.2	22.6	21.9	25.2	23.9
E85[3]	33.1	30.4	29.9	31.2	30.2	35.4	34.5
Motor gasoline[4]	29.0	22.5	21.8	26.4	25.0	32.3	31.2
Jet fuel[5]	21.8	16.1	15.5	21.3	19.4	28.3	26.1
Distillate fuel oil	27.9	22.6	22.0	27.6	26.0	34.2	32.8
Residual fuel oil	19.4	12.2	11.6	16.0	14.7	21.5	19.8
Natural gas	6.1	7.5	5.4	8.2	5.8	10.5	6.7
Metallurgical coal	5.5	5.8	5.8	6.7	6.6	7.2	7.1
Other coal	2.4	2.4	2.3	2.7	2.5	3.0	2.7
Coal to liquids	- -	- -	- -	- -	- -	- -	- -
Electricity	29.5	30.8	29.2	32.4	29.3	34.7	30.1
Non-renewable energy expenditures by sector (billion 2013 dollars)							
Residential	243	254	238	276	256	311	278
Commercial	177	194	182	219	200	259	228
Industrial[1]	224	264	242	323	298	389	348
Transportation	719	565	550	638	619	791	781
Total non-renewable expenditures	1,364	1,276	1,213	1,456	1,373	1,751	1,635
Transportation renewable expenditures	1	1	1	6	5	10	10
Total expenditures	**1,364**	**1,277**	**1,214**	**1,462**	**1,378**	**1,761**	**1,645**

Table D3. Energy prices by sector and source (continued)
(nominal dollars per million Btu, unless otherwise noted)

Sector and source	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Residential							
Propane	23.3	26.1	25.0	32.8	31.0	43.1	40.4
Distillate fuel oil	27.2	24.4	23.4	35.3	32.3	53.3	49.5
Natural gas	10.0	13.2	10.8	17.1	13.5	25.1	18.8
Electricity	35.6	42.9	40.5	53.6	47.9	68.8	59.4
Commercial							
Propane	20.0	22.0	20.7	28.3	26.5	38.8	35.7
Distillate fuel oil	26.7	23.8	22.8	34.6	31.5	52.6	49.1
Residual fuel oil	22.1	16.1	15.1	24.3	21.7	39.4	34.9
Natural gas	8.1	10.8	8.5	13.9	10.5	20.5	14.2
Electricity	29.7	35.3	33.2	43.7	38.1	56.0	47.1
Industrial[1]							
Propane	20.3	22.3	21.0	28.8	26.9	39.7	36.4
Distillate fuel oil	27.3	24.1	23.0	35.0	31.8	53.0	49.4
Residual fuel oil	20.0	15.1	14.2	23.1	20.4	38.0	33.4
Natural gas[2]	4.6	7.0	4.8	9.1	6.0	14.2	8.3
Metallurgical coal	5.5	6.6	6.5	8.9	8.5	11.6	11.2
Other industrial coal	3.2	3.8	3.6	4.8	4.5	6.3	5.9
Coal to liquids	- -	- -	- -	- -	- -	- -	- -
Electricity	20.2	24.2	22.3	30.3	26.0	40.0	32.7
Transportation							
Propane	24.6	27.2	26.1	34.1	32.3	44.8	42.0
E85[3]	33.1	34.4	33.5	41.9	39.3	57.4	54.6
Motor gasoline[4]	29.3	25.5	24.5	35.3	32.4	52.4	49.4
Jet fuel[5]	21.8	18.3	17.3	28.6	25.2	45.8	41.2
Diesel fuel (distillate fuel oil)[6]	28.2	26.2	25.2	37.6	34.3	56.2	52.5
Residual fuel oil	19.3	13.2	12.4	20.6	18.4	32.9	30.1
Natural gas[7]	17.6	20.2	18.0	21.0	18.0	31.8	26.5
Electricity	28.5	34.3	31.7	44.1	37.5	58.4	48.2
Electric power[8]							
Distillate fuel oil	24.0	21.3	20.3	31.7	28.7	49.0	45.4
Residual fuel oil	18.9	13.0	12.0	20.6	18.2	35.0	30.6
Natural gas	4.4	6.1	4.1	8.3	5.4	13.4	7.4
Steam coal	2.3	2.7	2.5	3.6	3.2	4.7	4.2

Table D3. Energy prices by sector and source (continued)

(nominal dollars per million Btu, unless otherwise noted)

