

## Results from side cases

Table D1. Key results for residential and commercial sector technology cases

Energy consumption	2010	2015				2025			
		Integrated 2011 Demand Technology	Reference	Integrated High Demand Technology	Integrated Best Available Demand Technology	Integrated 2011 Demand Technology	Reference	Integrated High Demand Technology	Integrated Best Available Demand Technology
<b>Residential</b>									
<b>Energy consumption (quadrillion Btu)</b>									
Liquefied petroleum gases	0.56	0.52	0.51	0.51	0.50	0.52	0.50	0.48	0.48
Kerosene	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Distillate fuel oil	0.63	0.56	0.55	0.54	0.53	0.46	0.43	0.41	0.39
Liquid fuels and other petroleum subtotal	1.22	1.10	1.08	1.07	1.05	1.00	0.95	0.91	0.88
Natural gas	5.06	5.03	4.97	4.83	4.63	5.12	4.88	4.51	4.00
Coal	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Renewable energy <sup>1</sup>	0.42	0.43	0.43	0.42	0.41	0.47	0.43	0.41	0.37
Electricity	4.95	4.83	4.75	4.53	4.28	5.48	5.23	4.74	4.10
<b>Delivered energy</b>	<b>11.66</b>	<b>11.40</b>	<b>11.24</b>	<b>10.85</b>	<b>10.38</b>	<b>12.08</b>	<b>11.51</b>	<b>10.57</b>	<b>9.36</b>
Electricity related losses	10.39	9.75	9.58	9.09	8.52	10.98	10.52	9.53	8.17
<b>Total</b>	<b>22.05</b>	<b>21.15</b>	<b>20.81</b>	<b>19.95</b>	<b>18.90</b>	<b>23.07</b>	<b>22.02</b>	<b>20.10</b>	<b>17.53</b>
<b>Delivered energy intensity (million Btu per household)</b>	<b>102.1</b>	<b>96.0</b>	<b>94.6</b>	<b>91.4</b>	<b>87.4</b>	<b>91.1</b>	<b>86.8</b>	<b>79.7</b>	<b>70.6</b>
<b>Nonmarketed renewables consumption (quadrillion Btu)</b>	<b>0.02</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.09</b>	<b>0.10</b>	<b>0.10</b>	<b>0.11</b>	<b>0.13</b>
<b>Commercial</b>									
<b>Energy consumption (quadrillion Btu)</b>									
Liquefied petroleum gases	0.14	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.15
Motor gasoline <sup>2</sup>	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Kerosene	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Distillate fuel oil	0.43	0.35	0.35	0.35	0.35	0.33	0.33	0.32	0.32
Residual fuel oil	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Liquid fuels and other petroleum subtotal	0.72	0.62	0.62	0.62	0.62	0.62	0.62	0.61	0.61
Natural gas	3.28	3.42	3.41	3.39	3.41	3.53	3.53	3.48	3.56
Coal	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Renewable energy <sup>3</sup>	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Electricity	4.54	4.64	4.59	4.42	4.26	5.39	5.16	4.62	4.17
<b>Delivered energy</b>	<b>8.70</b>	<b>8.85</b>	<b>8.80</b>	<b>8.60</b>	<b>8.46</b>	<b>9.71</b>	<b>9.48</b>	<b>8.87</b>	<b>8.50</b>
Electricity related losses	9.52	9.38	9.27	8.88	8.48	10.79	10.38	9.29	8.30
<b>Total</b>	<b>18.22</b>	<b>18.24</b>	<b>18.06</b>	<b>17.48</b>	<b>16.94</b>	<b>20.50</b>	<b>19.86</b>	<b>18.16</b>	<b>16.80</b>
<b>Delivered energy intensity (thousand Btu per square foot)</b>	<b>107.3</b>	<b>105.3</b>	<b>104.6</b>	<b>102.2</b>	<b>100.6</b>	<b>103.4</b>	<b>101.0</b>	<b>94.5</b>	<b>90.5</b>
<b>Commercial sector generation</b>									
<b>Net summer generation capacity (megawatts)</b>									
Natural gas	711	843	865	900	914	1455	1955	2605	3066
Solar photovoltaic	1197	1251	1253	1254	1262	1490	1578	1753	2235
Wind	83	90	91	94	106	106	132	138	225
<b>Electricity generation (billion kilowatthours)</b>									
Natural gas	5.17	6.13	6.29	6.54	6.64	10.58	14.22	18.95	22.30
Solar photovoltaic	1.87	1.96	1.96	1.96	1.97	2.34	2.51	2.80	3.58
Wind	0.10	0.12	0.12	0.12	0.14	0.14	0.18	0.19	0.31
<b>Nonmarketed renewables consumption (quadrillion Btu)</b>	<b>0.03</b>	<b>0.04</b>	<b>0.04</b>	<b>0.05</b>	<b>0.05</b>	<b>0.04</b>	<b>0.04</b>	<b>0.07</b>	<b>0.08</b>

<sup>1</sup>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 hot water heating, and solar photovoltaic electricity generation.

<sup>2</sup>Includes ethanol (blends of 15 percent or less) and ethers blended into gasoline.

<sup>3</sup>Includes commercial sector consumption of wood and wood waste, landfill gas, municipal solid waste, and other biomass for combined heat and power.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Source: U.S. Energy Information Administration, AEO2012 National Energy Modeling System, runs FROZTECH.D030812A, REF2012.D020112C, HIGHTECH.D032812A, and BESTTECH.D032812A.

2035				Annual Growth 2010-2035 (percent)			
Integrated 2011 Demand Technology	Reference	Integrated High Demand Technology	Integrated Best Available Demand Technology	Integrated 2011 Demand Technology	Reference	Integrated High Demand Technology	Integrated Best Available Demand Technology
0.53	0.51	0.48	0.47	-0.2%	-0.4%	-0.6%	-0.7%
0.02	0.02	0.02	0.02	-1.2%	-1.7%	-2.1%	-2.4%
0.40	0.35	0.32	0.29	-1.8%	-2.3%	-2.7%	-3.1%
0.95	0.87	0.82	0.78	-1.0%	-1.3%	-1.6%	-1.8%
5.23	4.76	4.28	3.67	0.1%	-0.2%	-0.7%	-1.3%
0.01	0.01	0.00	0.00	-0.5%	-1.1%	-1.5%	-1.8%
0.50	0.43	0.39	0.34	0.6%	0.1%	-0.3%	-0.9%
6.23	5.86	5.26	4.45	0.9%	0.7%	0.2%	-0.4%
<b>12.91</b>	<b>11.93</b>	<b>10.75</b>	<b>9.24</b>	<b>0.4%</b>	<b>0.1%</b>	<b>-0.3%</b>	<b>-0.9%</b>
12.14	11.35	10.31	8.65	0.6%	0.4%	-0.0%	-0.7%
<b>25.05</b>	<b>23.28</b>	<b>21.06</b>	<b>17.89</b>	<b>0.5%</b>	<b>0.2%</b>	<b>-0.2%</b>	<b>-0.8%</b>
<b>88.7</b>	<b>81.9</b>	<b>73.8</b>	<b>63.4</b>	<b>-0.6%</b>	<b>-0.9%</b>	<b>-1.3%</b>	<b>-1.9%</b>
<b>0.10</b>	<b>0.11</b>	<b>0.14</b>	<b>0.19</b>	<b>6.4%</b>	<b>6.9%</b>	<b>7.7%</b>	<b>9.2%</b>
0.15	0.16	0.16	0.16	0.3%	0.3%	0.4%	0.4%
0.06	0.06	0.06	0.06	0.4%	0.4%	0.4%	0.4%
0.01	0.01	0.01	0.01	0.7%	0.7%	0.7%	0.7%
0.32	0.32	0.30	0.30	-1.2%	-1.2%	-1.4%	-1.5%
0.08	0.08	0.08	0.08	-0.1%	-0.0%	-0.0%	-0.0%
0.62	0.62	0.61	0.60	-0.6%	-0.5%	-0.7%	-0.7%
3.63	3.69	3.64	3.74	0.4%	0.5%	0.4%	0.5%
0.06	0.06	0.06	0.06	-0.0%	-0.0%	-0.0%	-0.0%
0.11	0.11	0.11	0.11	0.0%	0.0%	0.0%	0.0%
6.07	5.80	4.87	4.33	1.2%	1.0%	0.3%	-0.2%
<b>10.49</b>	<b>10.28</b>	<b>9.28</b>	<b>8.84</b>	<b>0.8%</b>	<b>0.7%</b>	<b>0.3%</b>	<b>0.1%</b>
11.82	11.23	9.54	8.41	0.9%	0.7%	0.0%	-0.5%
<b>22.32</b>	<b>21.50</b>	<b>18.82</b>	<b>17.25</b>	<b>0.8%</b>	<b>0.7%</b>	<b>0.1%</b>	<b>-0.2%</b>
<b>101.9</b>	<b>99.8</b>	<b>90.1</b>	<b>85.8</b>	<b>-0.2%</b>	<b>-0.3%</b>	<b>-0.7%</b>	<b>-0.9%</b>
2514	4795	6609	7235	5.2%	7.9%	9.3%	9.7%
1832	2311	3177	5546	1.7%	2.7%	4.0%	6.3%
178	270	269	375	3.1%	4.8%	4.8%	6.2%
18.29	34.88	48.08	52.63	5.2%	7.9%	9.3%	9.7%
2.88	3.74	5.17	9.02	1.7%	2.8%	4.2%	6.5%
0.24	0.38	0.38	0.53	3.5%	5.3%	5.3%	6.7%
<b>0.04</b>	<b>0.05</b>	<b>0.11</b>	<b>0.12</b>	<b>1.0%</b>	<b>1.7%</b>	<b>4.8%</b>	<b>5.1%</b>

