

Table 21. Residential Sector Equipment Stock and Efficiency

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Equipment Stock (million units)													
Main Space Heaters													
Electric Heat Pumps	10.63	11.02	11.43	11.80	12.11	12.44	12.76	13.08	13.40	13.71	14.02	14.33	14.64
Electric Other	20.76	20.90	21.04	21.16	21.28	21.43	21.58	21.74	21.89	22.04	22.20	22.35	22.50
Natural Gas Heat Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas Other	59.93	60.87	61.86	62.74	63.60	64.46	65.31	66.15	67.03	67.93	68.80	69.68	70.56
Distillate	8.03	8.03	8.04	8.05	8.06	8.07	8.09	8.10	8.12	8.13	8.15	8.17	8.18
Liquefied Petroleum Gas	5.00	5.06	5.10	5.14	5.19	5.25	5.30	5.36	5.41	5.46	5.51	5.56	5.61
Kerosene	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.78	0.77	0.77	0.77	0.77	0.77
Wood Stoves	2.04	2.04	2.03	2.03	2.02	2.01	2.00	1.99	1.99	1.98	1.97	1.97	1.96
Geothermal Heat Pumps	0.07	0.09	0.11	0.14	0.15	0.17	0.19	0.21	0.23	0.24	0.26	0.28	0.30
Total	107.29	108.82	110.42	111.85	113.20	114.61	116.01	117.41	118.83	120.28	121.69	123.10	124.53
Space Cooling (million units)													
Electric Heat Pumps	10.63	11.02	11.43	11.80	12.11	12.44	12.76	13.08	13.40	13.71	14.02	14.33	14.64
Natural Gas Heat Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Geothermal Heat Pumps	0.07	0.09	0.11	0.14	0.15	0.17	0.19	0.21	0.23	0.24	0.26	0.28	0.30
Central Air Conditioners	48.33	49.71	51.12	52.43	53.71	55.02	56.33	57.62	58.94	60.27	61.57	62.87	64.18
Room Air Conditioners	34.55	34.49	34.43	34.37	34.31	34.25	34.20	34.16	34.11	34.07	34.03	33.99	33.95
Total	93.58	95.31	97.10	98.73	100.28	101.89	103.49	105.07	106.67	108.29	109.89	111.47	113.07
Water Heaters (million units)													
Electric	41.16	41.58	42.01	42.37	42.68	43.03	43.38	43.74	44.08	44.43	44.77	45.10	45.45
Natural Gas	59.05	60.13	61.27	62.31	63.33	64.36	65.38	66.38	67.42	68.48	69.52	70.55	71.59
Distillate	4.60	4.58	4.55	4.53	4.51	4.49	4.46	4.45	4.43	4.41	4.39	4.37	4.36
Liquefied Petroleum Gas	2.98	3.03	3.07	3.10	3.15	3.19	3.24	3.29	3.34	3.38	3.43	3.48	3.52
Solar Thermal	0.32	0.33	0.34	0.35	0.36	0.36	0.37	0.38	0.39	0.40	0.40	0.41	0.42
Total	108.11	109.65	111.24	112.67	114.02	115.43	116.83	118.23	119.65	121.09	122.51	123.91	125.34
Cooking Equipment (million units) 1/													
Electric	66.05	67.07	68.12	69.04	69.89	70.78	71.68	72.56	73.44	74.34	75.20	76.05	76.91
Natural Gas	37.65	38.13	38.63	39.11	39.58	40.05	40.52	40.99	41.48	42.00	42.51	43.03	43.57
Liquefied Petroleum Gas	4.72	4.77	4.80	4.83	4.86	4.90	4.94	4.98	5.02	5.05	5.09	5.12	5.15
Total	108.42	109.96	111.55	112.97	114.32	115.73	117.13	118.53	119.94	121.38	122.80	124.20	125.63
Clothes Dryers (million units)													
Electric	62.00	63.18	64.40	65.51	66.55	67.63	68.70	69.75	70.81	71.87	72.89	73.89	74.90
Natural Gas	17.43	17.99	18.58	19.14	19.68	20.23	20.77	21.31	21.86	22.43	23.01	23.59	24.19
Total	79.44	81.18	82.97	84.64	86.23	87.85	89.47	91.07	92.68	94.30	95.90	97.49	99.09
Other Appliances (million units)													
Refrigerators	127.52	129.13	130.81	132.32	133.74	135.22	136.69	138.15	139.63	141.14	142.62	144.09	145.58
Freezers	34.62	35.05	35.51	35.92	36.32	36.71	37.11	37.51	37.90	38.31	38.71	39.10	39.50
Stock Average Equipment Efficiency													
Main Space Heaters													
Electric Heat Pumps (HSPF)	7.21	7.25	7.28	7.30	7.39	7.46	7.52	7.57	7.62	7.67	7.72	7.76	7.81
Natural Gas Heat Pumps (GCOP)	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.31	1.33	1.34	1.34	1.35
Geothermal Heat Pumps (COP)	3.40	3.40	3.43	3.44	3.45	3.46	3.46	3.47	3.47	3.48	3.48	3.48	3.49
Natural Gas Furnace (AFUE)	0.80	0.80	0.81	0.81	0.82	0.82	0.82	0.83	0.83	0.83	0.83	0.84	0.84
Distillate Furnace (AFUE)	0.81	0.81	0.81	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Space Cooling													
Electric Heat Pumps (SEER)	10.62	10.69	10.75	10.80	11.04	11.24	11.42	11.59	11.76	11.92	12.08	12.24	12.39
Natural Gas Heat Pumps (GCOP)	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Geothermal Heat Pumps (EER)	13.58	13.64	14.17	14.48	14.70	14.87	15.02	15.14	15.24	15.32	15.40	15.48	15.55
Cent. Air Conditioners (SEER)	10.44	10.50	10.55	10.59	10.82	11.01	11.21	11.39	11.57	11.74	11.90	12.06	12.21

Table 21. Residential Sector Equipment Stock and Efficiency

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Room Air Conditioners (EER)	9.11	9.19	9.27	9.34	9.40	9.45	9.51	9.57	9.62	9.67	9.71	9.75	9.78
Water Heaters													
Electric (EF)	0.88	0.88	0.88	0.88	0.89	0.89	0.89	0.89	0.90	0.90	0.90	0.90	0.90
Natural Gas (EF)	0.55	0.55	0.56	0.56	0.57	0.57	0.57	0.58	0.58	0.58	0.59	0.59	0.59
Distillate (EF)	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Liquefied Petroleum Gas (EF)	0.55	0.55	0.56	0.56	0.57	0.57	0.57	0.58	0.58	0.58	0.59	0.59	0.59
Other Appliances (kilowatthours per year) 2/													
Refrigerators	757.18	733.75	711.60	691.60	673.26	656.04	639.76	624.72	609.75	596.26	584.08	573.26	563.61
Freezers	556.64	535.23	515.77	499.31	486.22	475.54	466.40	458.67	452.16	447.02	443.01	439.74	437.14
Building Shell Efficiency Index													
Space Heating													
Pre-1998 Homes	0.99	0.98	0.97	0.95	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.91
New Construction	0.77	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.75
All Homes	0.99	0.98	0.96	0.94	0.93	0.92	0.91	0.91	0.90	0.90	0.89	0.89	0.88
Space Cooling													
Pre-1998 Homes	1.00	0.99	0.99	0.98	0.98	0.98	0.98	0.97	0.97	0.97	0.97	0.97	0.97
New Construction	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.87	0.87	0.87	0.87
All Homes	0.99	0.99	0.98	0.98	0.97	0.97	0.96	0.96	0.96	0.96	0.95	0.95	0.95

Table 21. Residential Sector Equipment Stock and Efficiency

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Equipment Stock (million units)												
Main Space Heaters												
Electric Heat Pumps	14.95	15.24	15.54	15.83	16.13	16.42	16.70	16.98	17.26	17.54	17.82	2.2%
Electric Other	22.65	22.80	22.94	23.09	23.24	23.38	23.51	23.65	23.79	23.93	24.07	0.6%
Natural Gas Heat Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Natural Gas Other	71.41	72.25	73.06	73.88	74.70	75.55	76.41	77.27	78.13	78.99	79.84	1.2%
Distillate	8.20	8.22	8.23	8.25	8.27	8.28	8.30	8.32	8.33	8.35	8.37	0.2%
Liquefied Petroleum Gas	5.66	5.71	5.75	5.79	5.84	5.87	5.91	5.95	5.99	6.02	6.06	0.8%
Kerosene	0.77	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	-0.3%
Wood Stoves	1.95	1.95	1.94	1.93	1.93	1.92	1.91	1.90	1.90	1.89	1.88	-0.4%
Geothermal Heat Pumps	0.31	0.33	0.35	0.36	0.38	0.40	0.42	0.43	0.45	0.47	0.48	7.9%
Total	125.91	127.25	128.58	129.90	131.23	132.58	133.92	135.26	136.61	137.95	139.28	1.1%
Space Cooling (million units)												
Electric Heat Pumps	14.95	15.24	15.54	15.83	16.13	16.42	16.70	16.98	17.26	17.54	17.82	2.2%
Natural Gas Heat Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Geothermal Heat Pumps	0.31	0.33	0.35	0.36	0.38	0.40	0.42	0.43	0.45	0.47	0.48	7.9%
Central Air Conditioners	65.45	66.69	67.92	69.14	70.37	71.61	72.85	74.09	75.32	76.56	77.78	2.1%
Room Air Conditioners	33.91	33.87	33.83	33.79	33.75	33.72	33.68	33.65	33.62	33.58	33.55	-0.1%
Total	114.62	116.14	117.64	119.13	120.63	122.15	123.65	125.15	126.65	128.15	129.63	1.4%
Water Heaters (million units)												
Electric	45.78	46.10	46.42	46.74	47.07	47.39	47.70	48.01	48.33	48.65	48.96	0.7%
Natural Gas	72.60	73.58	74.55	75.51	76.47	77.47	78.47	79.46	80.45	81.44	82.42	1.4%
Distillate	4.35	4.34	4.33	4.31	4.30	4.29	4.28	4.28	4.27	4.26	4.26	-0.3%
Liquefied Petroleum Gas	3.57	3.61	3.65	3.69	3.73	3.77	3.81	3.84	3.88	3.91	3.95	1.2%
Solar Thermal	0.43	0.43	0.44	0.45	0.46	0.46	0.47	0.48	0.48	0.49	0.50	1.9%
Total	126.72	128.07	129.39	130.71	132.04	133.39	134.73	136.07	137.41	138.75	140.08	1.1%
Cooking Equipment (million units) 1/												
Electric	77.73	78.52	79.30	80.07	80.87	81.68	82.52	83.37	84.24	85.11	85.97	1.1%
Natural Gas	44.09	44.61	45.14	45.66	46.17	46.67	47.15	47.61	48.05	48.49	48.93	1.1%
Liquefied Petroleum Gas	5.18	5.21	5.23	5.26	5.28	5.31	5.33	5.36	5.40	5.43	5.45	0.6%
Total	127.01	128.35	129.67	130.99	132.32	133.66	135.00	136.34	137.68	139.02	140.35	1.1%
Clothes Dryers (million units)												
Electric	75.88	76.83	77.77	78.70	79.66	80.63	81.60	82.59	83.57	84.54	85.50	1.4%
Natural Gas	24.77	25.33	25.88	26.42	26.95	27.48	28.00	28.50	29.00	29.50	30.02	2.4%
Total	100.65	102.16	103.65	105.12	106.61	108.11	109.60	111.08	112.57	114.05	115.52	1.6%
Other Appliances (million units)												
Refrigerators	147.02	148.42	149.80	151.18	152.57	153.97	155.37	156.77	158.18	159.57	160.97	1.0%
Freezers	39.88	40.25	40.61	40.96	41.32	41.68	42.04	42.40	42.76	43.12	43.48	1.0%
Stock Average Equipment Efficiency												
Main Space Heaters												
Electric Heat Pumps (HSPF)	7.85	7.89	7.92	7.95	7.98	8.01	8.04	8.06	8.08	8.10	8.11	0.5%
Natural Gas Heat Pumps (GCOP)	1.36	1.37	1.37	1.38	1.38	1.40	1.41	1.42	1.43	1.44	1.45	0.5%
Geothermal Heat Pumps (COP)	3.49	3.49	3.49	3.49	3.50	3.52	3.54	3.56	3.58	3.59	3.61	0.3%
Natural Gas Furnace (AFUE)	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.85	0.85	0.85	0.85	0.2%
Distillate Furnace (AFUE)	0.82	0.82	0.82	0.82	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.1%
Space Cooling												
Electric Heat Pumps (SEER)	12.53	12.65	12.77	12.87	12.96	13.05	13.13	13.19	13.25	13.30	13.33	1.0%
Natural Gas Heat Pumps (GCOP)	0.62	0.62	0.62	0.62	0.62	0.63	0.64	0.64	0.65	0.66	0.66	0.3%
Geothermal Heat Pumps (EER)	15.61	15.67	15.72	15.76	15.80	15.94	16.06	16.18	16.29	16.39	16.49	0.9%
Cent. Air Conditioners (SEER)	12.35	12.47	12.58	12.68	12.77	12.88	12.97	13.05	13.13	13.19	13.24	1.1%