Sector and source	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Average price to all users[9]							
Propane	21.9	23.9	22.6	30.3	28.4	40.9	37.7
E85[3]	33.1	34.4	33.5	41.9	39.3	57.4	54.6
Motor gasoline[4]	29.0	25.5	24.5	35.3	32.4	52.4	49.4
Jet fuel[5]	21.8	18.3	17.3	28.6	25.2	45.8	41.2
Distillate fuel oil	27.9	25.7	24.6	36.9	33.7	55.5	51.9
Residual fuel oil	19.4	13.8	13.0	21.5	19.1	34.8	31.2
Natural gas	6.1	8.5	6.1	11.0	7.5	17.0	10.6
Metallurgical coal	5.5	6.6	6.5	8.9	8.5	11.6	11.2
Other coal	2.4	2.8	2.6	3.7	3.3	4.8	4.3
Coal to liquids	- -	- -	- -	- -	- -	- -	- -
Electricity	29.5	34.9	32.8	43.4	38.1	56.2	47.5
Non-renewable energy expenditures by sector (billion nominal dollars)							
Residential	243	288	268	370	332	504	440
Commercial	177	220	205	294	260	420	360
Industrial[1]	224	299	272	433	387	631	551
Transportation	719	641	617	855	803	1,283	1,235
Total non-renewable expenditures	1,364	1,448	1,361	1,952	1,782	2,839	2,586
Transportation renewable expenditures	1	1	1	8	7	16	15
Total expenditures	**1,364**	**1,449**	**1,362**	**1,960**	**1,788**	**2,855**	**2,601**

[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 this forecast.
[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 2013 are model results and may differ from official EIA data reports.
Sources: 2013 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*, DOE/EIA-0380(2014/08) (Washington, DC, August 2014). 2013 residential, commercial, and industrial natural gas delivered prices: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2014/07) (Washington, DC, July 2014). 2013 transportation sector natural gas delivered prices are model results. 2013 electric power sector distillate and residual fuel oil prices: EIA, *Monthly Energy Review*, DOE/EIA-0035(2014/11) (Washington, DC, November 2014). 2013 electric power sector natural gas prices: EIA, *Electric Power Monthly*, DOE/EIA-0226, April 2013 and April 2014, Table 4.2, and EIA, *State Energy Data Report 2012*, DOE/EIA-0214(2012) (Washington, DC, June 2014). 2013 coal prices based on: EIA, *Quarterly Coal Report, October-December 2013*, DOE/EIA-0121(2013/4Q) (Washington, DC, March 2014) and EIA, AEO2015 National Energy Modeling System run REF2015.D021915A. 2013 electricity prices: EIA, *Monthly Energy Review*, DOE/EIA-0035(2014/11) (Washington, DC, November 2014). 2013 E85 prices derived from monthly prices in the Clean Cities Alternative Fuel Price Report. **Projections:** EIA, AEO2015 National Energy Modeling System runs REF2015.D021915A and HIGHRESOURCE.D021915B.

Table D4. Petroleum and other liquids supply and disposition
(million barrels per day, unless otherwise noted)

Supply and disposition	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Crude oil							
Domestic crude production[1]	7.44	10.60	12.61	10.04	15.64	9.43	16.59
Alaska	0.52	0.42	0.42	0.24	0.24	0.34	0.14
Lower 48 states	6.92	10.18	12.19	9.80	15.40	9.09	16.45
Net imports	7.60	5.51	5.16	6.44	4.02	7.58	4.08
Gross imports	7.73	6.14	6.03	7.07	5.18	8.21	5.02
Exports	0.13	0.63	0.87	0.63	1.16	0.63	0.94
Other crude supply[2]	0.27	0.00	0.00	0.00	0.00	0.00	0.00
Total crude supply	**15.30**	**16.11**	**17.77**	**16.48**	**19.66**	**17.01**	**20.67**
Net product imports	-1.37	-2.80	-5.03	-3.56	-7.86	-4.26	-9.89
Gross refined product imports[3]	0.82	1.21	1.03	1.31	1.27	1.26	1.12
Unfinished oil imports	0.66	0.60	0.60	0.52	0.52	0.45	0.45
Blending component imports	0.60	0.59	0.58	0.49	0.57	0.40	0.52
Exports	3.43	5.20	7.24	5.89	10.22	6.36	11.97
Refinery processing gain[4]	1.09	0.98	1.14	0.97	1.10	0.98	1.06
Product stock withdrawal	0.11	0.00	0.00	0.00	0.00	0.00	0.00
Natural gas plant liquids	2.61	4.04	4.65	4.19	5.78	4.07	6.59
Supply from renewable sources	0.93	1.01	1.02	1.01	1.01	1.12	1.14
Ethanol	0.83	0.84	0.85	0.84	0.84	0.95	0.97
Domestic production	0.85	0.86	0.87	0.86	0.88	0.93	0.96
Net imports	-0.02	-0.02	-0.03	-0.02	-0.03	0.02	0.02
Stock withdrawal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Biodiesel	0.10	0.14	0.14	0.11	0.09	0.11	0.09
Domestic production	0.09	0.13	0.13	0.10	0.08	0.10	0.08
Net imports	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Stock withdrawal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other biomass-derived liquids[5]	0.00	0.03	0.03	0.06	0.08	0.06	0.08
Domestic production	0.00	0.03	0.03	0.06	0.08	0.06	0.08
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	0.28	0.30	0.30	0.34	0.32	0.34
Total primary supply[7]	**18.87**	**19.62**	**19.84**	**19.38**	**20.03**	**19.24**	**19.90**
Product supplied							
by fuel							
Liquefied petroleum gases and other[8]	2.50	2.91	2.95	3.30	3.38	3.25	3.39
Motor gasoline[9]	8.85	8.49	8.53	7.41	7.56	7.05	7.22
of which: E85[10]	0.01	0.02	0.02	0.13	0.12	0.19	0.19
Jet fuel[11]	1.43	1.55	1.55	1.75	1.76	1.87	1.88
Distillate fuel oil[12]	3.83	4.26	4.28	4.34	4.59	4.38	4.60
of which: Diesel	3.56	3.94	3.97	4.09	4.33	4.17	4.38
Residual fuel oil	0.32	0.27	0.27	0.28	0.28	0.28	0.28
Other[13]	2.04	2.18	2.29	2.33	2.53	2.43	2.60
by sector							
Residential and commercial	0.86	0.76	0.76	0.67	0.68	0.61	0.62
Industrial[14]	4.69	5.50	5.65	6.04	6.37	6.09	6.47
Transportation	13.36	13.46	13.54	12.79	13.15	12.66	13.00
Electric power[15]	0.12	0.08	0.07	0.08	0.07	0.08	0.08
Unspecified sector[16]	-0.12	-0.15	-0.15	-0.17	-0.19	-0.17	-0.19
Total product supplied	**18.96**	**19.65**	**19.87**	**19.41**	**20.09**	**19.27**	**19.97**
Discrepancy[17]	-0.10	-0.03	-0.03	-0.03	-0.06	-0.03	-0.07