Table D2. Key results for integrated technology cases

Consumption and emissions	2010	2015			2025			2035		
		Integrated 2011 Technology	Reference	Integrated High Technology	Integrated 2011 Technology	Reference	Integrated High Technology	Integrated 2011 Technology	Reference	Integrated High Technology
<b>Energy consumption by sector (quadrillion Btu)</b>										
Residential	11.66	11.39	11.24	10.87	12.08	11.51	10.60	12.90	11.93	10.80
Commercial	8.70	8.85	8.80	8.62	9.70	9.48	8.90	10.48	10.28	9.33
Industrial <sup>1</sup>	23.37	23.99	23.96	24.03	25.24	25.53	25.88	25.68	26.94	27.69
Transportation	27.59	27.61	27.60	27.48	27.45	27.40	26.80	28.57	28.60	27.64
Electric power <sup>2</sup>	39.63	39.09	38.64	37.46	43.38	42.03	39.08	46.11	44.24	40.45
<b>Total</b>	<b>98.16</b>	<b>98.00</b>	<b>97.43</b>	<b>96.02</b>	<b>103.43</b>	<b>101.99</b>	<b>98.25</b>	<b>108.09</b>	<b>106.93</b>	<b>102.23</b>
<b>Energy consumption by fuel (quadrillion Btu)</b>										
Liquid fuels and other petroleum <sup>3</sup>	37.25	36.77	36.72	36.54	36.67	36.58	35.84	37.67	37.70	36.52
Natural gas	24.71	26.02	26.00	25.69	26.77	26.14	25.13	28.64	27.26	25.23
Coal	20.76	18.14	17.80	16.64	20.73	20.02	17.87	21.89	21.15	18.45
Nuclear / uranium	8.44	8.68	8.68	8.68	9.60	9.60	9.34	9.14	9.28	9.55
Renewable energy <sup>4</sup>	6.72	8.10	7.92	8.17	9.38	9.38	9.80	10.48	11.29	12.24
Other <sup>5</sup>	0.29	0.30	0.30	0.30	0.28	0.28	0.27	0.26	0.24	0.24
<b>Total</b>	<b>98.16</b>	<b>98.00</b>	<b>97.43</b>	<b>96.02</b>	<b>103.43</b>	<b>101.99</b>	<b>98.25</b>	<b>108.09</b>	<b>106.93</b>	<b>102.23</b>
<b>Energy intensity (thousand Btu per 2005 dollar of GDP)</b>	<b>7.50</b>	<b>6.62</b>	<b>6.58</b>	<b>6.49</b>	<b>5.39</b>	<b>5.32</b>	<b>5.12</b>	<b>4.41</b>	<b>4.36</b>	<b>4.17</b>
<b>Carbon dioxide emissions by sector (million metric tons)</b>										
Residential	353	343	338	331	341	324	302	342	312	284
Commercial	229	231	231	230	237	237	233	242	246	242
Industrial <sup>1</sup>	909	964	963	962	993	992	983	1015	1011	995
Transportation	1872	1865	1864	1856	1829	1820	1772	1883	1859	1787
Electric power <sup>6</sup>	2271	2040	2011	1884	2268	2179	1942	2446	2330	1992
<b>Total</b>	<b>5634</b>	<b>5443</b>	<b>5407</b>	<b>5263</b>	<b>5668</b>	<b>5552</b>	<b>5232</b>	<b>5928</b>	<b>5758</b>	<b>5300</b>
<b>Carbon dioxide emissions by fuel (million metric tons)</b>										
Petroleum	2349	2332	2329	2315	2275	2261	2201	2327	2300	2208
Natural gas	1283	1368	1367	1350	1407	1374	1320	1508	1435	1327
Coal	1990	1731	1699	1586	1974	1906	1700	2081	2012	1753
Other <sup>7</sup>	12	12	12	12	12	12	12	12	12	12
<b>Total</b>	<b>5634</b>	<b>5443</b>	<b>5407</b>	<b>5263</b>	<b>5668</b>	<b>5552</b>	<b>5232</b>	<b>5928</b>	<b>5758</b>	<b>5300</b>
<b>Carbon dioxide emissions (tons per person)</b>	<b>18.1</b>	<b>16.7</b>	<b>16.6</b>	<b>16.1</b>	<b>15.8</b>	<b>15.5</b>	<b>14.6</b>	<b>15.2</b>	<b>14.8</b>	<b>13.6</b>

<sup>1</sup>Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>2</sup>Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>3</sup>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 natural gas plant liquids, crude oil consumed as a fuel, and liquid hydrogen.

<sup>4</sup>Includes grid-connected electricity from conventional hydroelectric; wood and wood waste; landfill gas; biogenic municipal solid waste; other biomass; wind; photovoltaic and solar thermal sources; and non-electric energy from renewable sources, such as active and passive solar systems, and wood; and both the ethanol and gasoline components of E85, but not the ethanol component of blends less than 85 percent. Excludes electricity imports using renewable sources and nonmarketed renewable energy.

<sup>5</sup>Includes non-biogenic municipal waste, liquid hydrogen, and net electricity imports.

<sup>6</sup>Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>7</sup>Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste.

Btu = British thermal unit.

GDP = Gross domestic product.

Note: Includes end-use, fossil electricity, and renewable technology assumptions. Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Source: U.S. Energy Information Administration, AEO2012 National Energy Modeling System runs LTRK1TEN.D031312A, REF2012.D020112C, and HTRK1TEN.D032812A.

Table D3. Key results for transportation sector light-duty vehicle efficiency cases

Consumption and indicators	2010	2015		2025		2035	
		Reference	CAFE Standards	Reference	CAFE Standards	Reference	CAFE Standards
<b>Level of travel</b>							
(billion vehicle miles traveled)							
Light-duty vehicles less than 8,501 pounds . . . . .	2662	2710	2710	3111	3129	3583	3650
Commercial light trucks <sup>1</sup> . . . . .	64	70	70	83	83	92	93
Freight trucks greater than 10,000 pounds . . . . .	234	273	273	317	318	345	346
(billion seat miles available)							
Air . . . . .	999	1028	1028	1120	1120	1208	1208
(billion ton miles traveled)							
Rail . . . . .	1559	1503	1505	1782	1789	1871	1878
Domestic shipping . . . . .	522	549	549	604	604	627	625
<b>Energy efficiency indicators</b>							
(miles per gallon)							
Tested new light-duty vehicle <sup>2</sup> . . . . .	28.3	31.5	31.5	36.8	48.1	37.9	49.0
New car <sup>2</sup> . . . . .	33.3	36.4	36.4	41.2	55.6	42.8	56.9
New light truck <sup>2</sup> . . . . .	24.3	26.7	26.7	31.0	39.6	31.5	39.8
Light-duty stock <sup>3</sup> . . . . .	20.4	21.5	21.5	25.6	27.5	28.2	34.5
New commercial light truck <sup>1</sup> . . . . .	15.7	16.7	16.7	18.9	22.5	19.1	23.3
Stock commercial light truck <sup>1</sup> . . . . .	14.4	15.2	15.2	18.0	19.0	19.0	22.5
Freight truck . . . . .	6.7	6.8	6.8	7.7	7.7	8.1	8.1
(seat miles per gallon)							
Aircraft . . . . .	62.3	62.8	62.8	65.2	65.2	69.3	69.3
(ton miles per thousand Btu)							
Rail . . . . .	3.4	3.5	3.5	3.5	3.5	3.5	3.5
Domestic shipping . . . . .	2.4	2.4	2.4	2.5	2.5	2.5	2.5
<b>Energy use (quadrillion Btu)</b>							
<b>by mode</b>							
Light-duty vehicles . . . . .	16.06	15.39	15.39	14.73	13.78	15.46	12.84
Commercial light trucks <sup>1</sup> . . . . .	0.55	0.58	0.58	0.58	0.55	0.61	0.52
Bus transportation . . . . .	0.25	0.26	0.26	0.29	0.29	0.31	0.31
Freight trucks . . . . .	4.82	5.51	5.51	5.66	5.67	5.84	5.87
Rail, passenger . . . . .	0.05	0.05	0.05	0.06	0.06	0.06	0.06
Rail, freight . . . . .	0.45	0.43	0.44	0.51	0.51	0.53	0.53
Shipping, domestic . . . . .	0.22	0.23	0.23	0.25	0.25	0.25	0.25
Shipping, international . . . . .	0.86	0.87	0.87	0.88	0.88	0.89	0.89
Recreational boats . . . . .	0.25	0.26	0.26	0.27	0.27	0.29	0.29
Air . . . . .	2.52	2.55	2.55	2.71	2.71	2.79	2.79
Military use . . . . .	0.77	0.66	0.66	0.66	0.66	0.74	0.74
Lubricants . . . . .	0.14	0.13	0.13	0.14	0.14	0.14	0.14
Pipeline fuel . . . . .	0.65	0.68	0.68	0.67	0.67	0.69	0.68
<b>Total</b> . . . . .	<b>27.59</b>	<b>27.60</b>	<b>27.60</b>	<b>27.40</b>	<b>26.44</b>	<b>28.60</b>	<b>25.92</b>
<b>by fuel</b>							
Liquefied petroleum gases . . . . .	0.04	0.04	0.04	0.04	0.04	0.05	0.04
E85 <sup>4</sup> . . . . .	0.00	0.01	0.01	0.30	0.44	1.22	1.37
Motor gasoline <sup>5</sup> . . . . .	16.91	16.13	16.13	14.90	13.81	14.53	11.82
Jet fuel <sup>6</sup> . . . . .	3.07	3.03	3.03	3.19	3.19	3.33	3.33
Distillate fuel oil <sup>7</sup> . . . . .	5.77	6.55	6.55	7.03	7.02	7.44	7.31
Residual fuel oil . . . . .	0.90	0.91	0.91	0.93	0.93	0.94	0.94
Other petroleum <sup>8</sup> . . . . .	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Liquid fuels and other petroleum . . . . .	26.88	26.83	26.83	26.57	25.60	27.67	24.99
Pipeline fuel natural gas . . . . .	0.65	0.68	0.68	0.67	0.67	0.69	0.68
Compressed/liquefied natural gas . . . . .	0.04	0.06	0.06	0.11	0.11	0.16	0.15
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	0.05	0.07	0.09
<b>Delivered energy</b> . . . . .	<b>27.59</b>	<b>27.60</b>	<b>27.60</b>	<b>27.40</b>	<b>26.44</b>	<b>28.60</b>	<b>25.92</b>
Electricity related losses . . . . .	0.05	0.05	0.05	0.08	0.10	0.14	0.18
<b>Total</b> . . . . .	<b>27.63</b>	<b>27.65</b>	<b>27.65</b>	<b>27.49</b>	<b>26.54</b>	<b>28.75</b>	<b>26.11</b>

<sup>1</sup>Commercial trucks 8,500 to 10,000 pounds.<sup>2</sup>Environmental Protection Agency rated miles per gallon.<sup>3</sup>Combined car and light truck "on-the-road" estimate.<sup>4</sup>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.<sup>5</sup>Includes ethanol (blends of 15 percent or less) and ethers blended into gasoline.<sup>6</sup>Includes only kerosene type.<sup>7</sup>Diesel fuel for on- and off- road use.<sup>8</sup>Includes aviation gasoline and lubricants.

CAFE = Corporate average fuel economy.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Source: U.S. Energy Information Administration, AEO2012 National Energy Modeling System runs REF2012.D020112C and CAFEY.D032112A.