Table 21. Residential Sector Equipment Stock and Efficiency

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Room Air Conditioners (EER)	9.79	9.80	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	0.3%
Water Heaters												
Electric (EF)	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.2%
Natural Gas (EF)	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.60	0.60	0.60	0.4%
Distillate (EF)	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.0%
Liquefied Petroleum Gas (EF)	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.60	0.60	0.60	0.4%
Other Appliances (kilowatthours per year) 2/												
Refrigerators	555.14	547.74	541.34	535.80	531.04	526.74	522.94	519.63	516.84	514.55	512.79	-1.6%
Freezers	435.16	433.73	432.79	432.26	432.02	432.07	432.30	432.68	433.21	433.89	434.51	-0.9%
Building Shell Efficiency Index												
Space Heating												
Pre-1998 Homes	0.91	0.90	0.90	0.89	0.89	0.88	0.88	0.87	0.86	0.86	0.85	-0.6%
New Construction	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	-0.1%
All Homes	0.88	0.87	0.87	0.86	0.85	0.85	0.84	0.84	0.83	0.83	0.82	-0.8%
Space Cooling												
Pre-1998 Homes	0.97	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.94	-0.2%
New Construction	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	-0.1%
All Homes	0.95	0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.93	0.92	0.92	-0.3%

Table 21. Residential Sector Equipment Stock and Efficiency

1/ Does not include microwave ovens or outdoor grills.

2/ Kilowatthours per year to run the appliance under certain test conditions as specified by the Department of Energy

HSPF = Heating Seasonal Performance Factor: The total heating output of a heat pump in Btu during its normal annual usage period for heating divided by total electric input in watt-hours during the same period.

COP = Coefficient of Performance: Energy efficiency rating measure determined, under specific testing conditions, by dividing the energy output by the energy input

GCOP = Gas Coefficient of Performance: Energy efficiency rating measure determined, under specific testing conditions, by dividing the energy output by the energy input

AFUE = Annual Fuel Utilization Efficiency: Efficiency rating based on average usage, including on and off cycling, as set out in the standardized Department of Energy test procedures.

SEER = Seasonal Energy Efficiency Ratio: The total cooling of a central unitary air conditioner or a unitary heat pump in Btu during its normal annual usage period for cooling divided by the total electric energy input in watt-hours during the same period

EER = Energy Efficiency Ratio: A ratio calculated by dividing the cooling capacity in Btu per hour by the power input in watts at any given set of rating conditions, expressed in Btu per hour per watt.

EF = Efficiency Factor: Efficiency (measured in Btu out / Btu in) of water heaters under certain test conditions specified by the Department of Energy

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding

Source: Energy Information Administration, AEO2005 National Energy Modeling System run aeo2005.d102004a

Table 22. Commercial Sector Energy Consumption, Floorspace, and Equipment Efficiency

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Commercial Building Delivered Energy Consumption (quadrillion Btu) 1/													
Assembly	0.51	0.51	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.56	0.57	0.57	0.57
Education	0.68	0.68	0.67	0.68	0.70	0.72	0.73	0.75	0.76	0.77	0.78	0.79	0.80
Food Sales	0.21	0.21	0.21	0.21	0.22	0.23	0.23	0.24	0.24	0.25	0.25	0.26	0.26
Food Service	0.45	0.45	0.45	0.45	0.47	0.48	0.49	0.51	0.52	0.53	0.54	0.55	0.56
Health Care	0.45	0.46	0.46	0.47	0.49	0.51	0.53	0.55	0.56	0.58	0.59	0.61	0.62
Lodging	0.45	0.46	0.46	0.46	0.48	0.49	0.51	0.53	0.55	0.56	0.57	0.59	0.60
Office - Large	0.74	0.74	0.74	0.76	0.79	0.81	0.84	0.86	0.88	0.90	0.92	0.94	0.95
Office - Small	0.42	0.42	0.43	0.44	0.45	0.47	0.48	0.50	0.51	0.52	0.53	0.54	0.55
Mercantile/Service	1.26	1.28	1.28	1.32	1.35	1.40	1.44	1.48	1.52	1.55	1.58	1.61	1.64
Warehouse	0.53	0.54	0.54	0.55	0.57	0.59	0.60	0.62	0.63	0.65	0.66	0.67	0.69
Other	0.38	0.39	0.39	0.41	0.42	0.44	0.46	0.47	0.49	0.51	0.52	0.54	0.56
Total	6.07	6.12	6.13	6.28	6.45	6.65	6.86	7.04	7.21	7.37	7.52	7.66	7.80
Commercial Building Floorspace (billion square feet)													
Assembly	7.98	8.04	8.10	8.16	8.22	8.28	8.34	8.40	8.46	8.52	8.58	8.64	8.70
Education	9.09	9.24	9.39	9.53	9.68	9.83	9.97	10.12	10.28	10.43	10.58	10.74	10.90
Food Sales	1.05	1.07	1.09	1.12	1.14	1.16	1.18	1.20	1.22	1.24	1.26	1.28	1.31
Food Service	1.96	1.99	2.03	2.06	2.10	2.13	2.17	2.20	2.24	2.28	2.31	2.35	2.39
Health Care	1.96	2.00	2.04	2.09	2.13	2.18	2.23	2.28	2.33	2.38	2.43	2.48	2.53
Lodging	4.84	4.95	5.06	5.17	5.29	5.41	5.53	5.66	5.79	5.92	6.05	6.19	6.33
Office - Large	7.62	7.71	7.81	7.90	7.99	8.08	8.18	8.27	8.36	8.45	8.54	8.63	8.73
Office - Small	5.94	6.03	6.11	6.19	6.27	6.35	6.43	6.51	6.59	6.68	6.76	6.84	6.93
Mercantile/Service	14.56	14.83	15.11	15.39	15.66	15.95	16.23	16.52	16.81	17.10	17.40	17.70	18.01
Warehouse	11.20	11.44	11.69	11.94	12.18	12.43	12.69	12.96	13.23	13.50	13.79	14.08	14.39
Other	4.70	4.84	4.99	5.14	5.29	5.45	5.62	5.78	5.95	6.13	6.31	6.50	6.69
Total	70.92	72.15	73.42	74.70	75.96	77.25	78.57	79.90	81.24	82.61	84.01	85.44	86.91
Stock Average Equipment Efficiency 2/													
Space Heating													
Electricity	1.08	1.09	1.10	1.11	1.12	1.12	1.13	1.13	1.14	1.14	1.15	1.15	1.15
Natural Gas	0.74	0.75	0.75	0.76	0.76	0.76	0.77	0.77	0.77	0.77	0.77	0.78	0.78
Distillate	0.76	0.76	0.77	0.77	0.77	0.77	0.77	0.78	0.78	0.78	0.78	0.78	0.78
Space Cooling													
Electricity	2.72	2.75	2.77	2.79	2.81	2.84	2.86	2.88	2.90	2.92	2.94	2.96	2.98
Natural Gas	0.81	0.85	0.87	0.90	0.92	0.95	0.97	0.99	1.01	1.02	1.04	1.05	1.06
Water Heating													
Electricity	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Natural Gas	0.83	0.84	0.86	0.87	0.87	0.88	0.88	0.88	0.89	0.89	0.90	0.90	0.90
Distillate	0.75	0.75	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.77	0.77	0.77	0.77
Ventilation (cubic feet per minute per Btu) 3													
Electricity	0.35	0.35	0.36	0.36	0.37	0.37	0.38	0.38	0.39	0.39	0.40	0.40	0.41
Cooking													
Electricity	0.72	0.72	0.73	0.73	0.73	0.73	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Natural Gas	0.51	0.51	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Lighting Efficacy 4/ (efficacy in lumens per watt)													
Electricity	47.56	47.73	47.95	48.05	48.05	47.96	47.76	47.61	47.49	47.41	47.42	47.46	47.55
Refrigeration													
Electricity	1.39	1.40	1.40	1.41	1.42	1.42	1.42	1.43	1.43	1.43	1.44	1.44	1.44

Table 22. Commercial Sector Energy Consumption, Floorspace, and Equipment Efficiency

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Commercial Building Delivered Energy Consumption (quadrillion Btu) 1/												
Assembly	0.58	0.58	0.59	0.60	0.60	0.61	0.61	0.62	0.62	0.63	0.63	1.0%
Education	0.81	0.82	0.83	0.85	0.86	0.87	0.88	0.89	0.90	0.92	0.93	1.4%
Food Sales	0.27	0.27	0.28	0.28	0.29	0.29	0.30	0.30	0.31	0.32	0.32	2.0%
Food Service	0.57	0.58	0.60	0.61	0.62	0.63	0.64	0.65	0.67	0.68	0.69	2.0%
Health Care	0.64	0.66	0.68	0.69	0.71	0.73	0.74	0.76	0.78	0.81	0.83	2.7%
Lodging	0.62	0.63	0.65	0.67	0.68	0.70	0.71	0.73	0.75	0.78	0.80	2.6%
Office - Large	0.97	0.99	1.02	1.04	1.06	1.08	1.10	1.13	1.15	1.18	1.21	2.3%
Office - Small	0.56	0.57	0.58	0.59	0.60	0.61	0.61	0.63	0.64	0.65	0.66	2.0%
Mercantile/Service	1.67	1.70	1.73	1.76	1.78	1.81	1.83	1.86	1.90	1.93	1.97	2.0%
Warehouse	0.70	0.71	0.73	0.75	0.76	0.78	0.79	0.81	0.83	0.85	0.87	2.2%
Other	0.58	0.59	0.62	0.64	0.66	0.68	0.70	0.72	0.75	0.78	0.80	3.4%
Total	7.95	8.11	8.29	8.45	8.61	8.76	8.93	9.11	9.30	9.50	9.71	2.1%
Commercial Building Floorspace (billion square feet)												
Assembly	8.77	8.83	8.90	8.96	9.03	9.09	9.16	9.23	9.30	9.37	9.44	0.7%
Education	11.06	11.22	11.39	11.55	11.72	11.89	12.06	12.23	12.41	12.58	12.76	1.5%
Food Sales	1.33	1.35	1.37	1.40	1.42	1.45	1.47	1.49	1.52	1.55	1.57	1.7%
Food Service	2.43	2.47	2.51	2.55	2.59	2.64	2.68	2.72	2.76	2.81	2.86	1.7%
Health Care	2.59	2.65	2.70	2.76	2.82	2.88	2.94	3.00	3.06	3.13	3.20	2.2%
Lodging	6.48	6.64	6.79	6.95	7.10	7.26	7.42	7.59	7.76	7.95	8.15	2.3%
Office - Large	8.82	8.92	9.02	9.11	9.20	9.29	9.38	9.48	9.57	9.67	9.78	1.1%
Office - Small	7.01	7.10	7.18	7.27	7.35	7.44	7.52	7.61	7.70	7.79	7.89	1.2%
Mercantile/Service	18.33	18.65	18.97	19.30	19.62	19.94	20.28	20.62	20.96	21.33	21.70	1.7%
Warehouse	14.70	15.01	15.33	15.66	16.00	16.34	16.69	17.04	17.42	17.80	18.20	2.1%
Other	6.90	7.10	7.31	7.53	7.75	7.97	8.21	8.45	8.70	8.97	9.24	3.0%
Total	88.42	89.95	91.49	93.04	94.61	96.18	97.80	99.46	101.17	102.95	104.80	1.7%
Stock Average Equipment Efficiency 2/												
Space Heating												
Electricity	1.16	1.16	1.16	1.17	1.17	1.17	1.18	1.18	1.18	1.19	1.19	0.4%
Natural Gas	0.78	0.78	0.78	0.78	0.78	0.78	0.79	0.79	0.79	0.79	0.79	0.3%
Distillate	0.78	0.78	0.78	0.78	0.78	0.78	0.79	0.79	0.79	0.79	0.79	0.2%
Space Cooling												
Electricity	3.00	3.01	3.03	3.05	3.06	3.08	3.09	3.11	3.12	3.14	3.15	0.6%
Natural Gas	1.07	1.08	1.09	1.10	1.11	1.11	1.12	1.13	1.14	1.14	1.15	1.4%
Water Heating												
Electricity	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.0%
Natural Gas	0.90	0.91	0.91	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.4%
Distillate	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.78	0.1%
Ventilation (cubic feet per minute per Btu) 3/												
Electricity	0.41	0.42	0.42	0.42	0.43	0.43	0.44	0.44	0.44	0.44	0.45	1.1%
Cooking												
Electricity	0.74	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.2%
Natural Gas	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.1%
Lighting Efficacy 4/ (efficacy in lumens per watt)												
Electricity	47.65	47.77	47.89	48.18	48.52	48.85	49.14	49.39	49.63	49.84	50.05	0.2%
Refrigeration												
Electricity	1.44	1.44	1.45	1.45	1.45	1.45	1.45	1.46	1.46	1.46	1.46	0.2%