Table D4. Petroleum and other liquids supply and disposition (continued)

(million barrels per day, unless otherwise noted)

Supply and disposition	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Domestic refinery distillation capacity[18]	17.8	18.8	19.0	18.8	20.1	18.8	20.9
Capacity utilization rate (percent)[19]	88.3	87.8	95.6	89.4	99.8	92.0	100.4
Net import share of product supplied (percent)	33.0	13.7	0.6	14.8	-19.3	17.4	-29.1
Net expenditures for imported crude oil and petroleum products (billion 2013 dollars)	308	167	153	259	165	405	214

[1]Includes lease condensate.
[2]Strategic petroleum reserve stock additions plus unaccounted for crude oil and crude oil stock withdrawals.
[3]Includes other hydrocarbons and alcohols.
[4]The 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.
[5]Includes pyrolysis oils, biomass-derived Fischer-Tropsch liquids, biobutanol, and renewable feedstocks used for the on-site production of diesel and gasoline.
[6]Includes domestic sources of other blending components, other hydrocarbons, and ethers.
[7]Total 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.
[8]Includes ethane, natural gasoline, and refinery olefins.
[9]Includes ethanol and ethers blended into 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 this forecast.
[11]Includes only kerosene type.
[12]Includes distillate fuel oil from petroleum and biomass feedstocks.
[13]Includes 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.
[14]Includes energy for combined heat and power plants that have a non-regulatory status, and small on-site generating systems.
[15]Includes consumption of energy by electricity-only and combined heat and power plants that have a regulatory status.
[16]Represents consumption unattributed to the sectors above.
[17]Balancing item. Includes unaccounted for supply, losses, and gains.
[18]End-of-year operable capacity.
[19]Rate is calculated by dividing the gross annual input to atmospheric crude oil distillation units by their operable refining capacity in barrels per calendar day.
Note: Totals may not equal sum of components due to independent rounding. Data for 2013 are model results and may differ from official EIA data reports.
Sources: 2013 product supplied based on: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, DOE/EIA-0035(2014/11) (Washington, DC, November 2014). Other 2013 data: EIA, *Petroleum Supply Annual 2013*, DOE/EIA-0340(2013)/1 (Washington, DC, September 2014). **Projections:** EIA, AEO2015 National Energy Modeling System runs REF2015.D021915A and HIGHRESOURCE.D021915B.

Table D5. Petroleum and other liquids prices

(2013 dollars per gallon, unless otherwise noted)