**Table D4. Key results for HD NGV Potential case**

Sales, consumption, and efficiency	2010	2015		2025		2035	
		Heavy Duty Vehicle Reference	Heavy Duty Natural Gas Vehicle Potential	Heavy Duty Vehicle Reference	Heavy Duty Natural Gas Vehicle Potential	Heavy Duty Vehicle Reference	Heavy Duty Natural Gas Vehicle Potential
<b>Truck sales by size class (millions)</b> .....	<b>0.36</b>	<b>0.56</b>	<b>0.56</b>	<b>0.65</b>	<b>0.65</b>	<b>0.80</b>	<b>0.81</b>
Medium .....	0.21	0.29	0.29	0.33	0.33	0.40	0.40
Diesel .....	0.13	0.20	0.20	0.24	0.20	0.28	0.21
Motor gasoline .....	0.07	0.08	0.08	0.08	0.07	0.10	0.08
Liquefied petroleum gases .....	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Natural gas .....	0.00	0.00	0.01	0.01	0.06	0.02	0.11
Heavy .....	0.15	0.27	0.27	0.32	0.32	0.40	0.40
Diesel .....	0.15	0.26	0.25	0.30	0.22	0.37	0.23
Motor gasoline .....	0.00	0.01	0.01	0.01	0.01	0.02	0.01
Liquefied petroleum gases .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural gas .....	0.00	0.00	0.01	0.00	0.08	0.01	0.16
<b>Consumption by size class (quadrillion Btu)</b> .....	<b>4.82</b>	<b>5.50</b>	<b>5.51</b>	<b>5.66</b>	<b>5.68</b>	<b>5.85</b>	<b>5.93</b>
Medium .....	0.83	1.03	1.03	1.12	1.12	1.15	1.16
Diesel .....	0.56	0.72	0.71	0.79	0.72	0.83	0.65
Motor gasoline .....	0.26	0.30	0.30	0.28	0.27	0.26	0.21
Liquefied petroleum gases .....	0.01	0.01	0.01	0.01	0.01	0.02	0.02
Natural gas .....	0.01	0.01	0.02	0.03	0.12	0.05	0.28
Heavy .....	3.99	4.47	4.48	4.55	4.56	4.71	4.77
Diesel .....	3.87	4.36	4.32	4.44	3.82	4.57	3.11
Motor gasoline .....	0.11	0.09	0.09	0.08	0.07	0.08	0.06
Liquefied petroleum gases .....	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Natural gas .....	0.00	0.01	0.06	0.02	0.66	0.05	1.59
<b>New truck fuel efficiency by size class (gasoline equivalent miles per gallon)</b> .....	<b>6.63</b>	<b>7.41</b>	<b>7.38</b>	<b>8.11</b>	<b>7.88</b>	<b>8.22</b>	<b>7.82</b>
Medium .....	11.92	13.42	13.34	15.06	14.32	15.43	14.12
Diesel .....	13.50	14.49	14.49	16.29	16.29	16.37	16.35
Motor gasoline .....	10.13	10.49	10.49	11.87	11.87	13.07	13.07
Liquefied petroleum gases .....	9.95	10.56	10.56	12.11	12.11	13.39	13.39
Natural gas .....	9.17	9.99	9.99	11.07	11.07	11.07	11.07
Heavy .....	5.79	6.82	6.80	7.46	7.29	7.58	7.29
Diesel .....	5.79	6.85	6.85	7.50	7.49	7.63	7.59
Motor gasoline .....	5.50	5.35	5.35	5.45	5.45	5.46	5.46
Liquefied petroleum gases .....	5.15	5.58	5.58	5.75	5.75	5.75	5.75
Natural gas .....	5.56	6.04	6.35	6.40	6.87	6.42	6.95
<b>Stock fuel efficiency by size class (gasoline equivalent miles per gallon)</b> .....	<b>6.66</b>	<b>6.83</b>	<b>6.82</b>	<b>7.72</b>	<b>7.61</b>	<b>8.12</b>	<b>7.81</b>
Medium .....	11.48	12.06	12.05	13.90	13.60	14.99	14.04
Diesel .....	13.87	13.89	13.89	15.54	15.49	16.27	16.23
Motor gasoline .....	9.23	9.66	9.66	10.82	10.79	12.35	12.30
Liquefied petroleum gases .....	8.67	9.59	9.59	11.31	11.31	12.87	12.86
Natural gas .....	8.69	9.32	9.49	10.85	10.95	11.05	11.06
Heavy .....	6.05	6.16	6.16	7.05	6.97	7.44	7.22
Diesel .....	6.07	6.19	6.18	7.09	7.04	7.50	7.44
Motor gasoline .....	5.36	5.34	5.34	5.38	5.38	5.44	5.44
Liquefied petroleum gases .....	5.43	5.43	5.43	5.62	5.62	5.71	5.71
Natural gas .....	5.51	5.75	6.06	6.31	6.79	6.41	6.92

<sup>1</sup>Includes lease condensate.<sup>2</sup>Includes natural gas plant liquids, refinery processing gain, other crude oil supply, and stock withdrawals.<sup>3</sup>Includes liquids, such as ethanol and biodiesel, derived from biomass, natural gas, and coal. Includes net imports of ethanol and biodiesel.

-- = Not applicable.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Sources: 2010 data based on: Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 28 and Annual* (Oak Ridge, TN, 2009); U.S. Department of Commerce, Bureau of the Census, "Vehicle Inventory and Use Survey," EC02TV (Washington, DC, December 2004); Federal Highway Administration, *Highway Statistics 2007* (Washington, DC, October 2008); U.S. Energy Information Administration (EIA), *Annual Energy Review 2010*, DOE/EIA-0384(2010) (Washington, DC, October 2011); and EIA, AEO2012 National Energy Modeling System run RFNGV12.D050412A. Projections: EIA, AEO2012 National Energy Modeling System runs RFNGV12.D050412A and NOSUBNGV12.D050412A.

Table D5. Energy consumption and carbon dioxide emissions for extended policy cases

Consumption and emissions	2010	2015			2025			2035		
		Reference	No Sunset	Extended Policies	Reference	No Sunset	Extended Policies	Reference	No Sunset	Extended Policies
<b>Energy consumption by sector (quadrillion Btu)</b>										
Residential .....	11.66	11.24	11.21	11.22	11.51	11.34	11.03	11.93	11.58	10.92
Commercial .....	8.70	8.80	8.79	8.78	9.48	9.49	9.20	10.28	10.31	9.79
Industrial <sup>1</sup> .....	23.37	23.96	23.95	23.96	25.53	25.73	25.42	26.94	26.99	26.60
Transportation .....	27.59	27.60	27.59	27.59	27.40	27.43	26.41	28.60	28.57	25.42
Electric power <sup>2</sup> .....	39.63	38.64	38.60	38.53	42.03	41.63	40.45	44.24	43.95	42.24
<b>Total .....</b>	<b>98.16</b>	<b>97.43</b>	<b>97.35</b>	<b>97.30</b>	<b>101.99</b>	<b>101.78</b>	<b>99.11</b>	<b>106.93</b>	<b>106.64</b>	<b>100.79</b>
<b>Energy consumption by fuel (quadrillion Btu)</b>										
Liquid fuels and other petroleum <sup>3</sup> .....	37.25	36.72	36.72	36.71	36.58	36.57	35.44	37.70	37.62	34.20
Natural gas .....	24.71	26.00	25.98	26.00	26.14	25.93	25.52	27.26	26.37	25.42
Coal .....	20.76	17.80	17.84	17.82	20.02	19.96	19.27	21.15	20.59	19.82
Nuclear / uranium .....	8.44	8.68	8.68	8.68	9.60	9.60	9.50	9.28	9.16	9.05
Renewable energy <sup>4</sup> .....	6.72	7.92	7.82	7.79	9.38	9.45	9.10	11.29	12.66	12.05
Other <sup>5</sup> .....	0.29	0.30	0.30	0.30	0.28	0.27	0.27	0.24	0.24	0.24
<b>Total .....</b>	<b>98.16</b>	<b>97.43</b>	<b>97.35</b>	<b>97.30</b>	<b>101.99</b>	<b>101.78</b>	<b>99.11</b>	<b>106.93</b>	<b>106.64</b>	<b>100.79</b>
<b>Energy intensity (thousand Btu per 2005 dollar of GDP) .....</b>	<b>7.50</b>	<b>6.58</b>	<b>6.58</b>	<b>6.58</b>	<b>5.32</b>	<b>5.30</b>	<b>5.16</b>	<b>4.36</b>	<b>4.35</b>	<b>4.11</b>
<b>Carbon dioxide emissions by sector (million metric tons)</b>										
Residential .....	353	338	337	338	324	322	319	312	307	293
Commercial .....	229	231	231	231	237	238	232	246	248	236
Industrial <sup>1</sup> .....	909	963	962	963	992	993	983	1011	1016	991
Transportation .....	1872	1864	1864	1863	1820	1813	1749	1859	1853	1642
Electric power <sup>6</sup> .....	2271	2011	2015	2012	2179	2161	2084	2330	2221	2133
<b>Total .....</b>	<b>5634</b>	<b>5407</b>	<b>5409</b>	<b>5407</b>	<b>5552</b>	<b>5526</b>	<b>5367</b>	<b>5758</b>	<b>5645</b>	<b>5295</b>
<b>Carbon dioxide emissions by fuel (million metric tons)</b>										
Petroleum .....	2349	2329	2329	2328	2261	2251	2180	2300	2289	2061
Natural gas .....	1283	1367	1366	1367	1374	1363	1341	1435	1387	1337
Coal .....	1990	1699	1702	1700	1906	1901	1835	2012	1957	1885
Other <sup>7</sup> .....	12	12	12	12	12	12	12	12	12	12
<b>Total .....</b>	<b>5634</b>	<b>5407</b>	<b>5409</b>	<b>5407</b>	<b>5552</b>	<b>5526</b>	<b>5367</b>	<b>5758</b>	<b>5645</b>	<b>5295</b>
<b>Carbon dioxide emissions (tons per person) .....</b>	<b>18.1</b>	<b>16.6</b>	<b>16.6</b>	<b>16.6</b>	<b>15.5</b>	<b>15.4</b>	<b>15.0</b>	<b>14.8</b>	<b>14.5</b>	<b>13.6</b>

<sup>1</sup>Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>2</sup>Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>3</sup>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 natural gas plant liquids, crude oil consumed as a fuel, and liquid hydrogen.

<sup>4</sup>Includes grid-connected electricity from conventional hydroelectric; wood and wood waste; landfill gas; biogenic municipal solid waste; other biomass; wind; photovoltaic and solar thermal sources; and non-electric energy from renewable sources, such as active and passive solar systems, and wood; and both the ethanol and gasoline components of E85, but not the ethanol component of blends less than 85 percent. Excludes electricity imports using renewable sources and nonmarketed renewable energy.

<sup>5</sup>Includes non-biogenic municipal waste and net electricity imports.

<sup>6</sup>Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>7</sup>Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste.

Btu = British thermal unit.

GDP = Gross domestic product.

Note: Includes end-use, fossil electricity, and renewable technology assumptions. Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Source: U.S. Energy Information Administration, AEO2012 National Energy Modeling System runs REF2012.D020112C, NOSUNSET.D032112A, and EXTENDED.D050612B.

**Table D6. Electricity generation and generating capacity in extended policy cases**  
(gigawatts, unless otherwise noted)