Table 22. Commercial Sector Energy Consumption, Floorspace, and Equipment Efficiency

1/ Excludes commercial sector energy consumption (from uses such as street lights) that is not attributable to buildings.

2/ Unless noted otherwise, the efficiency measures are in the terms of Btu of energy output divided by Btu of energy input.

3/ The efficiency measure for ventilation is in terms of cubic feet per minute (cfm) of ventilation air delivered divided by Btu of energy input.

4/ A measurement of the ratio of light produced by a light source to the electrical power used to produce that quality of light, expressed in lumens per watt.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding.

Source: Energy Information Administration, AEO2005 National Energy Modeling System run aeo2005.d102004a.

Table 23. Industrial Sector Macroeconomic Indicators

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Gross Domestic Product (billion 2000 dollars)	10074.8	10381.3	10834.3	11220.6	11557.1	11947.9	12296.1	12686.2	13084.2	13474.2	13868.9	14300.4	14774.1
Nonfarm Employment (millions)	130.3	129.9	131.0	133.4	135.1	136.7	137.9	139.2	140.7	142.2	143.6	145.2	147.1
Value of Shipments (billion 1996 dollars)													
Nonmanufacturing Sector													
Agricultural	283.3	279.3	272.1	275.7	280.5	284.2	291.5	295.2	296.7	300.0	302.5	306.2	311.8
Mining	165.5	164.1	167.5	172.8	175.6	178.2	180.8	183.9	182.8	183.8	184.5	183.5	183.7
Construction	791.4	810.6	839.2	831.7	804.7	811.0	822.1	836.2	849.6	872.7	891.6	911.2	938.2
Manufacturing Sector													
Food and Kindred Products	439.6	430.8	435.5	449.6	457.5	465.4	480.4	491.9	500.6	508.8	515.7	522.9	530.7
Beverages and Tobacco Products	81.1	79.9	80.1	80.6	80.9	82.0	83.2	84.7	85.7	86.8	88.2	89.4	90.9
Textile Mill Products	81.5	79.5	81.2	80.9	79.9	79.6	80.4	81.0	80.4	79.8	79.3	78.4	78.1
Apparel and Other Textile Products	53.5	52.6	54.1	52.0	49.9	48.4	47.1	45.7	44.2	42.7	41.1	39.7	38.4
Lumber and Wood Products	81.3	85.1	93.2	88.8	85.4	86.2	86.9	86.6	86.5	86.7	86.9	87.7	89.0
Furniture and Fixtures	68.4	68.0	70.7	73.4	73.0	73.3	76.0	78.3	79.2	80.3	81.9	82.5	83.9
Paper and Allied Products	141.1	147.5	154.4	160.5	162.0	164.0	167.2	170.0	171.5	173.2	175.0	176.0	178.0
Printing and Publishing	84.0	79.9	78.9	81.7	83.5	85.0	85.9	87.3	88.6	89.9	91.2	92.2	93.4
Chemical and Allied Products	391.0	402.7	421.9	437.8	442.8	452.2	465.5	477.2	487.1	498.5	510.2	521.4	533.8
Bulk Chemicals	185.3	181.0	187.8	193.8	193.9	194.8	200.5	204.7	207.4	210.1	212.3	213.4	215.0
Inorganic	29.6	29.6	29.6	30.0	29.7	29.7	30.0	30.4	30.6	30.6	30.4	30.2	29.8
Organic	72.9	71.7	74.4	77.3	77.8	78.2	80.0	81.2	82.7	84.3	85.6	86.5	87.4
Resins	63.1	61.0	64.1	66.8	66.9	67.3	70.5	72.9	73.5	74.3	75.1	75.5	76.6
Agricultural Chemicals	19.8	18.7	19.7	19.7	19.5	19.6	20.0	20.2	20.7	20.9	21.1	21.2	21.2
Other Chemical and Allied Products	205.7	221.7	234.1	244.0	248.9	257.3	265.0	272.5	279.8	288.3	297.9	308.0	318.8
Petroleum and Coal Products	181.0	180.3	190.8	193.2	199.9	203.2	209.1	213.6	216.4	219.7	223.0	226.2	231.3
Petroleum Refining	163.7	165.5	175.3	176.8	183.9	187.3	192.0	195.7	198.2	201.2	204.3	207.4	212.0
Other Petroleum and Coal Products	17.3	14.7	15.5	16.4	16.0	15.9	17.1	17.9	18.2	18.5	18.7	18.9	19.3
Rubber and Miscellaneous Plastic Products	175.1	177.5	183.9	190.5	193.6	197.7	206.3	213.9	217.7	222.6	228.4	233.1	240.1
Leather and Leather Products	9.9	10.2	9.6	9.3	9.0	8.7	8.5	8.3	8.2	8.0	7.8	7.7	7.5
Stone, Clay, and Glass Products	79.2	77.2	81.1	84.7	85.7	87.3	89.0	91.6	93.7	96.1	97.7	99.6	102.3
Glass and Glass Products	22.3	22.2	22.2	23.1	23.6	24.0	24.5	25.0	25.7	26.7	27.4	27.9	28.5
Cement and Hydraulic Products	6.7	7.0	7.4	7.9	8.1	8.3	8.5	8.6	8.6	8.8	8.8	8.9	9.0
Other Stone, Clay, and Glass Products	50.2	48.0	51.5	53.8	54.0	55.1	56.0	58.0	59.4	60.7	61.5	62.7	64.8
Primary Metals Industry	150.2	147.0	154.6	159.5	158.6	161.6	166.6	169.7	169.8	171.4	172.9	174.0	176.7
Blast Furnace and Basic Steel Products	70.5	65.3	69.7	72.6	72.1	73.0	76.2	78.4	78.6	78.7	78.9	78.5	78.8
Aluminum	28.1	28.8	28.7	28.1	27.9	28.8	29.1	28.8	28.4	28.9	29.2	29.6	30.1
Other Primary Metal Products	51.5	52.8	56.1	58.8	58.7	59.7	61.2	62.5	62.8	63.7	64.8	66.0	67.8
Fabricated Metal Products	241.8	233.1	245.3	256.2	261.0	266.0	271.8	277.2	279.8	282.3	286.3	288.7	294.0
Industrial Machinery and Equipment	244.4	239.4	258.0	267.3	270.0	273.6	280.9	292.6	299.2	303.4	309.3	313.9	320.7
Electronic and Other Electric Equipment	474.5	501.7	566.5	612.4	638.3	682.1	732.0	785.1	821.4	855.5	893.8	930.4	981.5
Transportation Equipment	626.8	617.3	638.8	672.9	681.8	707.0	726.0	759.7	787.6	801.4	815.8	828.6	848.9
Instruments and Related Products	96.8	106.2	113.4	116.5	119.6	122.7	126.6	130.2	134.2	137.4	141.1	145.5	150.3
Miscellaneous Manufacturing Industries	125.4	135.3	144.0	150.8	157.8	164.1	170.1	176.3	183.9	192.3	201.0	210.0	219.0
Total Industrial Value of Shipments	5066.7	5105.1	5334.8	5498.9	5550.9	5683.4	5853.9	6035.9	6164.7	6293.0	6425.3	6548.9	6722.0