Sector and fuel	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Crude oil prices (2013 dollars per barrel)							
Brent spot	109	79	76	106	98	141	129
West Texas Intermediate spot	98	73	64	99	84	136	115
Average imported refiners acquisition cost[1]	98	71	66	96	82	131	111
Brent / West Texas Intermediate spread	10.7	6.2	11.3	6.2	14.1	5.6	14.1
Delivered sector product prices							
Residential							
Propane	2.13	2.10	2.03	2.23	2.18	2.43	2.33
Distillate fuel oil	3.78	2.99	2.89	3.65	3.45	4.56	4.34
Commercial							
Distillate fuel oil	3.68	2.89	2.80	3.56	3.35	4.47	4.28
Residual fuel oil	3.31	2.12	2.02	2.71	2.50	3.64	3.31
Residual fuel oil (2013 dollars per barrel)	139	89	85	114	105	153	139
Industrial[2]							
Propane	1.85	1.79	1.70	1.96	1.90	2.24	2.10
Distillate fuel oil	3.75	2.91	2.82	3.58	3.36	4.49	4.29
Residual fuel oil	3.00	2.00	1.89	2.58	2.36	3.51	3.16
Residual fuel oil (2013 dollars per barrel)	126	84	79	108	99	147	133
Transportation							
Propane	2.24	2.19	2.12	2.32	2.27	2.52	2.43
E85[3]	3.14	2.90	2.85	2.98	2.88	3.38	3.29
Ethanol wholesale price	2.37	2.49	2.42	2.35	2.28	2.64	2.53
Motor gasoline[4]	3.55	2.74	2.65	3.20	3.03	3.90	3.77
Jet fuel[5]	2.94	2.17	2.09	2.88	2.62	3.81	3.52
Diesel fuel (distillate fuel oil)[6]	3.86	3.17	3.08	3.84	3.62	4.75	4.55
Residual fuel oil	2.89	1.74	1.66	2.30	2.12	3.03	2.85
Residual fuel oil (2013 dollars per barrel)	122	73	70	97	89	127	120
Electric power[7]							
Distillate fuel oil	3.33	2.60	2.51	3.28	3.07	4.19	3.98
Residual fuel oil	2.83	1.71	1.61	2.30	2.09	3.23	2.90
Residual fuel oil (2013 dollars per barrel)	119	72	67	97	88	136	122
Average prices, all sectors[8]							
Propane	2.00	1.93	1.84	2.06	2.00	2.30	2.18
Motor gasoline[4]	3.53	2.74	2.65	3.20	3.03	3.90	3.77
Jet fuel[5]	2.94	2.17	2.09	2.88	2.62	3.81	3.52
Distillate fuel oil	3.83	3.11	3.01	3.78	3.57	4.69	4.50
Residual fuel oil	2.90	1.83	1.73	2.40	2.20	3.22	2.96
Residual fuel oil (2013 dollars per barrel)	122	77	73	101	92	135	124
Average	**3.16**	**2.46**	**2.37**	**2.89**	**2.73**	**3.62**	**3.44**

Table D5. Petroleum and other liquids prices (continued)

(nominal dollars per gallon, unless otherwise noted)

Sector and fuel	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Crude oil prices (nominal dollars per barrel)							
Brent spot	109	90	85	142	127	229	205
West Texas Intermediate spot	98	83	72	133	109	220	182
Average imported refiners acquisition cost[1]	98	80	74	129	107	212	175
Delivered sector product prices							
Residential							
Propane	2.13	2.38	2.28	2.99	2.83	3.94	3.69
Distillate fuel oil	3.78	3.39	3.25	4.90	4.48	7.40	6.87
Commercial							
Distillate fuel oil	3.68	3.28	3.14	4.78	4.35	7.25	6.76
Residual fuel oil	3.31	2.41	2.26	3.63	3.25	5.90	5.23
Industrial[2]							
Propane	1.85	2.04	1.91	2.63	2.46	3.62	3.33
Distillate fuel oil	3.75	3.30	3.16	4.80	4.37	7.28	6.78
Residual fuel oil	3.00	2.26	2.12	3.46	3.06	5.69	4.99
Transportation							
Propane	2.24	2.49	2.38	3.12	2.95	4.09	3.84
E85[3]	3.14	3.29	3.20	3.99	3.74	5.48	5.21
Ethanol wholesale price	2.37	2.83	2.72	3.15	2.96	4.27	4.00
Motor gasoline[4]	3.55	3.10	2.98	4.29	3.93	6.32	5.96
Jet fuel[5]	2.94	2.47	2.34	3.86	3.40	6.18	5.57
Diesel fuel (distillate fuel oil)[6]	3.86	3.60	3.45	5.15	4.70	7.70	7.20
Residual fuel oil	2.89	1.98	1.86	3.08	2.75	4.92	4.50
Electric power[7]							
Distillate fuel oil	3.33	2.95	2.82	4.39	3.98	6.79	6.30
Residual fuel oil	2.83	1.94	1.80	3.09	2.72	5.24	4.58
Average prices, all sectors[8]							
Propane	2.00	2.19	2.07	2.77	2.59	3.73	3.45
Motor gasoline[4]	3.53	3.10	2.98	4.29	3.93	6.32	5.95
Jet fuel[5]	2.94	2.47	2.34	3.86	3.40	6.18	5.57
Distillate fuel oil	3.83	3.52	3.38	5.07	4.63	7.61	7.12
Residual fuel oil (nominal dollars per barrel)	122	87	82	135	120	219	196
Average	**3.16**	**2.79**	**2.66**	**3.88**	**3.54**	**5.86**	**5.43**