Net summer capacity, generation, consumption, and emissions	2010	2015			2025			2035		
		Reference	No Sunset	Extended Policies	Reference	No Sunset	Extended Policies	Reference	No Sunset	Extended Policies
<b>Capacity</b>	<b>1036.1</b>	<b>1042.0</b>	<b>1020.7</b>	<b>1011.3</b>	<b>1091.1</b>	<b>1088.5</b>	<b>1059.4</b>	<b>1190.0</b>	<b>1232.9</b>	<b>1167.6</b>
Electric power sector <sup>1</sup>	1006.5	998.7	977.3	967.6	1033.3	1004.8	976.6	1112.5	1098.0	1032.8
Pulverized coal	312.8	280.7	271.7	264.2	272.8	265.8	257.0	273.6	265.7	256.9
Coal gasification combined-cycle	0.5	0.9	0.9	0.9	1.8	1.8	1.7	1.7	1.7	1.5
Conventional natural gas combined-cycle	198.0	212.4	212.4	212.5	213.5	213.0	212.4	218.8	215.7	213.6
Advanced natural gas combined-cycle	0.0	1.2	1.0	1.3	10.3	4.7	2.4	53.4	20.5	8.4
Conventional combustion turbine	137.6	136.3	133.5	133.0	132.3	129.7	127.8	130.3	129.2	126.8
Advanced combustion turbine	0.0	5.2	3.7	4.0	23.2	11.7	6.8	41.5	24.9	10.2
Fuel cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear / uranium	101.2	103.6	103.6	103.6	114.7	114.7	113.6	110.9	109.3	108.1
Oil and natural gas steam	108.1	90.7	85.2	84.2	89.6	83.3	81.4	87.9	83.1	80.6
Renewable sources	126.1	145.3	143.0	141.6	152.1	157.5	151.2	170.2	224.4	203.8
Pumped storage	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
Distributed generation	0.0	0.2	0.1	0.1	0.8	0.5	0.3	2.1	1.3	0.5
Combined heat and power <sup>2</sup>	29.6	43.3	43.4	43.7	57.8	83.7	82.8	77.5	134.9	134.9
Fossil fuels / other	22.0	25.7	25.7	26.0	34.4	35.7	35.8	47.0	49.9	49.6
Renewable fuels	7.6	17.6	17.7	17.7	23.4	48.0	47.0	30.6	85.0	85.3
<b>Cumulative additions</b>	<b>0.0</b>	<b>69.8</b>	<b>65.8</b>	<b>65.3</b>	<b>126.7</b>	<b>140.0</b>	<b>124.8</b>	<b>235.0</b>	<b>290.9</b>	<b>240.4</b>
Electric power sector <sup>1</sup>	0.0	56.1	52.0	51.2	98.5	85.9	71.6	187.1	185.6	135.2
Pulverized coal	0.0	8.7	8.7	8.7	8.7	8.7	8.7	9.4	8.7	8.7
Coal gasification combined-cycle	0.0	0.6	0.6	0.6	1.5	1.5	1.5	1.5	1.5	1.5
Conventional natural gas combined-cycle	0.0	14.5	14.5	14.5	15.8	15.3	14.7	21.1	18.0	15.9
Advanced natural gas combined-cycle	0.0	1.2	1.0	1.3	10.3	4.7	2.4	53.4	20.5	8.4
Conventional combustion turbine	0.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Advanced combustion turbine	0.0	5.2	3.7	4.0	23.2	11.7	6.8	41.5	24.9	10.2
Nuclear / uranium	0.0	1.1	1.1	1.1	6.8	6.8	6.8	8.5	6.9	6.8
Renewable sources	0.0	19.6	17.3	15.9	26.4	31.8	25.5	44.5	98.7	78.1
Distributed generation	0.0	0.2	0.1	0.1	0.8	0.5	0.3	2.1	1.3	0.5
Combined heat and power <sup>2</sup>	0.0	13.7	13.8	14.1	28.2	54.1	53.2	47.9	105.3	105.3
Fossil fuels / other	0.0	3.7	3.8	4.1	12.4	13.7	13.9	25.0	27.9	27.6
Renewable fuels	0.0	10.0	10.0	10.0	15.8	40.3	39.3	22.9	77.4	77.7
<b>Cumulative retirements</b>	<b>0.0</b>	<b>65.2</b>	<b>82.5</b>	<b>91.4</b>	<b>78.9</b>	<b>94.9</b>	<b>108.8</b>	<b>88.4</b>	<b>101.3</b>	<b>116.2</b>
<b>Generation by fuel (billion kilowatthours)</b>	<b>4126</b>	<b>4152</b>	<b>4147</b>	<b>4142</b>	<b>4556</b>	<b>4559</b>	<b>4427</b>	<b>4992</b>	<b>5004</b>	<b>4813</b>
Electric power sector <sup>1</sup>	3971	3956	3950	3944	4279	4229	4106	4586	4498	4310
Coal	1831	1562	1565	1563	1741	1736	1673	1834	1781	1711
Petroleum	34	26	26	26	27	27	26	28	28	27
Natural gas	898	1028	1030	1030	1006	971	938	1196	1030	976
Nuclear / uranium	807	830	830	830	917	917	909	887	875	865
Renewable sources	395	508	498	493	584	574	557	634	780	728
Pumped storage	2	2	2	2	2	2	2	2	2	2
Distributed generation	0	0	0	0	2	1	1	4	2	1
Combined heat and power <sup>2</sup>	155	197	197	198	277	330	321	406	506	502
Fossil fuels / other	122	142	142	144	198	206	206	281	298	294
Renewable fuels	34	55	55	55	78	124	115	125	208	208
<b>Average electricity price (cents per kilowatthour)</b>	<b>9.8</b>	<b>9.7</b>	<b>9.8</b>	<b>9.8</b>	<b>9.7</b>	<b>9.6</b>	<b>9.6</b>	<b>10.1</b>	<b>9.9</b>	<b>9.6</b>

<sup>1</sup>Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

<sup>2</sup>Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors. Includes small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid. Excludes off-grid photovoltaics and other generators not connected to the distribution or transmission systems.

Note: Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Source: U.S. Energy Information Administration, AEO2012 National Energy Modeling System runs REF2012.D020112C, NOSUNSET.D032112A, and EXTENDED.D050612B.

**Table D7. Key results for advanced nuclear plant life cases**  
(gigawatts, unless otherwise noted)

Net summer capacity, generation, emissions, and fuel prices	2010	2015			2025			2035		
		Low Nuclear	Reference	High Nuclear	Low Nuclear	Reference	High Nuclear	Low Nuclear	Reference	High Nuclear
<b>Capacity</b>										
Coal steam	313.4	280.7	281.6	281.3	273.4	274.7	275.3	276.2	275.2	275.4
Oil and natural gas steam	108.1	88.2	90.7	91.0	87.0	89.6	89.4	84.5	87.9	86.9
Combined cycle	198.0	212.6	213.6	213.8	224.1	223.8	219.0	279.8	272.2	257.3
Combustion turbine / diesel	137.6	138.1	141.5	141.3	150.8	155.5	155.4	168.1	171.8	172.6
Nuclear / uranium	101.2	103.1	103.6	103.6	108.2	114.7	121.4	77.9	110.9	122.7
Pumped storage	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
Fuel cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable sources	126.1	145.4	145.3	145.0	153.2	152.1	151.4	175.7	170.2	167.4
Distributed generation (natural gas)	0.0	0.1	0.2	0.2	0.7	0.8	0.8	1.7	2.1	2.1
Combined heat and power <sup>1</sup>	29.6	43.4	43.3	43.3	57.8	57.8	58.0	78.6	77.5	77.4
<b>Total</b>	<b>1036.1</b>	<b>1033.8</b>	<b>1042.0</b>	<b>1041.6</b>	<b>1077.4</b>	<b>1091.1</b>	<b>1093.0</b>	<b>1164.8</b>	<b>1190.0</b>	<b>1183.9</b>
<b>Cumulative additions</b>										
Coal steam	0.0	9.3	9.3	9.3	10.2	10.2	10.2	13.2	10.9	10.4
Oil and natural gas steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined cycle	0.0	14.7	15.7	15.9	26.4	26.1	21.3	82.1	74.5	59.6
Combustion turbine / diesel	0.0	8.6	10.2	10.2	25.7	28.2	28.0	44.7	46.5	46.0
Nuclear / uranium	0.0	1.1	1.1	1.1	6.8	6.8	13.5	6.8	8.5	14.8
Pumped storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable sources	0.0	19.7	19.6	19.3	27.5	26.4	25.7	50.0	44.5	41.7
Distributed generation	0.0	0.1	0.2	0.2	0.7	0.8	0.8	1.7	2.1	2.1
Combined heat and power <sup>1</sup>	0.0	13.8	13.7	13.7	28.2	28.2	28.4	49.0	47.9	47.7
<b>Total</b>	<b>0.0</b>	<b>67.2</b>	<b>69.8</b>	<b>69.7</b>	<b>125.5</b>	<b>126.7</b>	<b>127.9</b>	<b>247.5</b>	<b>235.0</b>	<b>222.4</b>
<b>Cumulative retirements</b>	<b>0.0</b>	<b>70.4</b>	<b>65.2</b>	<b>65.4</b>	<b>85.0</b>	<b>78.9</b>	<b>78.3</b>	<b>119.6</b>	<b>88.4</b>	<b>81.9</b>
<b>Generation by fuel (billion kilowatthours)</b>										
Coal	1831	1570	1562	1565	1760	1741	1727	1853	1834	1822
Petroleum	34	26	26	26	27	27	27	28	28	28
Natural gas	898	1022	1028	1026	1029	1006	972	1361	1196	1136
Nuclear / uranium	807	826	830	830	866	917	970	625	887	979
Pumped storage	2	2	2	2	2	2	2	2	2	2
Renewable sources	395	508	508	507	585	584	585	653	634	632
Distributed generation	0	0	0	0	2	2	2	3	4	4
Combined heat and power <sup>1</sup>	155	197	197	197	277	277	278	412	406	404
<b>Total</b>	<b>4124</b>	<b>4151</b>	<b>4152</b>	<b>4152</b>	<b>4547</b>	<b>4556</b>	<b>4562</b>	<b>4936</b>	<b>4992</b>	<b>5006</b>
<b>Carbon dioxide emissions by the electric power sector (million metric tons)<sup>2</sup></b>										
Petroleum	33	23	23	23	24	24	24	24	25	25
Natural gas	399	436	438	437	435	427	415	545	485	467
Coal	1828	1547	1539	1543	1737	1717	1703	1823	1809	1798
Other <sup>3</sup>	12	12	12	12	12	12	12	12	12	12
<b>Total</b>	<b>2271</b>	<b>2017</b>	<b>2011</b>	<b>2014</b>	<b>2207</b>	<b>2179</b>	<b>2154</b>	<b>2404</b>	<b>2330</b>	<b>2301</b>
<b>Prices to the electric power sector<sup>2</sup> (2010 dollars per million Btu)</b>										
Petroleum	13.32	22.93	22.93	22.94	25.38	25.38	25.38	26.53	26.31	26.13
Natural gas	5.14	4.52	4.55	4.54	5.70	5.60	5.46	8.03	7.21	7.00
Coal	2.26	2.36	2.35	2.35	2.54	2.54	2.53	2.81	2.80	2.78

<sup>1</sup>Includes combined heat and power plants and electricity-only plants in commercial and industrial sectors. Includes small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid. Excludes off-grid photovoltaics and other generators not connected to the distribution or transmission systems.

<sup>2</sup>Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>3</sup>Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Source: U.S. Energy Information Administration, AEO2012 National Energy Modeling System runs LOWNUC12.D022312A, REF2012.D020112C, and HINUC12.D022312A.