Table 23. Industrial Sector Macroeconomic Indicators

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Gross Domestic Product (billion 2000 dollars)	15216.2	15658.4	16147.7	16648.5	17137.8	17634.2	18135.2	18660.5	19202.6	19745.1	20292.4	3.1%
Nonfarm Employment (millions)	148.8	151.0	153.4	155.7	157.7	159.7	161.6	163.6	165.5	167.4	169.1	1.2%
Value of Shipments (billion 1996 dollars)												
Nonmanufacturing Sector												
Agricultural	318.3	322.1	326.5	331.2	335.0	338.6	341.6	345.8	350.0	354.0	358.0	1.1%
Mining	182.0	182.0	185.4	188.1	188.6	188.7	187.9	187.1	187.3	189.3	190.2	0.7%
Construction	958.1	966.9	984.7	1005.0	1032.1	1060.0	1086.1	1110.7	1137.0	1161.9	1187.4	1.8%
Manufacturing Sector												
Food and Kindred Products	539.7	550.0	560.5	569.7	577.8	586.0	594.5	604.1	614.4	624.8	635.4	1.8%
Beverages and Tobacco Products	91.8	92.0	92.6	93.1	93.5	93.9	94.4	94.8	95.1	95.3	95.5	0.8%
Textile Mill Products	77.4	76.2	75.8	75.4	74.9	74.4	74.0	73.4	72.9	72.5	71.9	-0.5%
Apparel and Other Textile Products	37.4	36.5	35.6	34.7	33.9	33.1	32.4	31.6	31.0	30.3	29.7	-2.6%
Lumber and Wood Products	88.7	88.9	89.2	89.5	89.6	89.8	90.3	90.5	90.8	91.3	91.6	0.3%
Furniture and Fixtures	85.4	84.7	86.3	88.1	90.7	92.5	94.4	95.6	97.1	98.6	99.8	1.8%
Paper and Allied Products	180.1	180.8	183.6	186.6	190.1	193.0	195.8	198.1	200.5	202.6	204.2	1.5%
Printing and Publishing	94.7	95.2	96.2	97.2	98.4	99.5	100.5	101.4	102.3	103.2	104.1	1.2%
Chemical and Allied Products	542.1	549.5	561.5	575.2	590.0	604.0	617.4	631.5	646.5	660.8	674.9	2.4%
Bulk Chemicals	215.3	215.4	217.5	219.0	220.4	221.1	222.2	223.0	224.0	224.8	225.4	1.0%
Inorganic	29.6	29.4	29.3	29.2	29.0	28.9	28.8	28.8	28.8	28.7	28.7	-0.1%
Organic	87.3	87.5	88.2	88.6	89.2	89.5	89.8	90.1	90.4	90.6	90.9	1.1%
Resins	77.4	77.5	78.9	80.1	81.0	81.7	82.4	83.0	83.7	84.3	84.6	1.5%
Agricultural Chemicals	21.1	21.1	21.1	21.1	21.1	21.0	21.1	21.1	21.1	21.2	21.3	0.6%
Other Chemical and Allied Products	326.7	334.1	344.0	356.2	369.6	382.9	395.3	408.6	422.5	436.0	449.5	3.3%
Petroleum and Coal Products	234.9	238.8	243.7	247.1	249.3	251.7	252.9	253.8	255.3	259.5	263.2	1.7%
Petroleum Refining	215.3	219.0	223.4	226.4	228.5	230.7	231.6	232.3	233.2	237.0	240.7	1.7%
Other Petroleum and Coal Products	19.5	19.8	20.3	20.6	20.8	21.0	21.3	21.5	22.1	22.5	22.6	2.0%
Rubber and Miscellaneous Plastic Products	245.9	248.4	254.1	259.9	266.0	271.8	276.8	282.5	288.2	293.3	297.9	2.4%
Leather and Leather Products	7.4	7.2	7.1	7.0	6.9	6.9	6.8	6.7	6.6	6.5	6.4	-2.1%
Stone, Clay, and Glass Products	103.8	104.9	107.2	109.5	111.1	112.3	113.3	114.1	115.1	115.9	116.4	1.9%
Glass and Glass Products	28.9	29.2	29.8	30.4	30.9	31.3	31.7	32.1	32.7	33.3	34.0	2.0%
Cement and Hydraulic Products	9.0	9.1	9.3	9.4	9.5	9.5	9.6	9.7	9.8	9.9	10.0	1.7%
Other Stone, Clay, and Glass Products	65.9	66.6	68.2	69.8	70.7	71.4	71.9	72.3	72.6	72.6	72.4	1.9%
Primary Metals Industry	177.7	178.2	180.6	184.0	185.5	186.0	184.5	184.9	185.1	184.7	184.1	1.0%
Blast Furnace and Basic Steel Products	79.1	79.3	80.1	81.1	81.6	82.3	82.0	82.5	82.9	83.2	83.4	1.1%
Aluminum	30.1	30.0	30.3	30.8	30.8	30.5	29.8	29.6	29.4	29.0	28.6	0.0%
Other Primary Metal Products	68.4	68.8	70.2	72.2	73.0	73.2	72.8	72.8	72.8	72.5	72.2	1.4%
Fabricated Metal Products	298.3	301.1	306.7	313.9	321.1	326.8	332.5	338.8	345.8	351.9	358.1	2.0%
Industrial Machinery and Equipment	322.6	322.5	327.9	339.2	351.7	358.9	364.9	374.1	388.5	403.1	419.3	2.6%
Electronic and Other Electric Equipment	1013.2	1035.1	1078.9	1133.0	1184.1	1230.7	1272.1	1318.9	1369.1	1418.4	1463.8	5.0%
Transportation Equipment	868.2	891.2	916.2	942.1	965.8	991.0	1016.3	1039.4	1063.9	1088.6	1111.3	2.7%
Instruments and Related Products	154.1	157.2	162.3	168.4	172.9	177.6	181.4	185.3	189.0	192.8	196.9	2.8%
Miscellaneous Manufacturing Industries	228.3	235.2	242.7	250.1	258.2	266.4	274.2	282.2	290.7	299.3	308.8	3.8%
Total Industrial Value of Shipments	6850.0	6944.6	7105.2	7288.1	7467.6	7633.3	7785.1	7945.1	8122.2	8298.7	8468.8	2.3%

Table 23. Industrial Sector Macroeconomic Indicators

Note: Totals may not equal sum of components due to independent rounding.

Source: 2003: Global Insight macroeconomic model T250804. Projections: Energy Information Administration, AEO2005 National Energy Modeling System run aeo2005.d102004a.

Table 24. Refining Industry Energy Consumption

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of Shipments (billion 1996 dollars)	163.66	165.55	175.34	176.83	183.92	187.28	191.98	195.71	198.20	201.18	204.28	207.38	212.01
Energy Consumption (trillion Btu)													
Residual Oil	30.3	20.4	20.6	21.0	42.4	48.3	53.9	73.8	89.0	92.0	99.2	107.9	138.2
Distillate Oil	4.9	5.5	5.6	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquefied Petroleum Gas	12.4	22.1	22.2	22.6	24.9	27.4	30.1	33.2	36.5	40.1	44.1	48.5	53.4
Petroleum Coke	531.6	541.2	546.0	555.7	544.7	543.3	562.8	573.1	577.2	583.3	602.1	624.2	653.1
Still Gas	1399.4	1477.3	1490.4	1516.9	1740.3	1817.9	1886.1	1898.1	1768.2	1644.1	1590.1	1544.7	1523.7
Other Petroleum 2/ Petroleum Subtotal	30.2 2008.7	33.8 2100.4	34.1 2118.9	34.7 2156.6	77.2 2429.5	81.3 2518.1	70.3 2603.3	91.9 2670.0	97.9 2568.9	121.0 2480.5	120.2 2455.7	123.9 2449.3	137.1 2505.4
Natural Gas	807.8	768.5	784.5	797.6	936.8	919.1	891.7	862.8	1004.9	1127.8	1182.9	1226.2	1221.0
Steam Coal 3/	63.4	85.7	106.0	106.8	88.0	87.8	87.6	87.6	87.4	87.2	87.2	86.9	86.7
Purchased Electricity	122.3	121.3	123.6	125.8	158.1	180.3	184.1	184.0	184.7	188.4	189.6	191.5	200.2
Total	3002.2	3075.9	3133.1	3186.7	3612.5	3705.4	3766.7	3804.4	3845.9	3883.8	3915.3	3954.0	4013.3
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)													
Residual Oil	0.18	0.12	0.12	0.12	0.23	0.26	0.28	0.38	0.45	0.46	0.49	0.52	0.65
Distillate Oil	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liquefied Petroleum Gas	0.08	0.13	0.13	0.13	0.14	0.15	0.16	0.17	0.18	0.20	0.22	0.23	0.25
Petroleum Coke	3.25	3.27	3.11	3.14	2.96	2.90	2.93	2.93	2.91	2.90	2.95	3.01	3.08
Still Gas	8.55	8.92	8.50	8.58	9.46	9.71	9.82	9.70	8.92	8.17	7.78	7.45	7.19
Other Petroleum 2/ Petroleum Subtotal	0.18 12.27	0.20 12.69	0.19 12.08	0.20 12.20	0.42 13.21	0.43 13.45	0.37 13.56	0.47 13.64	0.49 12.96	0.60 12.33	0.59 12.02	0.60 11.81	0.65 11.82
Natural Gas	4.94	4.64	4.47	4.51	5.09	4.91	4.64	4.41	5.07	5.61	5.79	5.91	5.76
Steam Coal 3/	0.39	0.52	0.60	0.60	0.48	0.47	0.46	0.45	0.44	0.43	0.43	0.42	0.41
Purchased Electricity	0.75	0.73	0.70	0.71	0.86	0.96	0.96	0.94	0.93	0.94	0.93	0.92	0.94
Total	18.34	18.58	17.87	18.02	19.64	19.79	19.62	19.44	19.40	19.31	19.17	19.07	18.93
Carbon Dioxide Emissions 4/ (million metric tons)	194.1	199.8	203.8	207.3	237.2	246.4	250.8	253.7	254.9	256.5	257.7	259.7	264.6
Combined Heat and Power													
Generating Capacity (gigawatts)													
Petroleum	0.39	0.08	0.86	0.86	0.89	0.89	0.90	0.91	0.91	0.92	0.88	0.89	0.90
Natural Gas	2.34	2.61	3.22	3.22	3.23	3.23	3.30	3.36	3.42	3.48	3.54	3.60	3.66
Coal	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
Other 5/ Total	0.94 3.70	0.89 3.58	0.89 4.97	0.89 4.97	0.62 4.74	0.62 4.74	0.63 4.82	0.64 4.90	0.65 4.98	0.67 5.07	0.68 5.10	0.69 5.18	0.70 5.26
Net Generation (billion kilowatthours)													
Petroleum	1.28	1.28	1.89	1.89	3.10	3.04	3.71	4.29	4.62	4.68	4.75	4.85	4.95
Natural Gas	16.26	16.26	17.28	17.28	21.23	21.22	21.78	22.33	22.85	23.34	23.83	24.32	24.82
Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other 5/ Total	5.93 23.47	5.89 23.43	5.93 25.10	5.93 25.10	4.12 28.44	4.12 28.37	4.21 29.69	4.31 30.92	4.40 31.87	4.50 32.51	4.59 33.17	4.69 33.86	4.78 34.55
Disposition													
Sales to the Grid	6.09	6.05	6.57	6.57	10.50	10.43	11.33	12.14	12.69	12.93	13.17	13.42	13.68
Generation for Own Use	17.38	17.38	18.54	18.54	17.95	17.95	18.36	18.77	19.18	19.58	20.00	20.44	20.87
Energy Input (trillion Btu)													
Petroleum	37	37	37	37	59	58	65	71	75	76	78	80	82
Natural Gas	330	330	523	523	488	487	502	518	533	547	562	576	591
Coal	0	0	0	0	0	0	0	0	0	0	0	0	0
Other 5/ Total	156 523	156 523	156 716	156 716	95 642	95 639	98 665	100 689	103 711	106 730	109 749	112 768	115 787
Energy Consumed at Ethanol Plants (trillion Btu)													

Table 24. Refining Industry Energy Consumption

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Natural Gas	31.0	41.6	51.2	51.2	67.2	66.9	66.7	66.6	68.8	68.5	68.5	70.0	71.9
Coal	62.7	84.8	105.1	105.8	88.0	87.8	87.6	87.6	87.4	87.2	87.2	86.9	86.7
Electricity	3.8	5.2	6.5	6.6	9.5	9.5	9.5	9.5	9.7	9.7	9.7	9.9	10.1
Total	97.5	131.6	162.8	163.6	164.7	164.2	163.7	163.7	165.9	165.4	165.4	166.9	168.7