[1]Weighted average price delivered to U.S. refiners.
[2]Includes combined heat and power plants that have a non-regulatory status, and small on-site generating systems.
[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 this forecast.
[4]Sales weighted-average price for all grades. Includes Federal, State, and local taxes.
[5]Includes only kerosene type.
[6]Diesel fuel for on-road use. Includes Federal and State taxes while excluding county and local taxes.
[7]Includes electricity-only and combined heat and power plants that have a regulatory status.
[8]Weighted averages of end-use fuel prices are derived from the prices in each sector and the corresponding sectoral consumption.
Note: Data for 2013 are model results and may differ from official EIA data reports.
Sources: 2013 Brent and West Texas Intermediate crude oil spot prices: Thomson Reuters. 2013 average imported crude oil price: Energy Information Administration (EIA), *Monthly Energy Review*, DOE/EIA-0035(2014/11) (Washington, DC, November 2014). 2013 prices for motor gasoline, distillate fuel oil, and jet fuel are based on: EIA, *Petroleum Marketing Monthly*, DOE/EIA-0380(2014/08) (Washington, DC, August 2014). 2013 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." 2013 electric power prices based on: *Monthly Energy Review*, DOE/EIA-0035(2014/11) (Washington, DC, November 2014). 2013 E85 prices derived from monthly prices in the Clean Cities Alternative Fuel Price Report. 2013 wholesale ethanol prices derived from Bloomberg U.S. average rack price. **Projections:** EIA, AEO2015 National Energy Modeling System runs REF2015.D021915A and HIGHRESOURCE.D021915B.

Table D6. Natural gas supply, disposition, and prices
(trillion cubic feet, unless otherwise noted)

Supply, disposition, and prices	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Supply							
Dry gas production[1]	24.40	28.82	32.18	33.01	42.66	35.45	50.61
Supplemental natural gas[2]	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Net imports	1.29	-2.55	-2.74	-4.81	-9.03	-5.62	-13.11
Pipeline[3]	1.20	-0.48	-0.66	-1.52	-1.78	-2.33	-2.85
Liquefied natural gas	0.09	-2.08	-2.08	-3.29	-7.26	-3.29	-10.26
Total supply	**25.75**	**26.33**	**29.51**	**28.27**	**33.69**	**29.90**	**37.57**
Consumption by sector							
Residential	4.92	4.50	4.62	4.40	4.57	4.20	4.40
Commercial	3.28	3.21	3.39	3.33	3.61	3.61	4.00
Industrial[4]	7.41	8.10	8.32	8.41	8.92	8.66	9.18
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]	8.16	7.61	10.04	8.81	12.16	9.38	13.89
Transportation[8]	0.05	0.07	0.07	0.17	0.18	0.70	0.94
Pipeline fuel	0.86	0.83	0.90	0.91	1.10	0.93	1.22
Lease and plant fuel[9]	1.48	1.82	1.97	2.05	2.97	2.23	3.74
Total consumption	**26.16**	**26.14**	**29.32**	**28.08**	**33.50**	**29.70**	**37.38**
Discrepancy[10]	**-0.41**	**0.19**	**0.19**	**0.19**	**0.19**	**0.19**	**0.19**
Natural gas spot price at Henry Hub							
(2013 dollars per million Btu)	3.73	4.88	3.12	5.69	3.67	7.85	4.38
(nominal dollars per million Btu)	3.73	5.54	3.51	7.63	4.76	12.73	6.93
Delivered prices							
(2013 dollars per thousand cubic feet)							
Residential	10.29	11.92	9.90	13.15	10.72	15.90	12.21
Commercial	8.35	9.82	7.83	10.69	8.31	12.97	9.24
Industrial[4]	4.68	6.35	4.40	6.99	4.78	9.03	5.37
Electric power[7]	4.51	5.52	3.77	6.38	4.25	8.49	4.79
Transportation[11]	18.13	18.27	16.49	16.13	14.27	20.18	17.24
Average[12]	**6.32**	**7.66**	**5.59**	**8.40**	**5.97**	**10.76**	**6.87**
(nominal dollars per thousand cubic feet)							
Residential	10.29	13.52	11.11	17.62	13.91	25.77	19.31
Commercial	8.35	11.14	8.79	14.33	10.78	21.03	14.61
Industrial[4]	4.68	7.20	4.94	9.37	6.20	14.64	8.49
Electric power[7]	4.51	6.26	4.24	8.55	5.52	13.76	7.57
Transportation[11]	18.13	20.73	18.51	21.62	18.52	32.72	27.26
Average[12]	**6.32**	**8.68**	**6.28**	**11.27**	**7.75**	**17.44**	**10.87**