Table D8. Key results for Low Renewable Technology Cost case

Capacity, generation, and emissions	2010	2015		2025		2035	
		Reference	Low Renewable Technology Cost	Reference	Low Renewable Technology Cost	Reference	Low Renewable Technology Cost
<b>Net summer capacity (gigawatts)</b>							
<b>Electric power sector<sup>1</sup></b>							
Conventional hydropower	78.03	78.55	78.76	80.14	81.34	81.25	84.36
Geothermal <sup>2</sup>	2.37	2.86	2.58	4.45	4.37	6.30	6.82
Municipal waste <sup>3</sup>	3.30	3.36	3.36	3.36	3.36	3.36	3.36
Wood and other biomass <sup>4</sup>	2.45	2.72	2.72	2.72	2.82	2.89	4.31
Solar thermal	0.47	1.36	1.36	1.36	1.36	1.36	1.36
Solar photovoltaic	0.38	2.02	2.05	2.30	5.12	8.18	34.27
Wind	39.05	54.46	61.41	57.77	65.59	66.85	105.87
<b>Total</b>	<b>126.06</b>	<b>145.34</b>	<b>152.25</b>	<b>152.10</b>	<b>163.96</b>	<b>170.19</b>	<b>240.35</b>
<b>End-use sector<sup>5</sup></b>							
Conventional hydropower	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Municipal waste <sup>6</sup>	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Wood and other biomass	4.56	5.73	5.89	8.44	10.52	13.81	17.21
Solar photovoltaic	2.05	8.98	9.19	11.69	14.29	13.33	23.29
Wind	0.36	2.25	3.18	2.60	4.06	2.74	5.26
<b>Total</b>	<b>7.65</b>	<b>17.64</b>	<b>18.95</b>	<b>23.41</b>	<b>29.55</b>	<b>30.57</b>	<b>46.43</b>
<b>Generation (billion kilowatt-hours)</b>							
<b>Electric power sector<sup>1</sup></b>							
Coal	1831	1562	1547	1741	1731	1834	1780
Petroleum	34	26	26	27	27	28	28
Natural gas	898	1028	1018	1006	974	1196	1037
<b>Total fossil</b>	<b>2764</b>	<b>2616</b>	<b>2591</b>	<b>2774</b>	<b>2732</b>	<b>3058</b>	<b>2846</b>
Conventional hydropower	255.32	295.43	296.17	305.00	310.24	310.08	321.78
Geothermal	15.67	18.68	16.42	31.53	30.91	46.54	50.89
Municipal waste <sup>7</sup>	16.56	14.66	14.66	14.67	14.67	14.67	14.67
Wood and other biomass <sup>4</sup>	11.51	21.28	24.10	63.90	68.89	49.28	78.41
Dedicated plants	10.15	10.13	12.58	13.30	12.84	10.37	23.13
Cofiring	1.36	11.15	11.52	50.60	56.05	38.92	55.28
Solar thermal	0.82	2.86	2.86	2.86	2.86	2.86	2.86
Solar photovoltaic	0.46	3.61	3.68	4.37	11.91	20.19	84.04
Wind	94.49	150.97	174.49	161.49	188.46	190.67	310.55
<b>Total renewable</b>	<b>394.82</b>	<b>507.49</b>	<b>532.38</b>	<b>583.81</b>	<b>627.94</b>	<b>634.30</b>	<b>863.20</b>
<b>End-use sector<sup>5</sup></b>							
<b>Total fossil</b>	<b>106</b>	<b>123</b>	<b>123</b>	<b>180</b>	<b>177</b>	<b>262</b>	<b>260</b>
Conventional hydropower <sup>8</sup>	1.76	1.75	1.75	1.75	1.75	1.75	1.75
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Municipal waste <sup>6</sup>	2.02	2.79	2.79	2.79	2.79	2.79	2.79
Wood and other biomass	26.10	33.30	34.27	52.34	67.01	96.17	118.46
Solar photovoltaic	3.21	13.88	14.20	18.22	22.41	20.91	37.06
Wind	0.47	2.88	3.92	3.36	5.09	3.56	6.78
<b>Total renewable</b>	<b>33.56</b>	<b>54.59</b>	<b>56.92</b>	<b>78.45</b>	<b>99.05</b>	<b>125.17</b>	<b>166.82</b>
<b>Carbon dioxide emissions by the electric power sector (million metric tons)<sup>1</sup></b>							
Coal	1828	1539	1525	1717	1706	1809	1754
Petroleum	33	23	23	24	24	25	25
Natural gas	399	438	434	427	416	485	435
Other <sup>9</sup>	12	12	12	12	12	12	12
<b>Total</b>	<b>2271</b>	<b>2011</b>	<b>1993</b>	<b>2179</b>	<b>2157</b>	<b>2330</b>	<b>2225</b>

<sup>1</sup>Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>2</sup>Includes hydrothermal resources only (hot water and steam).

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

<sup>4</sup>Includes projections for energy crops after 2010.

<sup>5</sup>Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid. Excludes off-grid photovoltaics and other generators not connected to the distribution or transmission systems.

<sup>6</sup>Includes municipal waste, landfill gas, and municipal sewage sludge. All municipal waste is included, although a portion of the municipal waste stream contains petroleum-derived plastics and other non-renewable sources.

<sup>7</sup>Includes biogenic municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities.

<sup>8</sup>Represents own-use industrial hydroelectric power.

<sup>9</sup>Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste.

Note: Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Source: U.S. Energy Information Administration, AEO2012 National Energy Modeling System runs REF2012.D020112C, and LORENCST12.D041312A.

Table D9. Key results for environmental cases

Net summer capacity, generation, emissions, and fuel prices	2010	2035					
		Reference	Reference 05	High EUR	Low Gas Price 05	Greenhouse Gas \$15	Greenhouse Gas \$25
<b>Capacity (gigawatts)</b>							
Coal steam	313.4	275.2	261.6	268.3	254.2	124.3	39.1
Oil and natural gas steam	108.1	87.9	86.5	88.1	90.7	81.9	72.3
Combined cycle	198.0	272.2	276.2	273.1	285.6	298.0	312.7
Combustion turbine / diesel	137.6	171.8	173.9	181.5	178.4	154.7	142.9
Nuclear / uranium	101.2	110.9	111.1	109.3	109.3	160.5	225.0
Pumped storage	22.2	22.2	22.2	22.2	22.2	22.2	22.2
Renewable sources	126.1	170.2	174.2	159.4	165.3	227.6	257.6
Distributed generation (natural gas)	0.0	2.1	2.0	5.2	5.6	0.3	0.2
Combined heat and power <sup>1</sup>	29.6	77.5	78.3	80.8	81.2	96.7	105.2
<b>Total</b>	<b>1036.1</b>	<b>1190.0</b>	<b>1186.0</b>	<b>1187.8</b>	<b>1192.5</b>	<b>1166.0</b>	<b>1177.3</b>
<b>Cumulative additions (gigawatts)</b>							
Coal steam	0.0	10.9	11.1	10.2	10.6	10.2	10.3
Combined cycle	0.0	74.5	78.4	75.4	87.9	100.3	115.0
Combustion turbine / diesel	0.0	46.5	43.4	52.1	48.0	38.9	24.7
Nuclear / uranium	0.0	8.5	8.7	6.9	6.9	58.1	122.7
Renewable sources	0.0	44.5	48.5	33.7	39.6	101.9	131.9
Distributed generation	0.0	2.1	2.0	5.2	5.6	0.3	0.2
Combined heat and power <sup>1</sup>	0.0	47.9	48.7	51.2	51.6	67.0	75.6
<b>Total</b>	<b>0.0</b>	<b>235.0</b>	<b>240.8</b>	<b>234.6</b>	<b>250.2</b>	<b>376.8</b>	<b>480.4</b>
<b>Cumulative retirements (gigawatts)</b>	<b>0.0</b>	<b>88.4</b>	<b>98.3</b>	<b>90.2</b>	<b>101.1</b>	<b>254.1</b>	<b>346.6</b>
<b>Generation by fuel (billion kilowatthours)</b>							
Coal	1831	1834	1752	1748	1664	699	102
Petroleum	34	28	27	29	28	24	21
Natural gas	898	1196	1253	1347	1404	1351	1306
Nuclear / uranium	807	887	889	875	875	1268	1782
Pumped storage	5	2	2	2	2	2	2
Renewable sources	395	634	642	601	618	888	876
Distributed generation	0	4	4	16	16	0	0
Combined heat and power <sup>1</sup>	155	406	410	426	428	512	545
<b>Total</b>	<b>4126</b>	<b>4992</b>	<b>4979</b>	<b>5044</b>	<b>5034</b>	<b>4743</b>	<b>4634</b>
<b>Emissions by the electric power sector<sup>2</sup></b>							
Carbon dioxide (million metric tons)	2271	2330	2263	2310	2238	1228	555
Sulfur dioxide (million short tons)	5.11	1.71	1.68	1.54	1.57	0.61	0.15
Nitrogen oxides (million short tons)	2.06	1.96	1.93	1.93	1.93	0.85	0.42
Mercury (short tons)	34.70	7.86	7.57	7.49	7.15	3.40	0.91
<b>Retrofits (gigawatts)</b>							
Scrubber	0.00	47.57	19.91	52.97	18.31	30.07	25.69
Nitrogen oxide controls							
Combustion	0.00	7.97	6.08	4.16	1.51	2.38	2.38
Selective catalytic reduction post-combustion	0.00	19.17	10.29	13.44	6.10	7.67	5.91
Selective non-catalytic reduction post-combustion	0.00	0.71	0.71	0.71	0.71	0.70	2.50
<b>Prices to the electric power sector<sup>2</sup></b>							
<b>(2010 dollars per million Btu)</b>							
Natural gas	5.14	7.21	7.35	6.03	6.14	9.37	11.10
Coal	2.26	2.80	2.77	2.73	2.70	6.64	9.45

<sup>1</sup>Includes combined heat and power plants and electricity-only plants in commercial and industrial sectors. Includes small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid. Excludes off-grid photovoltaics and other generators not connected to the distribution or transmission systems.

<sup>2</sup>Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

EUR = Estimated ultimate recovery.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Source: U.S. Energy Information Administration, AEO2012 National Energy Modeling System runs REF2012.D020112C, REF12\_R05.D030712A, HEUR12.D022212A, HEUR12\_R05.D022312A, CO2FEE15.D031312A, and CO2FEE25.D031312A.

**Table D10. Natural gas supply and disposition, oil and gas resource cases**  
(trillion cubic feet per year, unless otherwise noted)