Table 24. Refining Industry Energy Consumption

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Value of Shipments (billion 1996 dollars)	215.33	219.03	223.36	226.43	228.52	230.73	231.63	232.30	233.22	237.00	240.68	1.7%
Energy Consumption (trillion Btu)												
Residual Oil	125.7	104.2	103.7	116.8	120.3	118.5	103.0	102.8	104.3	109.8	115.4	8.2%
Distillate Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Liquefied Petroleum Gas	58.7	64.6	71.1	78.2	86.0	94.6	104.0	114.4	125.9	138.5	152.3	9.2%
Petroleum Coke	681.5	718.2	737.6	761.4	777.1	806.4	835.2	848.0	860.6	876.6	883.3	2.3%
Still Gas	1567.7	1592.7	1615.1	1623.5	1632.7	1648.3	1658.7	1654.3	1652.6	1656.5	1675.0	0.6%
Other Petroleum 2/	139.9	155.4	152.6	165.2	174.1	177.9	173.3	169.1	167.9	174.4	172.4	7.7%
Petroleum Subtotal	2573.6	2635.1	2680.0	2745.1	2790.3	2845.7	2874.4	2888.7	2911.4	2955.8	2998.5	1.6%
Natural Gas	1193.0	1226.2	1252.3	1232.1	1208.9	1185.0	1186.2	1175.6	1151.5	1136.8	1128.2	1.8%
Steam Coal 3/	86.7	86.5	86.3	86.3	86.1	85.9	85.9	85.9	85.9	85.9	85.9	0.0%
Purchased Electricity	200.1	205.2	209.4	212.0	211.4	209.4	206.3	201.3	195.5	196.5	198.0	2.3%
Total	4053.4	4153.1	4228.0	4275.4	4296.6	4326.0	4352.8	4351.5	4344.2	4375.0	4410.5	1.7%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)												
Residual Oil	0.58	0.48	0.46	0.52	0.53	0.51	0.44	0.44	0.45	0.46	0.48	6.4%
Distillate Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Liquefied Petroleum Gas	0.27	0.29	0.32	0.35	0.38	0.41	0.45	0.49	0.54	0.58	0.63	7.3%
Petroleum Coke	3.16	3.28	3.30	3.36	3.40	3.49	3.61	3.65	3.69	3.70	3.67	0.5%
Still Gas	7.28	7.27	7.23	7.17	7.14	7.14	7.16	7.12	7.09	6.99	6.96	-1.1%
Other Petroleum 2/	0.65	0.71	0.68	0.73	0.76	0.77	0.75	0.73	0.72	0.74	0.72	5.9%
Petroleum Subtotal	11.95	12.03	12.00	12.12	12.21	12.33	12.41	12.44	12.48	12.47	12.46	-0.1%
Natural Gas	5.54	5.60	5.61	5.44	5.29	5.14	5.12	5.06	4.94	4.80	4.69	0.0%
Steam Coal 3/	0.40	0.39	0.39	0.38	0.38	0.37	0.37	0.37	0.37	0.36	0.36	-1.7%
Purchased Electricity	0.93	0.94	0.94	0.94	0.93	0.91	0.89	0.87	0.84	0.83	0.82	0.5%
Total	18.82	18.96	18.93	18.88	18.80	18.75	18.79	18.73	18.63	18.46	18.33	-0.1%
Carbon Dioxide Emissions 4/ (million metric tons)	266.8	272.6	277.3	280.8	282.2	283.7	284.5	283.8	282.9	285.2	287.8	1.7%
Combined Heat and Power												
Generating Capacity (gigawatts)												
Petroleum	0.90	0.90	0.90	0.97	1.05	1.08	1.13	1.13	1.13	1.11	1.11	13.0%
Natural Gas	3.70	3.73	3.77	3.81	3.86	3.90	3.94	3.98	4.01	4.05	4.08	2.1%
Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Other 5/	0.71	0.72	0.72	0.73	0.74	0.74	0.75	0.76	0.77	0.77	0.78	-0.6%
Total	5.30	5.35	5.40	5.52	5.64	5.73	5.82	5.87	5.91	5.93	5.97	2.4%
Net Generation (billion kilowatthours)												
Petroleum	5.37	5.80	6.09	6.46	7.03	7.74	8.50	8.54	8.52	8.39	8.36	8.9%
Natural Gas	25.15	25.48	25.79	26.12	26.46	26.83	27.19	27.48	27.76	28.03	28.31	2.6%
Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Other 5/	4.84	4.89	4.95	5.01	5.06	5.12	5.17	5.23	5.28	5.34	5.40	-0.4%
Total	35.35	36.17	36.83	37.58	38.56	39.68	40.87	41.25	41.56	41.77	42.07	2.7%
Disposition												
Sales to the Grid	13.95	14.24	14.41	14.75	15.25	16.00	16.67	16.79	16.88	16.94	17.03	4.8%
Generation for Own Use	21.41	21.93	22.41	22.83	23.31	23.68	24.20	24.46	24.68	24.83	25.04	1.7%
Energy Input (trillion Btu)												
Petroleum	86	90	93	96	101	107	112	113	113	114	115	5.3%
Natural Gas	598	606	613	620	627	635	642	649	655	662	668	3.3%
Coal	0	0	0	0	0	0	0	0	0	0	0	N/A
Other 5/	116	117	119	120	121	123	124	125	127	128	129	-0.9%
Total	800	813	825	836	849	865	878	886	895	904	912	2.6%
Energy Consumed at Ethanol Plants (trillion Btu)												

Table 24. Refining Industry Energy Consumption

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Natural Gas	71.8	72.4	73.6	74.9	74.6	74.3	74.3	74.3	74.3	74.3	76.6	2.8%
Coal	86.7	86.5	86.3	86.3	86.1	85.9	85.9	85.9	85.9	85.9	85.9	0.1%
Electricity	10.1	10.2	10.4	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.8	3.3%
Total	168.7	169.1	170.3	171.8	171.2	170.7	170.7	170.7	170.7	170.7	173.2	1.3%

Table 24. Refining Industry Energy Consumption

1/ Fuel consumption includes consumption for combined heat and power and consumption at ethanol plants.

2/ Includes lubricants and miscellaneous petroleum products.

3/ Where coal-to-liquids (CTL) technology is adopted in the forecast, the plants are assumed to produce oil products and to generate electricity. A portion of the coal use is attributed to feedstock use to produce the liquids. The feedstock portion is assumed to be equal to the Btu content of the liquids produced. The rest of the coal used in CTL plants is accounted for in industrial steam coal consumption, a portion of which is reflected in energy used for end-use sector combined heat and power.

4/ Includes emissions attributable to the fuels consumed to generate the purchased electricity.

5/ May include wood and other biomass, waste heat, municipal solid waste, and renewable sources.

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Source: 2002 and 2003 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report," 2004 (preliminary). 2002 and 2003 coal and natural gas consumption at ethanol plants: Carbon Dioxide Emissions from the Production and Combustion of Fuel Ethanol from Corn," Marland, G. and A.F. Turhollow, 1991. 2002 and 2003 electricity consumption at ethanol plants: U.S. Department of Agriculture, 1998 Ethanol Cost-of-Production Survey, Agricultural Economic Report Number 808. Other 2002 and 2003 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA, AEO2005 National Energy Modeling System run aeo2005.d102004a.

Table 25. Food Industry Energy Consumption

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of Shipments (billion 1996 dollars)	439.58	430.78	435.46	449.62	457.47	465.40	480.44	491.85	500.57	508.82	515.73	522.89	530.66
Energy Consumption (trillion Btu)													
Residual Oil	11.0	13.8	15.1	14.8	13.8	13.7	13.4	13.6	13.6	13.6	13.7	13.9	14.3
Distillate Oil	14.2	17.2	18.5	18.4	17.4	17.3	16.9	17.1	17.0	17.0	17.2	17.5	18.0
Liquefied Petroleum Gas	5.0	5.0	4.8	5.0	5.4	5.4	5.4	5.6	5.6	5.6	5.7	5.8	6.0
Other Petroleum 2/ Petroleum Subtotal	0.0 30.2	0.0 35.9	0.0 38.3	0.0 38.3	0.0 36.7	0.0 36.4	0.0 35.8	0.0 36.3	0.0 36.1	0.0 36.2	0.0 36.6	0.0 37.2	0.0 38.2
Natural Gas	559.5	528.6	528.1	541.2	550.1	558.0	575.3	587.0	596.1	603.8	609.5	615.2	621.3
Steam Coal	159.8	156.6	156.5	156.6	156.5	156.5	156.6	156.7	156.6	156.6	156.5	156.5	156.4
Renewables	125.4	125.4	127.2	131.7	134.5	137.3	142.2	146.0	149.2	152.2	154.8	157.6	160.5
Purchased Electricity	211.9	209.6	210.8	216.5	219.1	221.8	227.6	232.0	235.2	238.2	240.5	242.9	245.4
Total	1086.8	1056.1	1060.9	1084.2	1097.0	1110.0	1137.5	1158.0	1173.2	1187.0	1198.0	1209.3	1221.8
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)													
Residual Oil	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Distillate Oil	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03
Liquefied Petroleum Gas	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Other Petroleum 2/ Petroleum Subtotal	0.00 0.07	0.00 0.08	0.00 0.09	0.00 0.09	0.00 0.08	0.00 0.08	0.00 0.07	0.00 0.07	0.00 0.07	0.00 0.07	0.00 0.07	0.00 0.07	0.00 0.07
Natural Gas	1.27	1.23	1.21	1.20	1.20	1.20	1.20	1.19	1.19	1.19	1.18	1.18	1.17
Steam Coal	0.36	0.36	0.36	0.35	0.34	0.34	0.33	0.32	0.31	0.31	0.30	0.30	0.29
Renewables	0.29	0.29	0.29	0.29	0.29	0.29	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Purchased Electricity	0.48	0.49	0.48	0.48	0.48	0.48	0.47	0.47	0.47	0.47	0.47	0.46	0.46
Total	2.47	2.45	2.44	2.41	2.40	2.38	2.37	2.35	2.34	2.33	2.32	2.31	2.30
Carbon Dioxide Emissions 3/ (million metric tons)	87.1	85.5	85.4	87.1	87.9	89.0	90.9	92.2	93.1	93.9	94.4	95.1	95.8
Combined Heat and Power 4/ Generating Capacity (gigawatts)													
Petroleum	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Natural Gas	0.51	0.51	0.55	0.58	0.61	0.64	0.68	0.73	0.78	0.82	0.87	0.93	0.99
Coal	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Other 5/ Total	0.08 1.52	0.08 1.52	0.08 1.55	0.08 1.58	0.08 1.61	0.08 1.64	0.08 1.68	0.08 1.73	0.08 1.78	0.08 1.83	0.08 1.88	0.08 1.93	0.08 1.99
Net Generation (billion kilowatthours)													
Petroleum	0.07	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Natural Gas	2.17	1.96	2.21	2.43	2.66	2.90	3.21	3.55	3.91	4.27	4.63	5.03	5.46
Coal	3.66	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52
Other 5/ Total	0.24 6.14	0.24 5.86	0.24 6.11	0.24 6.33	0.24 6.55	0.24 6.80	0.24 7.10	0.24 7.44	0.24 7.81	0.24 8.16	0.24 8.53	0.24 8.92	0.24 9.35
Disposition													
Sales to the Grid	0.32	0.30	0.45	0.58	0.72	0.86	1.05	1.25	1.47	1.68	1.90	2.14	2.39
Generation for Own Use	5.82	5.56	5.66	5.75	5.84	5.94	6.06	6.19	6.34	6.48	6.63	6.79	6.96
Thermal Output (trillion Btu)	99.6	104.2	104.9	105.4	106.0	106.6	107.4	108.3	109.2	110.2	111.1	112.2	113.3
Energy Input (trillion Btu)													
Petroleum	1.2	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Natural Gas	51.7	51.0	53.2	55.1	57.0	59.1	61.7	64.6	67.7	70.7	73.9	77.3	80.9
Coal	133.5	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.9
Other 5/ Total	11.7 198.1	12.5 197.3	12.5 199.5	12.5 201.4	12.5 203.3	12.5 205.4	12.5 208.0	12.5 210.9	12.5 214.0	12.5 217.0	12.5 220.2	12.5 223.6	12.5 227.2
Efficiency 6/	0.608	0.629	0.630	0.631	0.631	0.632	0.633	0.634	0.635	0.636	0.637	0.638	0.639
Power-to-Heat Ratio 7/	0.210	0.192	0.199	0.205	0.211	0.218	0.226	0.235	0.244	0.253	0.262	0.271	0.282