[1]Marketed production (wet) minus extraction losses.
[2]Synthetic 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.
[3]Includes any natural gas regasified in the Bahamas and transported via pipeline to Florida, as well as gas from Canada and Mexico.
[4]Includes 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.
[5]Includes any natural gas used in the process of converting natural gas to liquid fuel that is not actually converted.
[6]Includes any natural gas converted into liquid fuel.
[7]Includes consumption of energy by electricity-only and combined heat and power plants that have a regulatory status.
[8]Natural gas used as fuel in motor vehicles, trains, and ships.
[9]Represents natural gas used in well, field, and lease operations, in natural gas processing plant machinery, and for liquefaction in export facilities.
[10]Balancing 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, 2013 values include net storage injections.
[11]Natural gas used as fuel in motor vehicles, trains, and ships. Price includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.
[12]Weighted 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 2013 are model results and may differ from official EIA data reports.
Sources: 2013 supply values; lease, plant, and pipeline fuel consumption; and residential, commercial, and industrial delivered prices: U.S. Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2014/07) (Washington, DC, July 2014). Other 2013 consumption based on: EIA, *Monthly Energy Review*, DOE/EIA-0035(2014/11) (Washington, DC, November 2014). 2013 natural gas spot price at Henry Hub: Thomson Reuters. 2013 electric power prices: EIA, *Electric Power Monthly*, DOE/EIA-0226, April 2013 and April 2014, Table 4.2, and EIA, *State Energy Data Report 2012*, DOE/EIA-0214(2012) (Washington, DC, June 2014). 2013 transportation sector delivered prices are model results. **Projections:** EIA, AEO2015 National Energy Modeling System runs REF2015.D021915A and HIGHRESOURCE.D021915B.

Table D7. Oil and gas supply

Production and supply	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Crude oil							
Lower 48 average wellhead price[1] (2013 dollars per barrel)	**97**	**75**	**67**	**101**	**85**	**136**	**117**
Production (million barrels per day)[2]							
United States total	7.44	10.60	12.61	10.04	15.64	9.43	16.59
Lower 48 onshore	5.57	8.03	9.88	7.60	13.03	6.92	14.03
Tight oil[3]	3.15	5.60	7.45	4.83	10.23	4.29	11.56
Carbon dioxide enhanced oil recovery	0.28	0.35	0.32	0.58	0.46	0.83	0.44
Other	2.14	2.08	2.12	2.19	2.34	1.80	2.03
Lower 48 offshore	1.36	2.15	2.31	2.21	2.37	2.17	2.42
State	0.07	0.05	0.05	0.03	0.03	0.02	0.02
Federal	1.29	2.10	2.26	2.18	2.34	2.14	2.39
Alaska	0.52	0.42	0.42	0.24	0.24	0.34	0.14
Onshore	0.45	0.30	0.30	0.18	0.18	0.12	0.12
State offshore	0.06	0.12	0.12	0.06	0.06	0.02	0.02
Federal offshore	0.00	0.00	0.00	0.00	0.00	0.20	0.00
Lower 48 end of year reserves[2] (billion barrels)	**29.4**	**37.4**	**40.6**	**42.6**	**55.2**	**44.8**	**62.7**
Natural gas plant liquids production (million barrels per day)							
United States total	2.61	4.04	4.65	4.20	5.78	4.07	6.59
Lower 48 onshore	2.39	3.82	4.42	3.92	5.50	3.79	6.31
Lower 48 offshore	0.18	0.19	0.20	0.26	0.26	0.26	0.27
Alaska	0.03	0.02	0.02	0.01	0.01	0.02	0.01
Natural gas							
Natural gas spot price at Henry Hub (2013 dollars per million Btu)	**3.73**	**4.88**	**3.12**	**5.69**	**3.67**	**7.85**	**4.38**
Dry production (trillion cubic feet)[4]							
United States total	24.40	28.82	32.18	33.01	42.66	35.45	50.61
Lower 48 onshore	22.63	26.52	29.78	29.05	39.66	31.49	47.47
Tight gas	4.38	5.21	5.44	5.99	7.06	6.97	8.14
Shale gas and tight oil plays[3]	11.34	15.44	18.82	17.85	27.50	19.58	34.57
Coalbed methane	1.29	1.45	1.25	1.24	1.16	1.25	1.13
Other	5.61	4.42	4.27	3.97	3.95	3.69	3.63
Lower 48 offshore	1.46	2.03	2.14	2.79	2.77	2.81	2.95
State	0.11	0.06	0.06	0.03	0.03	0.02	0.02
Federal	1.35	1.98	2.08	2.76	2.74	2.79	2.93
Alaska	0.32	0.27	0.27	1.18	0.23	1.15	0.19
Onshore	0.32	0.27	0.27	1.18	0.23	1.15	0.19
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
Lower 48 end of year dry reserves[4] (trillion cubic feet)	**293**	**309**	**329**	**329**	**382**	**345**	**435**
Supplemental gas supplies (trillion cubic feet)[5]	**0.05**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**
Total lower 48 wells drilled (thousands)	**44.5**	**43.4**	**47.1**	**52.1**	**62.3**	**56.7**	**61.5**

[1]Represents lower 48 onshore and offshore supplies.
[2]Includes lease condensate.
[3]Tight 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.
[4]Marketed production (wet) minus extraction losses.
[5]Synthetic 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 2013 are model results and may differ from official EIA data reports.