Supply, disposition, and prices	2010	2015				2025				2035			
		Low EUR	Reference	High EUR	High TRR	Low EUR	Reference	High EUR	High TRR	Low EUR	Reference	High EUR	High TRR
<b>Natural gas prices</b>													
<b>(2010 dollars per million Btu)</b>													
Henry Hub spot price . . . . .	4.39	4.58	4.29	3.94	3.10	6.93	5.63	4.77	3.45	8.26	7.37	5.99	4.25
Average lower 48 wellhead . . . . .	4.06	4.10	3.84	3.54	2.80	6.11	5.00	4.26	3.11	7.24	6.48	5.31	3.81
<b>(2010 dollars per thousand cubic feet)</b>													
Average lower 48 wellhead . . . . .	4.16	4.19	3.94	3.62	2.87	6.25	5.12	4.36	3.19	7.41	6.64	5.43	3.90
<b>Dry gas production<sup>2</sup> . . . . .</b>	<b>21.58</b>	<b>22.80</b>	<b>23.65</b>	<b>24.38</b>	<b>26.54</b>	<b>24.25</b>	<b>26.28</b>	<b>27.81</b>	<b>30.85</b>	<b>26.11</b>	<b>27.93</b>	<b>30.07</b>	<b>34.15</b>
Lower 48 onshore . . . . .	18.66	20.62	21.48	22.20	24.37	21.48	23.64	25.24	28.60	21.19	24.97	27.19	31.66
Associated-dissolved . . . . .	1.40	1.47	1.52	1.58	1.70	1.31	1.41	1.50	1.60	0.90	1.00	1.13	1.29
Non-associated . . . . .	17.26	19.15	19.96	20.62	22.68	20.17	22.23	23.74	27.00	20.28	23.97	26.07	30.37
Tight gas . . . . .	5.68	6.13	6.08	6.01	5.88	6.40	6.17	6.02	5.86	6.30	6.14	5.93	5.76
Shale gas . . . . .	4.99	7.35	8.24	8.99	11.24	8.88	11.26	12.98	16.44	9.74	13.63	16.01	20.53
Coalbed methane . . . . .	1.99	1.85	1.83	1.80	1.74	1.84	1.77	1.73	1.69	1.80	1.76	1.70	1.66
Other . . . . .	4.59	3.81	3.82	3.82	3.82	3.04	3.03	3.02	3.02	2.44	2.44	2.43	2.42
Lower 48 offshore . . . . .	2.56	1.89	1.88	1.88	1.87	2.51	2.38	2.31	1.99	3.12	2.72	2.64	2.27
Associated-dissolved . . . . .	0.71	0.55	0.55	0.55	0.55	0.71	0.67	0.67	0.59	0.84	0.73	0.71	0.60
Non-associated . . . . .	1.85	1.34	1.33	1.33	1.32	1.81	1.71	1.65	1.40	2.28	2.00	1.93	1.67
Alaska . . . . .	0.36	0.29	0.29	0.29	0.29	0.25	0.25	0.25	0.25	1.80	0.23	0.23	0.22
Supplemental natural gas <sup>3</sup> . . . . .	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
<b>Net imports . . . . .</b>	<b>2.58</b>	<b>1.77</b>	<b>1.73</b>	<b>1.65</b>	<b>1.42</b>	<b>-0.39</b>	<b>-0.79</b>	<b>-1.06</b>	<b>-1.62</b>	<b>-1.16</b>	<b>-1.36</b>	<b>-1.73</b>	<b>-2.35</b>
Pipeline <sup>4</sup> . . . . .	2.21	1.61	1.56	1.49	1.27	0.22	-0.13	-0.40	-0.95	-0.50	-0.70	-1.07	-1.69
Liquefied natural gas . . . . .	0.37	0.17	0.16	0.16	0.15	-0.61	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66
<b>Total supply . . . . .</b>	<b>24.22</b>	<b>24.64</b>	<b>25.45</b>	<b>26.09</b>	<b>28.02</b>	<b>23.92</b>	<b>25.55</b>	<b>26.81</b>	<b>29.30</b>	<b>25.01</b>	<b>26.63</b>	<b>28.40</b>	<b>31.86</b>
<b>Consumption by sector</b>													
Residential . . . . .	4.94	4.83	4.85	4.88	4.94	4.69	4.76	4.82	4.92	4.59	4.64	4.72	4.84
Commercial . . . . .	3.20	3.30	3.33	3.37	3.47	3.32	3.44	3.54	3.71	3.50	3.60	3.75	3.97
Industrial <sup>5</sup> . . . . .	6.60	6.99	7.01	7.07	7.20	6.96	7.14	7.26	7.51	6.85	7.00	7.24	7.61
Electric power <sup>6</sup> . . . . .	7.38	7.40	8.08	8.56	10.07	6.74	7.87	8.78	10.54	7.67	8.96	10.13	12.62
Transportation <sup>7</sup> . . . . .	0.04	0.06	0.06	0.06	0.06	0.11	0.11	0.12	0.12	0.15	0.16	0.17	0.18
Pipeline fuel . . . . .	0.63	0.66	0.67	0.67	0.69	0.64	0.66	0.67	0.69	0.72	0.67	0.69	0.74
Lease and plant fuel <sup>8</sup> . . . . .	1.34	1.35	1.39	1.43	1.55	1.44	1.53	1.60	1.78	1.54	1.60	1.70	1.91
<b>Total . . . . .</b>	<b>24.13</b>	<b>24.59</b>	<b>25.39</b>	<b>26.04</b>	<b>27.97</b>	<b>23.90</b>	<b>25.53</b>	<b>26.79</b>	<b>29.28</b>	<b>25.01</b>	<b>26.63</b>	<b>28.40</b>	<b>31.87</b>
<b>Discrepancy<sup>9</sup> . . . . .</b>	<b>0.10</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>-0.00</b>	<b>-0.00</b>	<b>-0.01</b>	<b>-0.01</b>
<b>Lower 48 end of year reserves</b>	<b>260.50</b>	<b>265.85</b>	<b>274.79</b>	<b>283.88</b>	<b>298.90</b>	<b>280.90</b>	<b>299.77</b>	<b>318.24</b>	<b>347.21</b>	<b>291.70</b>	<b>311.58</b>	<b>333.43</b>	<b>371.70</b>

<sup>1</sup>Represents lower 48 onshore and offshore supplies.

<sup>2</sup>Marketed production (wet) minus extraction losses.

<sup>3</sup>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.

<sup>4</sup>Includes any natural gas regasified in the Bahamas and transported via pipeline to Florida.

<sup>5</sup>Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>6</sup>Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

<sup>7</sup>Natural gas used as a vehicle fuel.

<sup>8</sup>Represents natural gas used in field gathering and processing plant machinery.

<sup>9</sup>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, 2010 values include net storage injections.

EUR = Estimated ultimate recovery.

TRR = Technically recoverable resources.

Note: Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Sources: 2010 supply values; lease, plant, and pipeline fuel consumption; and wellhead price: U.S. Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2011/07) (Washington, DC, July 2011). Other 2010 consumption based on: EIA, *Annual Energy Review 2010*, DOE/EIA-0384(2010) (Washington, DC, October 2011).

Projections: EIA, AEO2012 National Energy Modeling System runs LEUR12.D022212A, REF2012.D020112C, HEUR12.D022212A., and HTRR12.D050412A

**Table D11. Liquid fuels supply and disposition, oil and gas resource cases**  
(million barrels per day, unless otherwise noted)

Supply, disposition, and prices	2010	2015				2025				2035			
		Low EUR	Reference	High EUR	High TRR	Low EUR	Reference	High EUR	High TRR	Low EUR	Reference	High EUR	High TRR
<b>Prices</b>													
<b>(2010 dollars per barrel)</b>													
Low sulfur light crude oil <sup>1</sup> . . . . .	79.39	117.84	116.91	116.11	113.74	134.54	132.56	130.60	127.97	146.78	144.98	143.27	139.78
Imported crude oil <sup>1</sup> . . . . .	75.87	114.90	113.97	113.17	110.80	123.99	121.21	118.63	115.77	135.38	132.95	131.20	127.55
<b>Crude oil supply</b>													
Domestic production <sup>2</sup> . . . . .	5.47	5.91	6.15	6.38	7.09	5.82	6.40	6.95	7.69	5.49	5.99	6.62	7.76
Alaska . . . . .	0.60	0.46	0.46	0.46	0.46	0.40	0.40	0.40	0.34	0.27	0.27	0.27	0.38
Lower 48 onshore . . . . .	3.21	3.85	4.09	4.32	5.04	3.77	4.43	5.00	5.98	3.22	3.99	4.67	5.97
Lower 48 offshore . . . . .	1.67	1.60	1.60	1.60	1.59	1.65	1.57	1.54	1.36	2.00	1.74	1.69	1.41
Net imports . . . . .	9.17	8.80	8.52	8.28	7.57	7.87	7.24	6.68	5.89	8.12	7.52	6.90	5.65
Other crude oil supply . . . . .	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total crude oil supply . . . . .</b>	<b>14.72</b>	<b>14.71</b>	<b>14.67</b>	<b>14.65</b>	<b>14.66</b>	<b>13.69</b>	<b>13.64</b>	<b>13.63</b>	<b>13.58</b>	<b>13.61</b>	<b>13.51</b>	<b>13.52</b>	<b>13.40</b>
<b>Other petroleum supply . . . . .</b>	<b>3.50</b>	<b>3.17</b>	<b>3.25</b>	<b>3.33</b>	<b>3.40</b>	<b>3.66</b>	<b>3.80</b>	<b>3.94</b>	<b>4.13</b>	<b>3.40</b>	<b>3.52</b>	<b>3.73</b>	<b>4.02</b>
Natural gas plant liquids . . . . .	2.07	2.43	2.56	2.68	2.97	2.67	3.01	3.27	3.91	2.66	3.01	3.33	4.04
Net product imports <sup>3</sup> . . . . .	0.39	-0.20	-0.25	-0.30	-0.54	0.08	-0.12	-0.24	-0.69	-0.12	-0.34	-0.43	-0.89
Refinery processing gain <sup>4</sup> . . . . .	1.07	0.94	0.95	0.94	0.97	0.90	0.91	0.91	0.91	0.86	0.85	0.83	0.86
Product stock withdrawal . . . . .	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Other non-petroleum supply . . . . .</b>	<b>1.00</b>	<b>1.22</b>	<b>1.22</b>	<b>1.22</b>	<b>1.22</b>	<b>1.87</b>	<b>1.86</b>	<b>1.86</b>	<b>1.85</b>	<b>2.91</b>	<b>2.96</b>	<b>2.87</b>	<b>2.81</b>
From renewable sources <sup>5</sup> . . . . .	0.87	1.05	1.05	1.05	1.05	1.48	1.48	1.48	1.49	2.33	2.37	2.32	2.27
From non-renewable sources <sup>6</sup> . . . . .	0.13	0.17	0.17	0.17	0.16	0.38	0.38	0.37	0.36	0.58	0.58	0.55	0.53
<b>Total primary supply<sup>7</sup> . . . . .</b>	<b>19.22</b>	<b>19.10</b>	<b>19.14</b>	<b>19.20</b>	<b>19.27</b>	<b>19.21</b>	<b>19.29</b>	<b>19.42</b>	<b>19.56</b>	<b>19.91</b>	<b>19.99</b>	<b>20.11</b>	<b>20.23</b>
<b>Refined petroleum products supplied</b>													
Residential and commercial . . . . .	1.12	1.00	1.00	1.00	1.00	0.93	0.94	0.94	0.95	0.90	0.91	0.91	0.92
Industrial <sup>8</sup> . . . . .	4.31	4.17	4.17	4.19	4.19	4.38	4.41	4.44	4.46	4.41	4.44	4.46	4.47
Transportation . . . . .	13.82	13.78	13.80	13.82	13.88	13.66	13.71	13.79	13.88	14.37	14.41	14.49	14.57
Electric power <sup>9</sup> . . . . .	0.17	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.15	0.14
<b>Total . . . . .</b>	<b>19.17</b>	<b>19.07</b>	<b>19.10</b>	<b>19.14</b>	<b>19.21</b>	<b>19.11</b>	<b>19.20</b>	<b>19.31</b>	<b>19.44</b>	<b>19.83</b>	<b>19.90</b>	<b>20.01</b>	<b>20.10</b>
<b>Discrepancy<sup>10</sup> . . . . .</b>	<b>0.05</b>	<b>0.03</b>	<b>0.05</b>	<b>0.06</b>	<b>0.07</b>	<b>0.10</b>	<b>0.10</b>	<b>0.11</b>	<b>0.12</b>	<b>0.09</b>	<b>0.09</b>	<b>0.11</b>	<b>0.12</b>
<b>Lower 48 end of year reserves (billion barrels)<sup>2</sup> . . . . .</b>													
	<b>18.33</b>	<b>19.39</b>	<b>20.55</b>	<b>21.66</b>	<b>23.49</b>	<b>21.36</b>	<b>23.64</b>	<b>25.77</b>	<b>27.83</b>	<b>22.68</b>	<b>24.23</b>	<b>26.27</b>	<b>29.06</b>

<sup>1</sup>Weighted average price delivered to U.S. refiners.

<sup>2</sup>Includes lease condensate.

<sup>3</sup>Includes net imports of finished petroleum products, unfinished oils, other hydrocarbons, alcohols, ethers, and blending components.

<sup>4</sup>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.

<sup>5</sup>Includes ethanol (including imports), biodiesel (including imports), pyrolysis oils, biomass-derived Fischer-Tropsch liquids, and renewable feedstocks for the production of green diesel and gasoline.

<sup>6</sup>Includes alcohols, ethers, domestic sources of blending components, other hydrocarbons, natural gas converted to liquid fuel, and coal converted to liquid fuel.