Table 25. Food Industry Energy Consumption

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Value of Shipments (billion 1996 dollars)	539.73	549.96	560.50	569.71	577.85	585.96	594.55	604.06	614.38	624.79	635.44	1.8%
Energy Consumption (trillion Btu)												
Residual Oil	14.7	14.6	14.8	15.2	15.7	16.0	16.2	16.3	16.3	16.5	16.7	0.9%
Distillate Oil	18.5	18.5	18.7	19.2	19.8	20.3	20.6	20.8	20.9	21.2	21.5	1.0%
Liquefied Petroleum Gas	6.0	6.1	6.2	6.3	6.5	6.6	6.7	6.7	6.8	6.9	7.0	1.5%
Other Petroleum 2/	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Petroleum Subtotal	39.2	39.1	39.7	40.8	41.9	42.8	43.5	43.8	43.9	44.5	45.1	1.0%
Natural Gas	629.7	642.2	655.5	666.7	676.8	687.3	698.4	711.2	725.1	738.6	752.0	1.6%
Steam Coal	156.4	156.4	156.5	156.5	156.4	156.4	156.4	156.4	156.4	156.4	156.5	0.0%
Renewables	163.8	167.6	171.4	174.9	178.1	181.3	184.6	188.3	192.3	196.3	200.5	2.2%
Purchased Electricity	248.5	251.9	255.4	258.6	260.9	263.5	266.1	269.2	272.6	276.1	279.7	1.3%
Total	1237.6	1257.3	1278.5	1297.4	1314.2	1331.2	1349.0	1368.8	1390.4	1412.0	1433.8	1.4%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)												
Residual Oil	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-0.9%
Distillate Oil	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-0.7%
Liquefied Petroleum Gas	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-0.2%
Other Petroleum 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Petroleum Subtotal	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	-0.7%
Natural Gas	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.18	1.18	1.18	1.18	-0.2%
Steam Coal	0.29	0.28	0.28	0.27	0.27	0.27	0.26	0.26	0.25	0.25	0.25	-1.8%
Renewables	0.30	0.30	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.32	0.4%
Purchased Electricity	0.46	0.46	0.46	0.45	0.45	0.45	0.45	0.45	0.44	0.44	0.44	-0.5%
Total	2.29	2.29	2.28	2.28	2.27	2.27	2.27	2.27	2.26	2.26	2.26	-0.4%
Carbon Dioxide Emissions 3/ (million metric tons)	96.6	97.7	99.0	100.2	101.2	102.3	103.5	104.9	106.5	108.1	109.7	1.1%
Combined Heat and Power 4/												
Generating Capacity (gigawatts)												
Petroleum	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	N/A
Natural Gas	1.05	1.11	1.19	1.27	1.36	1.44	1.53	1.62	1.71	1.81	1.90	6.1%
Coal	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	N/A
Other 5/	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	N/A
Total	2.05	2.12	2.19	2.27	2.36	2.44	2.53	2.62	2.72	2.81	2.91	3.0%
Net Generation (billion kilowatthours)												
Petroleum	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	N/A
Natural Gas	5.90	6.39	6.94	7.53	8.14	8.78	9.42	10.08	10.74	11.43	12.12	8.6%
Coal	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	N/A
Other 5/	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	N/A
Total	9.80	10.29	10.84	11.42	12.04	12.67	13.32	13.97	14.64	15.32	16.01	4.7%
Disposition												
Sales to the Grid	2.66	2.96	3.29	3.64	4.01	4.39	4.78	5.17	5.57	5.98	6.39	14.9%
Generation for Own Use	7.13	7.33	7.55	7.78	8.03	8.29	8.54	8.80	9.07	9.34	9.62	2.5%
Thermal Output (trillion Btu)	114.5	115.8	117.3	118.9	120.6	122.3	124.1	125.8	127.6	129.5	131.3	1.1%
Energy Input (trillion Btu)												
Petroleum	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	N/A
Natural Gas	84.8	89.0	93.7	98.7	104.0	109.4	115.0	120.5	126.2	132.0	137.9	4.6%
Coal	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.9	N/A
Other 5/	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	N/A
Total	231.0	235.3	240.0	245.0	250.3	255.7	261.3	266.8	272.5	278.3	284.2	1.7%
Efficiency 6/	0.640	0.642	0.643	0.644	0.646	0.647	0.649	0.650	0.652	0.653	0.654	0.2%
Power-to-Heat Ratio 7/	0.292	0.303	0.315	0.328	0.341	0.354	0.366	0.379	0.391	0.404	0.416	3.6%

Table 25. Food Industry Energy Consumption

1/ Fuel consumption includes consumption for combined heat and power.

2/ Includes petroleum coke, lubricants, and miscellaneous petroleum products.

3/ Includes emissions attributable to the fuels consumed to generate the purchased electricity.

4/ Includes industrial-owned generators not classified as combined heat and power, such as standby generators.

5/ Includes wood and other biomass, waste heat, municipal solid waste, and renewable sources.

6/ Efficiency is calculated as the sum of the thermal output and electrical generation in Btus divided by the energy input.

7/ Power-to-Heat is calculated as the electrical generation in Btus divided by the thermal output.

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Source: 2002 and 2003 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report," 2004 (preliminary). Other 2002 and 2003 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA, AEO2005 National Energy Modeling System run aeo2005.d102004a.

Table 26. Paper Industry Energy Consumption

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of Shipments (billion 1996 dollars)	141.08	147.53	154.36	160.55	162.03	164.03	167.16	169.99	171.46	173.17	174.99	175.99	177.99
Energy Consumption (trillion Btu)													
Residual Oil	125.6	131.6	133.8	131.5	128.4	128.0	126.9	126.7	125.8	124.9	124.2	123.6	123.4
Distillate Oil	8.5	9.0	9.0	9.1	9.1	9.0	8.9	9.0	8.9	8.8	8.8	8.8	8.8
Liquefied Petroleum Gas	5.3	5.2	4.9	5.2	5.6	5.6	5.5	5.6	5.5	5.6	5.6	5.6	5.6
Petroleum Subtotal	139.4	145.8	147.8	145.8	143.0	142.5	141.3	141.2	140.2	139.2	138.6	138.0	137.9
Natural Gas	518.6	475.1	480.6	487.1	488.9	489.7	494.2	497.3	499.3	501.0	502.6	503.0	504.5
Steam Coal	274.0	257.1	256.3	255.4	254.4	253.5	252.6	251.8	250.9	250.1	249.2	248.4	247.6
Renewables	1129.0	1177.7	1224.9	1268.2	1279.1	1293.9	1316.9	1337.9	1349.2	1362.4	1376.7	1385.0	1400.6
Purchased Electricity	202.1	222.0	229.2	234.8	232.9	231.6	232.3	232.8	231.1	230.1	229.3	227.2	226.6
Total	2263.2	2277.7	2338.7	2391.4	2398.3	2411.2	2437.3	2461.0	2470.8	2482.9	2496.4	2501.6	2517.1
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)													
Residual Oil	0.89	0.89	0.87	0.82	0.79	0.78	0.76	0.75	0.73	0.72	0.71	0.70	0.69
Distillate Oil	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Liquefied Petroleum Gas	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Petroleum Subtotal	0.99	0.99	0.96	0.91	0.88	0.87	0.85	0.83	0.82	0.80	0.79	0.78	0.77
Natural Gas	3.68	3.22	3.11	3.03	3.02	2.99	2.96	2.93	2.91	2.89	2.87	2.86	2.83
Steam Coal	1.94	1.74	1.66	1.59	1.57	1.55	1.51	1.48	1.46	1.44	1.42	1.41	1.39
Renewables	8.00	7.98	7.94	7.90	7.89	7.89	7.88	7.87	7.87	7.87	7.87	7.87	7.87
Purchased Electricity	1.43	1.51	1.48	1.46	1.44	1.41	1.39	1.37	1.35	1.33	1.31	1.29	1.27
Total	16.04	15.44	15.15	14.90	14.80	14.70	14.58	14.48	14.41	14.34	14.27	14.21	14.14
Carbon Dioxide Emissions 2/ (million metric tons)	102.2	103.1	104.3	105.4	104.8	104.6	104.8	104.8	104.2	103.7	103.4	102.7	102.4
Combined Heat and Power 4/ Generating Capacity (gigawatts)													
Petroleum	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Natural Gas	1.86	1.86	1.96	2.05	2.16	2.26	2.37	2.49	2.61	2.71	2.82	2.92	3.02
Coal	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
Other 5/	4.14	4.14	4.43	4.70	4.76	4.85	5.00	5.13	5.20	5.28	5.37	5.42	5.51
Total	7.51	7.51	7.90	8.27	8.43	8.63	8.89	9.13	9.32	9.51	9.70	9.85	10.05
Net Generation (billion kilowatthours)													
Petroleum	3.15	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14
Natural Gas	9.59	8.71	9.47	10.19	10.97	11.75	12.64	13.55	14.43	15.22	16.01	16.79	17.58
Coal	7.14	6.58	6.58	6.58	6.58	6.58	6.58	6.58	6.58	6.58	6.58	6.58	6.58
Other 5/	29.71	28.56	30.26	31.82	32.21	32.74	33.57	34.32	34.73	35.21	35.72	36.02	36.58
Total	49.59	46.98	49.44	51.72	52.89	54.20	55.92	57.58	58.87	60.14	61.44	62.52	63.87
Disposition													
Sales to the Grid	2.20	2.13	3.61	4.97	5.68	6.46	7.49	8.49	9.26	10.03	10.81	11.45	12.27
Generation for Own Use	47.39	44.85	45.84	46.75	47.21	47.74	48.43	49.09	49.61	50.11	50.63	51.07	51.61
Thermal Output (trillion Btu)	811.2	805.0	832.6	857.9	865.3	875.0	889.4	902.7	910.6	919.5	928.9	935.0	945.1
Energy Input (trillion Btu)													
Petroleum	101.4	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5
Natural Gas	255.2	214.4	220.2	225.6	231.4	237.2	243.9	250.7	257.3	263.3	269.2	275.1	281.1
Coal	235.9	218.2	218.2	218.2	218.2	218.2	218.2	218.2	218.2	218.2	218.2	218.2	218.2
Other 5/	1131.9	1121.6	1175.9	1225.7	1238.1	1255.1	1281.6	1305.7	1318.7	1333.9	1350.3	1359.8	1377.7
Total	1724.6	1656.8	1716.9	1772.0	1790.3	1813.2	1846.2	1877.2	1896.8	1918.0	1940.3	1955.7	1979.6
Efficiency 6/	0.568	0.583	0.583	0.584	0.584	0.585	0.585	0.586	0.586	0.586	0.587	0.587	0.588
Power-to-Heat Ratio 7/	0.209	0.199	0.203	0.206	0.209	0.211	0.215	0.218	0.221	0.223	0.226	0.228	0.231

Table 26. Paper Industry Energy Consumption

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Value of Shipments (billion 1996 dollars)	180.05	180.79	183.56	186.64	190.10	192.97	195.81	198.11	200.54	202.57	204.22	1.5%
Energy Consumption (trillion Btu)												
Residual Oil	123.5	122.7	122.7	123.0	123.5	123.5	123.4	123.0	122.4	122.2	121.9	-0.3%
Distillate Oil	8.9	8.8	8.8	8.9	8.9	9.0	9.0	9.0	9.1	9.1	9.1	0.0%
Liquefied Petroleum Gas	5.6	5.6	5.6	5.7	5.7	5.8	5.8	5.8	5.8	5.9	5.9	0.6%
Petroleum Subtotal	138.0	137.1	137.1	137.6	138.1	138.3	138.3	137.9	137.3	137.1	136.9	-0.3%
Natural Gas	507.7	512.1	519.4	526.9	535.2	543.4	552.0	560.4	569.4	577.5	584.6	0.9%
Steam Coal	247.0	246.5	246.3	246.0	245.8	245.5	245.2	244.9	244.7	244.4	244.1	-0.2%
Renewables	1416.8	1423.7	1445.3	1469.2	1495.9	1518.5	1541.1	1560.0	1579.8	1597.1	1611.6	1.4%
Purchased Electricity	226.0	223.4	223.8	224.7	225.8	226.4	226.9	226.7	227.3	227.4	227.1	0.1%
Total	2535.5	2542.9	2571.8	2604.3	2640.8	2672.2	2703.6	2729.9	2758.5	2783.5	2804.2	0.9%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)												
Residual Oil	0.69	0.68	0.67	0.66	0.65	0.64	0.63	0.62	0.61	0.60	0.60	-1.8%
Distillate Oil	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	-1.4%
Liquefied Petroleum Gas	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-0.9%
Petroleum Subtotal	0.77	0.76	0.75	0.74	0.73	0.72	0.71	0.70	0.68	0.68	0.67	-1.7%
Natural Gas	2.82	2.83	2.83	2.82	2.82	2.82	2.82	2.83	2.84	2.85	2.86	-0.5%
Steam Coal	1.37	1.36	1.34	1.32	1.29	1.27	1.25	1.24	1.22	1.21	1.20	-1.7%
Renewables	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.88	7.88	7.89	-0.1%
Purchased Electricity	1.26	1.24	1.22	1.20	1.19	1.17	1.16	1.14	1.13	1.12	1.11	-1.4%
Total	14.08	14.07	14.01	13.95	13.89	13.85	13.81	13.78	13.76	13.74	13.73	-0.5%
Carbon Dioxide Emissions 2/ (million metric tons)	102.3	101.7	102.1	102.6	103.2	103.8	104.4	104.8	105.5	106.1	106.5	0.1%
Combined Heat and Power 4/												
Generating Capacity (gigawatts)												
Petroleum	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	N/A
Natural Gas	3.13	3.24	3.36	3.48	3.61	3.75	3.89	4.03	4.18	4.33	4.47	4.1%
Coal	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	N/A
Other 5/	5.61	5.65	5.79	5.94	6.10	6.24	6.38	6.50	6.62	6.72	6.81	2.3%
Total	10.26	10.41	10.66	10.93	11.23	11.50	11.78	12.04	12.31	12.56	12.80	2.5%
Net Generation (billion kilowatthours)												
Petroleum	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	N/A
Natural Gas	18.38	19.21	20.10	21.04	22.03	23.07	24.12	25.19	26.29	27.40	28.51	5.5%
Coal	6.58	6.58	6.58	6.58	6.58	6.58	6.58	6.58	6.58	6.58	6.58	N/A
Other 5/	37.16	37.41	38.19	39.05	40.01	40.83	41.64	42.32	43.03	43.65	44.18	2.0%
Total	65.26	66.33	68.00	69.80	71.76	73.61	75.48	77.23	79.04	80.77	82.40	2.6%
Disposition												
Sales to the Grid	13.09	13.74	14.74	15.82	17.00	18.11	19.23	20.28	21.36	22.40	23.38	11.5%
Generation for Own Use	52.16	52.59	53.26	53.98	54.76	55.50	56.25	56.95	57.67	58.36	59.02	1.3%
Thermal Output (trillion Btu)	955.6	961.1	974.8	989.9	1006.6	1021.2	1035.8	1048.4	1061.6	1073.4	1083.6	1.4%
Energy Input (trillion Btu)												
Petroleum	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	N/A
Natural Gas	287.2	293.4	300.2	307.3	314.9	322.7	330.7	338.9	347.2	355.6	364.0	2.4%
Coal	218.2	218.2	218.2	218.2	218.2	218.2	218.2	218.2	218.2	218.2	218.2	N/A
Other 5/	1396.3	1404.3	1429.1	1456.5	1487.2	1513.3	1539.3	1560.9	1583.7	1603.5	1620.2	1.7%
Total	2004.3	2018.5	2050.1	2084.6	2122.9	2156.7	2190.8	2220.5	2251.6	2279.9	2305.0	1.5%
Efficiency 6/	0.588	0.588	0.589	0.589	0.590	0.590	0.590	0.591	0.591	0.592	0.592	0.1%
Power-to-Heat Ratio 7/	0.233	0.235	0.238	0.241	0.243	0.246	0.249	0.251	0.254	0.257	0.259	1.2%