Sources: 2013 crude oil lower 48 average wellhead price: U.S. Energy Information Administration (EIA), *Petroleum Marketing Monthly*, DOE/EIA-0380(2014/08) (Washington, DC, August 2014). 2013 lower 48 onshore, lower 48 offshore, and Alaska crude oil production: EIA, *Petroleum Supply Annual 2013*, DOE/EIA-0340(2013)/1 (Washington, DC, September 2014). 2013 natural gas spot price at Henry Hub: Thomson Reuters. 2013 Alaska and total natural gas production, and supplemental gas supplies: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2014/07) (Washington, DC, July 2014). Other 2013 values: EIA, Office of Energy Analysis. **Projections:** EIA, AEO2015 National Energy Modeling System runs REF2015.D021915A and HIGHRESOURCE.D021915B.

Table D8. International petroleum and other liquids supply, disposition, and prices
(million barrels per day, unless otherwise noted)

Supply, disposition, and prices	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Crude oil spot prices							
(2013 dollars per barrel)							
Brent	109	79	76	106	98	141	129
West Texas Intermediate	98	73	64	99	84	136	115
(nominal dollars per barrel)							
Brent	109	90	85	142	127	229	205
West Texas Intermediate	98	83	72	133	109	220	182
Petroleum and other liquids consumption[1]							
OECD							
United States (50 states)	18.96	19.65	19.87	19.41	20.09	19.27	19.97
United States territories	0.30	0.31	0.31	0.34	0.34	0.38	0.38
Canada	2.29	2.31	2.31	2.21	2.21	2.14	2.14
Mexico and Chile	2.46	2.71	2.71	2.80	2.80	2.92	2.92
OECD Europe[2]	13.96	14.20	14.20	14.09	14.09	14.12	14.12
Japan	4.56	4.27	4.27	4.03	4.03	3.65	3.65
South Korea	2.43	2.58	2.58	2.53	2.53	2.40	2.40
Australia and New Zealand	1.16	1.16	1.16	1.11	1.11	1.15	1.15
Total OECD consumption	**46.14**	**47.20**	**47.43**	**46.52**	**47.20**	**46.04**	**46.74**
Non-OECD							
Russia	3.30	3.31	3.31	3.23	3.23	3.01	3.01
Other Europe and Eurasia[3]	2.06	2.22	2.22	2.39	2.39	2.59	2.59
China	10.67	13.13	13.13	17.03	17.03	20.19	20.19
India	3.70	4.30	4.30	5.52	5.52	6.79	6.79
Other Asia[4]	7.37	9.08	9.08	12.35	12.35	16.49	16.49
Middle East	7.61	8.40	8.40	9.56	9.56	11.13	11.13
Africa	3.42	3.93	3.93	4.78	4.78	6.18	6.18
Brazil	3.11	3.33	3.33	3.74	3.74	4.50	4.50
Other Central and South America	3.38	3.49	3.49	3.72	3.72	4.15	4.15
Total non-OECD consumption	**44.60**	**51.20**	**51.20**	**62.31**	**62.31**	**75.01**	**75.01**
Total consumption	**90.7**	**98.4**	**98.6**	**108.8**	**109.5**	**121.0**	**121.8**
Petroleum and other liquids production							
OPEC[5]							
Middle East	26.32	24.56	21.99	29.34	22.69	36.14	27.03
North Africa	2.90	3.51	3.51	3.67	3.67	4.06	4.06
West Africa	4.26	5.00	5.00	5.24	5.24	5.43	5.43
South America	3.01	3.10	3.10	3.27	3.27	3.79	3.79
Total OPEC production	**36.49**	**36.16**	**33.59**	**41.53**	**34.87**	**49.42**	**40.31**
Non-OPEC							
OECD							
United States (50 states)	12.64	16.92	19.73	16.52	23.89	15.89	25.69
Canada	4.15	5.05	5.05	6.26	6.26	6.76	6.76
Mexico and Chile	2.94	2.93	2.93	3.32	3.32	3.79	3.79
OECD Europe[2]	3.88	3.35	3.35	2.98	2.98	3.19	3.19
Japan and South Korea	0.18	0.17	0.17	0.18	0.18	0.18	0.18
Australia and New Zealand	0.49	0.60	0.60	0.86	0.86	0.96	0.96
Total OECD production	**24.29**	**29.03**	**31.83**	**30.12**	**37.49**	**30.77**	**40.57**
Non-OECD							
Russia	10.50	10.71	10.71	11.22	11.22	12.16	12.16
Other Europe and Eurasia[3]	3.27	3.41	3.41	4.42	4.42	5.18	5.18
China	4.48	5.11	5.11	5.66	5.66	5.84	5.84
Other Asia[4]	3.82	3.85	3.85	3.67	3.67	4.01	4.01
Middle East	1.20	1.03	1.03	0.85	0.85	0.77	0.77
Africa	2.41	2.70	2.70	2.94	2.94	3.33	3.33
Brazil	2.73	3.70	3.70	5.43	5.43	6.12	6.12
Other Central and South America	2.21	2.71	2.71	2.97	2.97	3.47	3.47
Total non-OECD production	**30.63**	**33.21**	**33.21**	**37.17**	**37.17**	**40.88**	**40.88**
Total petroleum and other liquids production	**91.4**	**98.4**	**98.6**	**108.8**	**109.5**	**121.1**	**121.8**
OPEC market share (percent)	39.9	36.7	34.1	38.2	31.8	40.8	33.1