<sup>7</sup>Total crude supply plus natural gas plant liquids, other inputs, refinery processing gain, and net product imports.

<sup>8</sup>Includes consumption for combined heat and power, which produces electricity and other useful thermal energy.

<sup>9</sup>Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

<sup>10</sup>Balancing item. Includes unaccounted for supply, losses and gains.

EUR = Estimated ultimate recovery.

TRR = Technically recoverable resources.

Note: Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Sources: 2010 product supplied data and imported crude oil price based on: U.S. Energy Information Administration (EIA), *Annual Energy Review 2010*, DOE/EIA-0384(2010) (Washington, DC, October 2011). 2010 imported low sulfur light crude oil price: EIA, Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report." Other 2010 data: EIA, *Petroleum Supply Annual 2010*, DOE/EIA-0340(2010)/1 (Washington, DC, July 2011). Projections: EIA, AEO2012 National Energy Modeling System runs LEUR12.D022212A, REF2012.D020112C, HEUR12.D022212A, and HTRR.D050412A.

**Table D12. Volumetric and mass representations of liquid fuels production cases**  
(volume in million barrels per day, mass in billion tons, unless otherwise noted)

Supply and disposition	2000		2011			2035		
	Volume	Mass	PMM Volume	LFMM Volume	LFMM Mass	PMM Volume	LFMM Volume	LFMM Mass
<b>Primary feedstocks<sup>1</sup></b>								
Crude oil <sup>2</sup>	15.36	0.83	15.37	14.87	0.83	14.05	13.73	0.78
Natural gas <sup>3</sup>	0.00	0.00	0.00	0.00	0.00	0.00	2.95	0.03
Natural gas plant liquids <sup>4</sup>	1.91	0.07	2.16	1.21	0.09	3.01	0.30	0.11
Coal <sup>5</sup>	0.00	0.00	0.00	0.00	0.00	0.28	0.27	0.09
Biomass <sup>6</sup>	0.10	0.01	0.92	13.99	0.14	2.37	14.64	0.31
<b>Total primary feedstocks</b>	<b>17.37</b>	<b>0.91</b>	<b>18.45</b>	--	<b>1.06</b>	<b>19.71</b>	--	<b>1.32</b>
<b>Refined products<sup>1</sup></b>								
Residual fuel oil	0.91	0.04	0.47	0.52	0.03	0.58	0.58	0.03
Middle distillates <sup>7</sup>	2.55	0.26	3.21	5.90	0.30	3.73	6.69	0.34
Biodiesel <sup>8</sup>	0.00	0.00	0.05	0.02	0.00	0.13	0.01	0.00
Gasoline blendstocks <sup>9</sup>	8.37	0.37	7.84	8.57	0.41	6.94	7.73	0.37
Ethanol <sup>10</sup>	0.10	0.00	0.86	0.95	0.05	1.65	1.61	0.08
Chemicals <sup>11</sup>	2.62	0.10	2.11	2.17	0.05	2.10	3.20	0.08
Solid products <sup>12</sup>	--	0.05	--	--	0.07	--	--	0.08
Fuel consumption and other <sup>13</sup>	--	0.10	--	0.00	0.15	0.00	0.00	0.34
<b>Total refined products</b>	<b>14.55</b>	<b>0.91</b>	<b>14.54</b>	<b>18.13</b>	<b>1.06</b>	<b>15.13</b>	<b>19.82</b>	<b>1.32</b>
<b>End use products</b>								
Residual fuel oil	0.91	0.04	0.47	0.50	0.03	0.58	0.57	0.03
Heating oil <sup>14</sup>	1.17	0.03	0.62	0.53	0.03	0.37	0.37	0.02
Diesel fuel <sup>15</sup>	2.55	0.16	3.27	3.40	0.17	4.11	4.19	0.21
Jet fuel	1.73	0.08	1.44	1.51	0.08	1.61	1.67	0.08
Motor Gasoline <sup>16</sup>	8.47	0.38	8.76	9.29	0.44	8.09	8.32	0.40
E85 <sup>17</sup>	0.00	0.00	0.00	0.00	0.00	0.83	0.84	0.04
Liquefied petroleum gases	2.43	0.02	2.26	0.46	0.01	2.21	0.74	0.01
Chemical feedstocks <sup>18</sup>	0.40	0.07	0.33	1.70	0.06	0.57	2.47	0.06
Agricultural products <sup>19</sup>	--	0.00	--	--	0.05	--	--	0.06
Biomass heat and power <sup>20</sup>	--	0.00	--	--	0.00	--	--	0.02
Other <sup>21</sup>	1.91	0.04	1.89	0.34	0.02	1.79	0.36	0.02
<b>Total end use products</b>	<b>19.57</b>	<b>0.82</b>	<b>19.04</b>	<b>17.73</b>	<b>0.89</b>	<b>20.16</b>	<b>19.53</b>	<b>0.95</b>

<sup>1</sup>Includes domestic production and net imports.

<sup>2</sup>Includes unfinished oils and lease condensate.

<sup>3</sup>Natural gas that remains after the liquefiable hydrocarbon portion has been removed from the gas stream at lease and/or plant separation facilities. Volume in billion cubic feet per day.

<sup>4</sup>Liquids in the natural gas production stream that stay in gaseous form at the surface and are separated at a gas processing plant. Once extracted, these liquids are separated into distinct products, or "fractions", such as propane, butane, and ethane.

<sup>5</sup>Coal input to the coal-to-liquids process. Volume in million barrels per day fuel oil equivalent.

<sup>6</sup>Biological material from living, or recently living organisms such as grain crops, sugars, cellulosic biomass, or renewable oils. Volume in million barrels per day fuel oil equivalent.

<sup>7</sup>Includes all fuels that meet ASTM D396 and D975 (#4 and lighter) and D1655/D6615, including those derived from fossil and renewable feedstock.

<sup>8</sup>Methyl ester based fuel produced from fatty acids in renewable oils.

<sup>9</sup>Includes all blendstocks that meet ASTM D4814, including those derived from fossil and renewable feedstock.

<sup>10</sup>Includes denaturant.

<sup>11</sup>Includes liquefied petroleum gases and petrochemical feedstocks.

<sup>12</sup>Includes petroleum coke, distillers grains, sulfur, and asphalt sales.

<sup>13</sup>Includes fuels burned for internal use, heat and power sales, solid waste, and process emissions.

<sup>14</sup>A distillate fuel oil for use in atomizing type burners for domestic heating or for use in medium capacity commercial-industrial burner units.

<sup>15</sup>For on-road use.

<sup>16</sup>Includes ethanol and ethers blended into motor gasoline.

<sup>17</sup>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.

<sup>18</sup>Includes petrochemical feedstocks and chemicals from Fischer-Tropsch processes, such as coal-to-liquids, biomass-to-liquids, and natural gas-to-liquids.

<sup>19</sup>Non-liquid co-products for use in the agricultural sector. Includes dried distiller grains.

<sup>20</sup>Heat and power generated from the burning of residual biomass.

<sup>21</sup>Includes petroleum coke, asphalt, road oil, and still gas.

-- = Not applicable.

PMM = Petroleum market module.

LFMM = Liquid fuels market module.

Note: PMM and LFMM projections do not exactly match due to differences in accounting for additional materials and updated refinery stream representations. Totals may not equal sum of components due to independent rounding. Data for 2000 are model results and may differ slightly from official EIA data reports.

Sources: 2000 product supplied data and imported crude oil price based on: U.S. Energy Information Administration (EIA), *Annual Energy Review 2010*, DOE/EIA-0384(2010) (Washington, DC, October 2011). 2000 crude oil production: EIA, *Petroleum Supply Annual 2001*, DOE/EIA-0340(2001)/1 (Washington, DC, June 2002). Other 2000 data: EIA, *Petroleum Supply Annual 2000*, DOE/EIA-0340(2000)/1 (Washington, DC, June 2001). Projections: EIA, AEO2012 National Energy Modeling System runs REF2012.D020112C, and REF\_LFMM.D050312A.

**Table D13. Key results for No GHG Concern case**  
(million short tons per year, unless otherwise noted)

Supply, disposition, and prices	2010	2015		2025		2035	
		Reference	No GHG Concern	Reference	No GHG Concern	Reference	No GHG Concern
<b>Production<sup>1</sup></b>	<b>1084</b>	<b>993</b>	<b>1016</b>	<b>1118</b>	<b>1169</b>	<b>1212</b>	<b>1339</b>
Appalachia	336	300	301	271	263	291	301
Interior	156	151	156	163	173	198	216
West	592	542	558	684	733	722	822
<b>Waste coal supplied<sup>2</sup></b>	<b>14</b>	<b>15</b>	<b>18</b>	<b>16</b>	<b>16</b>	<b>19</b>	<b>24</b>
<b>Net imports<sup>3</sup></b>	<b>-64</b>	<b>-95</b>	<b>-97</b>	<b>-71</b>	<b>-57</b>	<b>-94</b>	<b>-88</b>
<b>Total supply<sup>4</sup></b>	<b>1034</b>	<b>914</b>	<b>936</b>	<b>1064</b>	<b>1128</b>	<b>1138</b>	<b>1276</b>
<b>Consumption by sector</b>							
Residential and commercial	3	3	3	3	3	3	3
Coke plants	21	22	22	19	19	17	17
Other industrial <sup>5</sup>	52	50	50	52	52	53	53
Coal-to-liquids heat and power	0	0	0	19	47	34	90
Coal-to-liquids liquids production	0	0	0	18	44	32	85
Electric power <sup>6</sup>	975	839	861	952	962	998	1028
<b>Total coal use</b>	<b>1051</b>	<b>914</b>	<b>936</b>	<b>1063</b>	<b>1127</b>	<b>1137</b>	<b>1276</b>
<b>Average minemouth price<sup>7</sup></b>							
(2010 dollars per short ton)	35.61	42.08	41.83	44.05	43.14	50.52	49.88
(2010 dollars per million Btu)	1.76	2.08	2.07	2.23	2.21	2.56	2.54
<b>Delivered prices<sup>8</sup></b>							
<b>(2010 dollars per short ton)</b>							
Coke plants	153.59	189.11	188.05	212.18	212.06	238.32	237.86
Other industrial <sup>5</sup>	59.28	70.14	70.04	72.77	73.23	78.53	79.88
Coal to liquids	--	18.65	18.62	39.03	36.06	41.54	43.46
Electric power <sup>8</sup>							
(2010 dollars per short ton)	44.27	45.17	44.94	48.13	48.40	53.31	55.05
(2010 dollars per million Btu)	2.26	2.35	2.34	2.54	2.55	2.80	2.87
<b>Average</b>	<b>47.17</b>	<b>49.95</b>	<b>49.60</b>	<b>51.90</b>	<b>51.28</b>	<b>56.48</b>	<b>56.89</b>
Exports <sup>9</sup>	120.41	140.89	140.22	163.43	163.15	177.66	176.61
<b>Cumulative electricity generating capacity additions (gigawatts)<sup>10</sup></b>							
Coal	0.0	9.1	9.1	13.5	18.4	16.6	39.9
Conventional	0.0	8.7	8.7	8.7	9.1	9.4	21.8
Advanced without sequestration	0.0	0.6	0.6	0.6	0.7	0.6	2.0
Advanced with sequestration	0.0	0.0	0.0	0.9	0.9	0.9	0.9
End-use generators <sup>11</sup>	0.0	-0.1	-0.1	3.4	7.8	5.6	15.2
Petroleum	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Natural gas	0.0	29.1	28.0	63.3	61.4	141.6	128.9
Nuclear / uranium	0.0	1.1	1.1	6.8	6.8	8.5	7.4
Renewables <sup>12</sup>	0.0	29.6	29.3	42.2	41.3	67.4	58.2
Other	0.0	0.8	0.8	0.8	0.8	0.8	0.8
<b>Total</b>	<b>0.0</b>	<b>69.8</b>	<b>68.4</b>	<b>126.7</b>	<b>128.8</b>	<b>235.0</b>	<b>235.3</b>
Liquids from coal (million barrels per day)	0.00	0.00	0.00	0.17	0.38	0.28	0.73

<sup>1</sup>Includes anthracite, bituminous coal, subbituminous coal, and lignite.