Table 26. Paper Industry Energy Consumption

1/ Fuel consumption includes consumption for combined heat and power.

2/ Includes emissions attributable to the fuels consumed to generate the purchased electricity.

4/ Includes industrial-owned generators not classified as combined heat and power, such as standby generators.

5/ Includes wood and other biomass, waste heat, municipal solid waste, and renewable sources.

6/ Efficiency is calculated as the sum of the thermal output and electrical generation in Btus divided by the energy input.

7/ Power-to-Heat is calculated as the electrical generation in Btus divided by the thermal output.

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Source: 2002 and 2003 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report," 2004 (preliminary). Other 2002 and 2003 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA, AEO2005 National Energy Modeling System run aeo2005.d102004a.

Table 27. Bulk Chemical Industry Energy Consumption

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of Shipments (billion 1996 dollars)	185.35	181.01	187.83	193.80	193.89	194.84	200.49	204.68	207.36	210.11	212.30	213.40	215.02
Energy Consumption (trillion Btu)													
Heat and Power													
Residual Oil	31.2	36.3	39.5	38.4	35.7	35.6	35.4	36.3	36.6	36.8	37.1	37.4	38.0
Distillate Oil	1.4	1.7	1.6	1.8	1.7	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.4
Liquefied Petroleum Gas	45.0	43.6	39.3	47.2	47.9	46.1	44.2	45.7	45.4	46.5	47.5	48.2	50.4
Petroleum Coke	187.6	212.1	229.4	232.8	222.2	218.3	217.7	221.2	222.6	224.9	227.4	229.0	231.9
Other Petroleum 2/	346.5	391.7	423.7	429.9	410.2	403.1	402.0	408.4	411.0	415.2	419.9	423.0	428.1
Petroleum Subtotal	611.7	685.4	733.5	750.1	717.7	704.8	700.8	713.1	717.0	724.7	733.2	739.0	749.8
Natural Gas	1607.1	1458.7	1474.1	1504.8	1527.5	1541.5	1583.4	1597.1	1617.9	1633.1	1641.5	1643.3	1640.2
Steam Coal	224.9	224.9	225.8	226.0	225.7	225.8	226.4	226.3	226.3	226.1	225.6	224.9	224.1
Purchased Electricity	433.7	437.7	454.7	469.2	464.5	462.5	472.9	480.7	484.7	489.4	492.5	492.4	493.2
Total Heat and Power	2877.4	2806.7	2888.0	2950.2	2935.4	2934.6	2983.5	3017.2	3045.9	3073.3	3092.8	3099.5	3107.4
Feedstock													
Liquefied Petroleum Gas	1674.7	1660.5	1727.7	1787.4	1773.8	1767.5	1808.2	1841.6	1854.8	1875.5	1896.0	1907.5	1929.0
Petrochemical Feedstocks	1323.7	1283.6	1332.3	1375.7	1372.0	1371.6	1407.5	1432.3	1441.8	1454.5	1464.9	1468.1	1478.4
Natural Gas	613.2	592.7	614.7	624.0	617.9	617.7	627.9	633.7	640.5	646.2	649.8	650.4	650.9
Total Feedstocks	3611.5	3536.8	3674.8	3787.1	3763.7	3756.7	3843.6	3907.6	3937.1	3976.1	4010.7	4026.1	4058.2
Total	6488.9	6343.6	6562.8	6737.2	6699.2	6691.4	6827.2	6924.8	6982.9	7049.5	7103.5	7125.6	7165.6
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)													
Heat and Power													
Residual Oil	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Distillate Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquefied Petroleum Gas	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Petroleum Coke	1.0	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Other Petroleum	1.9	2.2	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Petroleum Subtotal	3.3	3.8	3.9	3.9	3.7	3.6	3.5	3.5	3.5	3.4	3.5	3.5	3.5
Natural Gas	8.7	8.1	7.8	7.8	7.9	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.6
Steam Coal	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.0
Purchased Electricity	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3
Total Heat and Power	15.5	15.5	15.4	15.2	15.1	15.1	14.9	14.7	14.7	14.6	14.6	14.5	14.5
Feedstock													
Liquefied Petroleum Gas	9.0	9.2	9.2	9.2	9.1	9.1	9.0	9.0	8.9	8.9	8.9	8.9	9.0
Petrochemical Feedstocks	7.1	7.1	7.1	7.1	7.1	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9
Natural Gas	3.3	3.3	3.3	3.2	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.0	3.0
Total Feedstocks	19.5	19.5	19.6	19.5	19.4	19.3	19.2	19.1	19.0	18.9	18.9	18.9	18.9
Total	35.0	35.0	34.9	34.8	34.6	34.3	34.1	33.8	33.7	33.6	33.5	33.4	33.3
Carbon Dioxide Emissions 3/ (million metric tons)	340.6	336.9	347.5	356.2	353.5	353.1	359.6	364.3	366.8	369.8	372.0	372.6	373.8
Combined Heat and Power 4/ Generating Capacity (gigawatts)													
Petroleum	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Natural Gas	6.98	6.98	7.04	7.08	7.17	7.26	7.39	7.52	7.65	7.77	7.89	8.01	8.14
Coal	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Other 5/	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Total	8.04	8.04	8.09	8.14	8.22	8.31	8.44	8.57	8.70	8.82	8.94	9.06	9.19
Net Generation (billion kilowatthours)													
Petroleum	0.10	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Natural Gas	42.02	36.91	37.32	37.68	38.30	39.02	39.97	40.96	41.98	42.90	43.80	44.71	45.64
Coal	3.08	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03
Other 5/	4.43	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97
Total	49.63	46.04	46.45	46.81	47.42	48.15	49.10	50.09	51.10	52.02	52.92	53.84	54.77

Table 27. Bulk Chemical Industry Energy Consumption

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Disposition													
Sales to the Grid	8.42	7.60	7.81	8.03	8.40	8.83	9.40	9.99	10.61	11.16	11.70	12.25	12.81
Generation for Own Use	41.21	38.44	38.64	38.78	39.03	39.32	39.70	40.09	40.50	40.87	41.23	41.59	41.97
Thermal Output (trillion Btu)	260.4	223.7	224.6	225.2	226.4	227.7	229.6	231.5	233.6	235.4	237.2	239.1	241.0
Energy Input (trillion Btu)													
Petroleum	2.3	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Natural Gas	552.1	491.2	494.6	497.2	501.8	507.3	514.5	522.1	529.9	536.9	543.8	550.8	558.0
Coal	103.6	102.6	102.6	102.6	102.6	102.6	102.6	102.6	102.6	102.6	102.6	102.6	102.6
Other 5/	97.3	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4
Total	755.3	677.8	681.2	683.9	688.5	693.9	701.1	708.7	716.5	723.5	730.4	737.5	744.7
Efficiency 6/	0.569	0.562	0.562	0.563	0.564	0.565	0.566	0.568	0.569	0.571	0.572	0.573	0.575
Power-to-Heat Ratio 7/	0.650	0.702	0.706	0.709	0.715	0.721	0.730	0.738	0.747	0.754	0.761	0.768	0.776

Table 27. Bulk Chemical Industry Energy Consumption

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Energy Consumption (trillion Btu)												
Heat and Power												
Residual Oil	38.3	37.6	37.8	38.4	39.0	39.2	39.3	38.8	38.4	38.2	38.2	0.2%
Distillate Oil	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	-0.5%
Liquefied Petroleum Gas	50.5	49.6	50.8	52.3	53.6	54.0	53.9	53.5	52.8	52.8	53.6	0.9%
Petroleum Coke	232.6	230.5	232.4	235.2	238.0	239.1	239.8	239.1	238.3	238.3	238.8	0.5%
Other Petroleum 2/	429.6	425.6	429.2	434.2	439.4	441.5	442.9	441.5	440.0	440.0	440.9	0.5%
Petroleum Subtotal	752.5	744.7	751.8	761.7	771.5	775.4	777.4	774.4	771.1	770.8	773.0	0.5%
Natural Gas	1633.3	1645.1	1655.6	1658.9	1664.1	1669.9	1679.7	1693.1	1708.7	1719.3	1729.1	0.8%
Steam Coal	223.3	222.8	222.4	221.7	221.1	220.3	219.7	219.2	218.7	218.2	217.5	-0.2%
Purchased Electricity	490.9	487.2	488.8	489.5	489.4	488.2	487.5	486.2	485.6	484.5	483.2	0.4%
Total Heat and Power	3100.0	3099.7	3118.5	3131.8	3146.1	3153.8	3164.4	3173.0	3184.1	3192.8	3202.8	0.6%
Feedstock												
Liquefied Petroleum Gas	1936.6	1937.7	1961.7	1985.0	2007.5	2023.2	2039.6	2050.9	2064.1	2075.8	2086.1	1.0%
Petrochemical Feedstocks	1478.9	1474.5	1486.4	1495.8	1505.5	1510.3	1516.8	1520.8	1526.6	1530.3	1533.1	0.8%
Natural Gas	646.8	646.1	649.4	650.8	652.8	653.0	654.5	655.6	657.1	658.2	660.1	0.5%
Total Feedstocks	4062.4	4058.3	4097.6	4131.6	4165.7	4186.5	4210.9	4227.3	4247.7	4264.2	4279.3	0.9%
Total	7162.4	7158.0	7216.0	7263.4	7311.8	7340.3	7375.3	7400.2	7431.8	7457.0	7482.1	0.8%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)												
Heat and Power												
Residual Oil	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-0.8%
Distillate Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.4%
Liquefied Petroleum Gas	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-0.1%
Petroleum Coke	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	-0.5%
Other Petroleum	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	-0.5%
Petroleum Subtotal	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.4	3.4	3.4	-0.4%
Natural Gas	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.7	-0.2%
Steam Coal	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-1.1%
Purchased Electricity	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	-0.5%
Total Heat and Power	14.4	14.4	14.3	14.3	14.3	14.3	14.2	14.2	14.2	14.2	14.2	-0.4%
Feedstock												
Liquefied Petroleum Gas	9.0	9.0	9.0	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.3	0.0%
Petrochemical Feedstocks	6.9	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	-0.2%
Natural Gas	3.0	3.0	3.0	3.0	3.0	3.0	2.9	2.9	2.9	2.9	2.9	-0.5%
Total Feedstocks	18.9	18.8	18.8	18.9	18.9	18.9	19.0	19.0	19.0	19.0	19.0	-0.1%
Total	33.3	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2	-0.2%
Carbon Dioxide Emissions 3/ (million metric tons)	372.7	371.6	374.0	375.7	377.6	378.4	379.8	380.8	382.3	383.3	384.4	0.6%
Combined Heat and Power 4/												
Generating Capacity (gigawatts)												
Petroleum	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	N/A
Natural Gas	8.26	8.39	8.54	8.68	8.83	8.98	9.13	9.28	9.44	9.60	9.76	1.5%
Coal	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	N/A
Other 5/	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	N/A
Total	9.31	9.45	9.59	9.73	9.88	10.03	10.18	10.33	10.49	10.65	10.81	1.4%
Net Generation (billion kilowatthours)												
Petroleum	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	N/A
Natural Gas	46.57	47.58	48.65	49.72	50.84	51.97	53.09	54.22	55.38	56.54	57.73	2.1%
Coal	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	N/A
Other 5/	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97	5.97	N/A
Total	55.70	56.71	57.78	58.85	59.97	61.10	62.22	63.34	64.51	65.67	66.86	1.7%
Disposition												
Sales to the Grid	13.36	13.97	14.61	15.25	15.93	16.60	17.28	17.95	18.65	19.35	20.06	4.5%
Generation for Own Use	42.34	42.74	43.17	43.60	44.05	44.50	44.95	45.39	45.86	46.33	46.80	0.9%