Table D8. International petroleum and other liquids supply, disposition, and prices (continued)

(million barrels per day, unless otherwise noted)

Supply, disposition, and prices	2013	Projections					
		2020		2030		2040	
		Reference	High oil and gas resource	Reference	High oil and gas resource	Reference	High oil and gas resource
Selected world production subtotals:							
Crude oil and equivalents[6]	77.93	82.19	81.78	89.77	88.84	99.09	97.22
Tight oil	3.62	7.49	9.33	9.16	14.57	10.15	17.40
Bitumen[7]	2.11	3.00	3.00	3.95	3.95	4.26	4.26
Refinery processing gain[8]	2.40	2.42	2.59	2.74	2.88	2.97	3.04
Natural gas plant liquids	9.36	11.28	11.89	12.42	13.99	13.79	16.31
Liquids from renewable sources[9]	2.14	2.56	2.57	3.36	3.38	4.22	4.24
Liquids from coal[10]	0.21	0.33	0.33	0.69	0.69	1.05	1.05
Liquids from natural gas[11]	0.24	0.33	0.33	0.51	0.51	0.61	0.61
Liquids from kerogen[12]	0.01	0.01	0.01	0.01	0.14	0.01	0.14
Crude oil production[6]							
OPEC[5]							
Middle East	23.13	21.20	18.63	25.59	18.93	31.79	22.68
North Africa	2.43	2.93	2.93	2.92	2.92	2.96	2.96
West Africa	4.20	4.89	4.89	5.13	5.13	5.29	5.29
South America	2.82	2.86	2.86	2.98	2.98	3.48	3.48
Total OPEC production	**32.60**	**31.89**	**29.32**	**36.62**	**30.10**	**43.52**	**34.54**
Non-OPEC							
OECD							
United States (50 states)	8.90	11.58	13.75	11.01	16.60	10.41	17.51
Canada	3.42	4.35	4.35	5.48	5.48	5.92	5.92
Mexico and Chile	2.59	2.61	2.61	3.00	3.00	3.45	3.45
OECD Europe[2]	2.82	2.17	2.17	1.66	1.66	1.69	1.69
Japan and South Korea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Australia and New Zealand	0.37	0.47	0.47	0.67	0.67	0.75	0.75
Total OECD production	**18.10**	**21.18**	**23.35**	**21.83**	**27.42**	**22.23**	**29.33**
Non-OECD							
Russia	10.02	10.15	10.15	10.42	10.42	11.10	11.10
Other Europe and Eurasia[3]	3.05	3.18	3.18	4.03	4.03	4.66	4.66
China	4.16	4.54	4.54	4.56	4.56	4.13	4.13
Other Asia[4]	3.04	2.94	2.94	2.45	2.45	2.47	2.47
Middle East	1.16	1.00	1.00	0.82	0.82	0.74	0.74
Africa	1.97	2.18	2.18	2.38	2.38	2.70	2.70
Brazil	2.02	2.87	2.87	4.16	4.16	4.60	4.60
Other Central and South America	1.81	2.25	2.25	2.49	2.49	2.94	2.94
Total non-OECD production	**27.24**	**29.11**	**29.11**	**31.32**	**31.32**	**33.35**	**33.35**
Total crude oil production[6]	**77.9**	**82.2**	**81.8**	**89.8**	**88.8**	**99.1**	**97.2**
OPEC market share (percent)	41.8	38.8	35.8	40.8	33.9	43.9	35.5

[1]Estimated consumption. Includes both OPEC and non-OPEC consumers in the regional breakdown.
[2]OECD 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.
[3]Other 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.
[4]Other 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.
[5]OPEC = Organization of the Petroleum Exporting Countries = Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.
[6]Includes crude oil, lease condensate, tight oil (shale oil), extra-heavy oil, and bitumen (oil sands).
[7]Includes diluted and upgraded/synthetic bitumen (syncrude).
[8]The 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.
[9]Includes liquids produced from energy crops.
[10]Includes liquids converted from coal via the Fischer-Tropsch coal-to-liquids process.
[11]Includes liquids converted from natural gas via the Fischer-Tropsch natural-gas-to-liquids process.
[12]Includes liquids produced from kerogen (oil shale, not to be confused with tight oil (shale oil)).
OECD = Organization for Economic Cooperation and Development.
Note: Totals may not equal sum of components due to independent rounding. Data for 2013 are model results and may differ from official EIA data reports.
Sources: 2013 Brent and West Texas Intermediate crude oil spot prices: Thomson Reuters. **2013 quantities and projections:** Energy Information Administration (EIA), AEO2015 National Energy Modeling System runs REF2015.D021915A and HIGHRESOURCE.D021915B; and EIA, Generate World Oil Balance application.