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

<sup>3</sup>Excludes imports to Puerto Rico and the U.S. Virgin Islands.

<sup>4</sup>Production plus waste coal supplied plus net imports.

<sup>5</sup>Includes consumption for combined heat and power plants, except those plants whose primary business is to sell electricity, or electricity and heat, to the public. Excludes all coal use in the coal-to-liquids process.

<sup>6</sup>Includes all electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>7</sup>Includes reported prices for both open market and captive mines.

<sup>8</sup>Prices weighted by consumption tonnage; weighted average excludes residential and commercial prices, and export free-alongside-ship (f.a.s.) prices.

<sup>9</sup>F.a.s. price at U.S. port of exit.

<sup>10</sup>Cumulative additions after December 31, 2010. Includes all additions of electricity only and combined heat and power plants projected for the electric power, industrial, and commercial sectors.

<sup>11</sup>Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

<sup>12</sup>Includes conventional hydroelectric, geothermal, wood, wood waste, municipal waste, landfill gas, other biomass, solar, and wind power. Facilities co-firing biomass and coal are classified as coal.

-- = Not applicable.

Btu = British thermal unit.

GHG = Greenhouse gas.

Note: Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Sources: 2010 data based on: U.S. Energy Information Administration (EIA), *Annual Coal Report 2010*, DOE/EIA-0584(2010) (Washington, DC, November 2011); EIA, *Quarterly Coal Report, October-December 2010*, DOE/EIA-0121(2010/4Q) (Washington, DC, May 2011); and EIA, AEO2012 National Energy Modeling System run REF2012.D020112C.

Projections: EIA, AEO2012 National Energy Modeling System runs REF2012.D020112C and NOGHGCONCERN.D031212A.

**Table D14. Key results for coal cost cases**  
(million short tons per year, unless otherwise noted)

Supply, disposition, and prices	2010	2020			2035			Annual growth 2010-2035 (percent)		
		Low Coal Cost	Reference	High Coal Cost	Low Coal Cost	Reference	High Coal Cost	Low Coal Cost	Reference	High Coal Cost
<b>Production<sup>1</sup></b>	<b>1084</b>	<b>1096</b>	<b>1034</b>	<b>962</b>	<b>1336</b>	<b>1212</b>	<b>946</b>	<b>0.8%</b>	<b>0.4%</b>	<b>-0.5%</b>
Appalachia	336	281	262	253	309	291	261	-0.3%	-0.6%	-1.0%
Interior	156	168	159	159	194	198	202	0.9%	1.0%	1.0%
West	592	647	613	550	833	722	483	1.4%	0.8%	-0.8%
Waste coal supplied <sup>2</sup>	14	13	15	18	14	19	40	0.2%	1.4%	4.4%
Net imports <sup>3</sup>	-64	-78	-67	-73	-87	-94	-59	1.2%	1.5%	-0.3%
<b>Total supply<sup>4</sup></b>	<b>1034</b>	<b>1031</b>	<b>982</b>	<b>907</b>	<b>1263</b>	<b>1138</b>	<b>927</b>	<b>0.8%</b>	<b>0.4%</b>	<b>-0.4%</b>
<b>Consumption by sector</b>										
Residential and commercial	3	3	3	3	3	3	3	-0.2%	-0.3%	-0.4%
Coke plants	21	19	18	18	17	17	16	-0.8%	-1.0%	-1.1%
Other industrial <sup>5</sup>	52	51	51	50	53	53	52	0.1%	0.0%	-0.0%
Coal-to-liquids heat and power	0	15	13	12	57	34	29	--	--	--
Coal-to-liquids liquids production	0	14	12	11	54	32	27	--	--	--
Electric power <sup>6</sup>	975	929	885	812	1079	998	800	0.4%	0.1%	-0.8%
<b>Total coal use</b>	<b>1051</b>	<b>1031</b>	<b>982</b>	<b>907</b>	<b>1263</b>	<b>1137</b>	<b>926</b>	<b>0.7%</b>	<b>0.3%</b>	<b>-0.5%</b>
<b>Average minemouth price<sup>7</sup></b>										
(2010 dollars per short ton)	35.61	32.70	40.96	52.91	25.80	50.52	106.78	-1.3%	1.4%	4.5%
(2010 dollars per million Btu)	1.76	1.64	2.06	2.65	1.31	2.56	5.24	-1.2%	1.5%	4.5%
<b>Delivered prices<sup>8</sup></b>										
<b>(2010 dollars per short ton)</b>										
Coke plants	153.59	165.27	198.45	239.32	136.73	238.32	413.77	-0.5%	1.8%	4.0%
Other industrial <sup>5</sup>	59.28	60.23	70.89	84.14	50.11	78.53	127.31	-0.7%	1.1%	3.1%
Coal to liquids	--	34.43	40.67	49.20	25.22	41.54	68.76	--	--	--
Electric power <sup>6</sup>										
(2010 dollars per short ton)	44.27	39.19	45.98	55.09	34.16	53.31	94.16	-1.0%	0.7%	3.1%
(2010 dollars per million Btu)	2.26	2.04	2.41	2.89	1.77	2.80	4.79	-1.0%	0.9%	3.0%
<b>Average</b>	<b>47.17</b>	<b>42.38</b>	<b>49.99</b>	<b>60.26</b>	<b>35.44</b>	<b>56.48</b>	<b>100.09</b>	<b>-1.1%</b>	<b>0.7%</b>	<b>3.1%</b>
Exports <sup>9</sup>	120.41	121.34	155.03	187.16	96.75	177.66	338.54	-0.9%	1.6%	4.2%
<b>Cumulative electricity generating capacity additions (gigawatts)<sup>10</sup></b>										
Coal	0.0	12.9	12.5	12.2	30.7	16.6	14.5	--	--	--
Conventional	0.0	8.7	8.7	8.7	19.8	9.4	8.7	--	--	--
Advanced without sequestration	0.0	0.6	0.6	0.6	1.0	0.6	0.6	--	--	--
Advanced with sequestration	0.0	0.9	0.9	0.9	0.9	0.9	0.9	--	--	--
End-use generators <sup>11</sup>	0.0	2.7	2.3	2.1	9.0	5.6	4.3	--	--	--
Petroleum	0.0	0.1	0.1	0.1	0.1	0.1	0.1	--	--	--
Natural gas	0.0	36.6	39.7	43.1	128.1	141.6	131.7	--	--	--
Nuclear / uranium	0.0	6.8	6.8	6.8	7.3	8.5	7.7	--	--	--
Renewables <sup>12</sup>	0.0	34.2	34.5	41.0	67.9	67.4	65.9	--	--	--
Other	0.0	0.8	0.8	0.8	0.8	0.8	0.8	--	--	--
<b>Total</b>	<b>0.0</b>	<b>91.3</b>	<b>94.3</b>	<b>104.0</b>	<b>234.9</b>	<b>235.0</b>	<b>220.6</b>	<b>--</b>	<b>--</b>	<b>--</b>
Liquids from coal (million barrels per day)	0.00	0.14	0.12	0.11	0.45	0.28	0.21	--	--	--

**Table D14. Key results for coal cost cases (continued)**  
(million short tons per year, unless otherwise noted)

Supply, disposition, and prices	2010	2020			2035			Annual growth 2010-2035 (percent)		
		Low Coal Cost	Reference	High Coal Cost	Low Coal Cost	Reference	High Coal Cost	Low Coal Cost	Reference	High Coal Cost
<b>Cost indices</b> (constant dollar index, 2010=1.000)										
Transportation rate multipliers										
Eastern railroads	1.000	0.970	1.067	1.170	0.780	1.044	1.300	-1.0%	0.2%	1.1%
Western railroads	1.000	0.870	0.963	1.050	0.750	0.999	1.250	-1.1%	-0.0%	0.9%
Mine equipment costs										
Underground	1.000	0.914	1.000	1.094	0.786	1.000	1.270	-1.0%	0.0%	1.0%
Surface	1.000	0.914	1.000	1.094	0.786	1.000	1.270	-1.0%	0.0%	1.0%
Other mine supply costs										
East of the Mississippi: all mines	1.000	0.914	1.000	1.094	0.786	1.000	1.270	-1.0%	0.0%	1.0%
West of the Mississippi: underground	1.000	0.914	1.000	1.094	0.786	1.000	1.270	-1.0%	0.0%	1.0%
West of the Mississippi: surface	1.000	0.914	1.000	1.094	0.786	1.000	1.270	-1.0%	0.0%	1.0%
Coal mining labor productivity (short tons per miner per hour)	5.55	6.29	4.92	3.67	8.06	3.88	1.68	1.5%	-1.4%	-4.7%
Average coal miner wage (2010 dollars per year)	77,466	84,135	92,285	100,436	78,164	99,537	124,954	0.0%	1.0%	1.9%

<sup>1</sup>Includes anthracite, bituminous coal, subbituminous coal, and lignite.

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

<sup>3</sup>Excludes imports to Puerto Rico and the U.S. Virgin Islands.

<sup>4</sup>Production plus waste coal supplied plus net imports.

<sup>5</sup>Includes consumption for combined heat and power plants, except those plants whose primary business is to sell electricity, or electricity and heat, to the public. Excludes all coal use in the coal to liquids process.

<sup>6</sup>Includes all electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>7</sup>Includes reported prices for both open market and captive mines.

<sup>8</sup>Prices weighted by consumption tonnage; weighted average excludes residential and commercial prices, and export free-alongside-ship (f.a.s.) prices.

<sup>9</sup>F.a.s. price at U.S. port of exit.

<sup>10</sup>Cumulative additions after December 31, 2010. Includes all additions of electricity only and combined heat and power plants projected for the electric power, industrial, and commercial sectors.

<sup>11</sup>Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

<sup>12</sup>Includes conventional hydroelectric, geothermal, wood, wood waste, municipal waste, landfill gas, other biomass, solar, and wind power. Facilities co-firing biomass and coal are classified as coal.

-- = Not applicable.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2010 are model results and may differ slightly from official EIA data reports.

Sources: 2010 data based on: U.S. Energy Information Administration (EIA), *Annual Coal Report 2010*, DOE/EIA-0584(2010) (Washington, DC, November 2011); EIA, *Quarterly Coal Report, October-December 2010*, DOE/EIA-0121(2010/4Q) (Washington, DC, May 2011); U.S. Department of Labor, Bureau of Labor Statistics, Average Hourly Earnings of Production Workers: Coal Mining, Series ID: ceu1021210008; and EIA, AEO2012 National Energy Modeling System run REF2012.D020112C. Projections: EIA, AEO2012 National Energy Modeling System runs LCCST12.D031312A, REF2012.D020112C, and HCCST12.D031312A.