Table 27. Bulk Chemical Industry Energy Consumption

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Thermal Output (trillion Btu)	242.9	245.0	247.3	249.6	252.0	254.4	256.9	259.4	261.9	264.5	267.2	0.8%
Energy Input (trillion Btu)												
Petroleum	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	N/A
Natural Gas	565.1	573.0	581.3	589.7	598.5	607.3	616.1	624.9	634.0	643.1	652.4	1.3%
Coal	102.6	102.6	102.6	102.6	102.6	102.6	102.6	102.6	102.6	102.6	102.6	N/A
Other 5/	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	N/A
Total	751.8	759.7	767.9	776.3	785.1	793.9	802.7	811.5	820.7	829.8	839.1	1.0%
Efficiency 6/	0.576	0.577	0.579	0.580	0.582	0.583	0.585	0.586	0.587	0.589	0.590	0.2%
Power-to-Heat Ratio 7/	0.782	0.790	0.797	0.805	0.812	0.819	0.826	0.833	0.840	0.847	0.854	0.9%

Table 27. Bulk Chemical Industry Energy Consumption

- 1/ Fuel consumption includes consumption for combined heat and power.
- 2/ Includes petroleum coke, lubricants, and miscellaneous petroleum products.
- 3/ Includes emissions attributable to the fuels consumed to generate the purchased electricity
- 4/ Includes industrial-owned generators not classified as combined heat and power, such as standby generators
- 5/ Includes wood and other biomass, waste heat, municipal solid waste, and renewable sources
- 6/ Efficiency is calculated as the sum of the thermal output and electrical generation in Btus divided by the energy input
- 7/ Power-to-Heat is calculated as the electrical generation in Btus divided by the thermal output

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports

Source: 2002 and 2003 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860 "Annual Electric Generator Report," 2004 (preliminary). Other 2002 and 2003 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA AEO2005 National Energy Modeling System run aeo2005.d102004a

Table 28. Glass Industry Energy Consumption

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of Shipments (billion 1996 dollars)	22.28	22.19	22.19	23.06	23.64	23.97	24.46	24.99	25.72	26.65	27.36	27.94	28.50
Energy Consumption (trillion Btu)													
Residual Oil	1.8	1.9	1.8	1.8	1.9	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9
Distillate Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquefied Petroleum Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Subtotal	1.8	1.9	1.8	1.8	1.9	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9
Natural Gas	142.0	138.0	135.9	138.6	140.0	139.7	140.4	141.0	142.7	145.1	146.4	147.1	147.6
Steam Coal	11.2	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9
Purchased Electricity	38.8	38.9	38.7	40.0	40.6	40.8	41.2	41.7	42.5	43.8	44.6	45.2	45.8
Total	193.7	190.6	188.3	192.2	194.5	194.5	195.5	196.6	199.0	202.7	204.8	206.1	207.2
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)													
Residual Oil	0.08	0.08	0.08	0.08	0.08	0.09	0.08	0.08	0.08	0.07	0.07	0.07	0.07
Distillate Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liquefied Petroleum Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Subtotal	0.08	0.08	0.08	0.08	0.08	0.09	0.08	0.08	0.08	0.07	0.07	0.07	0.07
Natural Gas	6.37	6.22	6.12	6.01	5.92	5.83	5.74	5.64	5.55	5.44	5.35	5.26	5.18
Steam Coal	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4
Purchased Electricity	1.74	1.75	1.75	1.74	1.72	1.70	1.68	1.67	1.65	1.64	1.63	1.62	1.61
Total	8.70	8.59	8.48	8.34	8.23	8.11	7.99	7.87	7.74	7.60	7.48	7.38	7.27
Carbon Dioxide Emissions 2/ (million metric tons)	16.1	16.0	15.8	16.2	16.4	16.4	16.5	16.6	16.8	17.1	17.3	17.4	17.6
Combined Heat and Power 4/ Generating Capacity (gigawatts)													
Petroleum	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Natural Gas	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Coal	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Other 5/	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Net Generation (billion kilowatthours)													
Petroleum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Coal	0.31	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Other 5/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Disposition													
Sales to the Grid	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Generation for own use	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Thermal Output (trillion Btu)	7.2	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Energy Input (trillion Btu)													
Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	0.9	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Coal	11.2	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9
Other 5/	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	12.1	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
Efficiency 6/	0.694	0.696	0.696	0.696	0.696	0.696	0.696	0.696	0.696	0.696	0.696	0.696	0.696
Power-to-Heat Ratio 7/	0.163	0.159	0.159	0.159	0.159	0.159	0.159	0.159	0.159	0.159	0.159	0.159	0.159

Table 28. Glass Industry Energy Consumption

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Value of Shipments (billion 1996 dollars)	28.85	29.23	29.77	30.38	30.89	31.31	31.70	32.12	32.67	33.33	34.00	2.0%
Energy Consumption (trillion Btu)												
Residual Oil	1.9	1.9	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	0.0%
Distillate Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Liquefied Petroleum Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Petroleum Subtotal	1.9	1.9	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	0.0%
Natural Gas	147.8	149.0	150.9	152.9	154.5	155.7	156.9	158.2	160.1	162.2	164.4	0.8%
Steam Coal	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	N/A
Purchased Electricity	46.1	46.4	47.0	47.6	48.2	48.6	48.9	49.3	50.0	50.7	51.5	1.3%
Total	207.8	209.2	211.5	214.2	216.4	218.0	219.6	221.3	223.8	226.7	229.6	0.9%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)												
Residual Oil	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	-1.9%
Distillate Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Liquefied Petroleum Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Petroleum Subtotal	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	-1.9%
Natural Gas	5.12	5.10	5.07	5.03	5.00	4.97	4.95	4.93	4.90	4.87	4.83	-1.1%
Steam Coal	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	-1.9%
Purchased Electricity	1.60	1.59	1.58	1.57	1.56	1.55	1.54	1.54	1.53	1.52	1.52	-0.7%
Total	7.20	7.16	7.10	7.05	7.00	6.96	6.93	6.89	6.85	6.80	6.75	-1.1%
Carbon Dioxide Emissions 2/ (million metric tons)	17.6	17.7	17.8	18.1	18.2	18.4	18.5	18.7	18.9	19.2	19.5	0.9%
Combined Heat and Power 4/												
Generating Capacity (gigawatts)												
Petroleum	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	N/A
Natural Gas	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	N/A
Coal	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	N/A
Other 5/	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	N/A
Total	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	N/A
Net Generation (billion kilowatthours)												
Petroleum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Natural Gas	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	N/A
Coal	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	N/A
Other 5/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Total	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	N/A
Disposition												
Sales to the Grid	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	N/A
Generation for own use	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	N/A
Thermal Output (trillion Btu)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	N/A
Energy Input (trillion Btu)												
Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Natural Gas	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	N/A
Coal	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	N/A
Other 5/	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Total	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	N/A
Efficiency 6/	0.696	0.696	0.696	0.696	0.696	0.696	0.696	0.696	0.696	0.696	0.696	N/A
Power-to-Heat Ratio 7/	0.159	0.159	0.159	0.159	0.159	0.159	0.159	0.159	0.159	0.159	0.159	N/A

Table 28. Glass Industry Energy Consumption

1/ Fuel consumption includes consumption for combined heat and power.

2/ Includes emissions attributable to the fuels consumed to generate the purchased electricity.

4/ Includes industrial-owned generators not classified as combined heat and power, such as standby generators.

5/ Includes wood and other biomass, waste heat, municipal solid waste, and renewable sources.

6/ Efficiency is calculated as the sum of the thermal output and electrical generation in Btus divided by the energy input.

7/ Power-to-Heat is calculated as the electrical generation in Btus divided by the thermal output.

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Source: 2002 and 2003 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report," 2004 (preliminary). Other 2002 and 2003 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA, AEO2005 National Energy Modeling System run aeo2005.d102004a.

Table 29. Cement Industry Energy Consumption

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of Shipments (billion 1996 dollars)	6.74	6.98	7.42	7.85	8.06	8.27	8.53	8.60	8.64	8.79	8.83	8.89	9.00
Energy Consumption (trillion Btu)													
Residual Oil	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Distillate Oil	1.9	2.0	2.0	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2
Petroleum Coke	33.5	34.1	35.5	36.9	37.4	37.8	38.6	38.5	38.4	38.7	38.6	38.5	38.7
Other Petroleum 2/ Petroleum Subtotal	22.8 60.6	23.1 61.4	24.1 63.8	25.0 66.2	25.3 67.0	25.6 67.9	26.1 69.0	26.1 69.0	26.0 68.8	26.2 69.2	26.1 69.0	26.1 68.9	26.1 69.1
Natural Gas	24.9	24.8	25.9	26.7	27.1	27.5	28.2	28.2	28.2	28.4	28.4	28.3	28.4
Steam Coal	231.7	237.1	247.6	257.7	261.6	265.5	271.1	271.4	271.1	273.5	273.3	273.3	274.8
Metallurgical Coal Coal Subtotal	7.9 239.6	8.0 245.1	8.3 255.9	8.7 266.3	8.8 270.4	8.9 274.5	9.1 280.2	9.1 280.5	9.1 280.2	9.2 282.7	9.1 282.4	9.1 282.4	9.2 284.0
Purchased Electricity	40.2	41.5	43.6	45.6	46.4	47.1	48.2	48.2	48.1	48.7	48.6	48.6	49.0
Total	365.4	372.9	389.1	404.9	411.0	417.0	425.6	425.9	425.3	429.0	428.4	428.2	430.4
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)													
Residual Oil	0.36	0.31	0.29	0.27	0.26	0.26	0.25	0.25	0.25	0.24	0.24	0.24	0.24
Distillate Oil	0.28	0.29	0.27	0.28	0.28	0.27	0.26	0.26	0.25	0.24	0.24	0.24	0.24
Petroleum Coke	4.97	4.89	4.79	4.70	4.63	4.58	4.52	4.48	4.45	4.40	4.37	4.34	4.30
Other Petroleum 2/ Petroleum Subtotal	3.38 8.99	3.32 8.81	3.25 8.60	3.18 8.43	3.14 8.32	3.10 8.21	3.06 8.09	3.04 8.02	3.01 7.96	2.98 7.87	2.96 7.81	2.93 7.75	2.90 7.68
Natural Gas	3.70	3.56	3.49	3.41	3.37	3.33	3.30	3.28	3.26	3.23	3.21	3.18	3.15
Steam Coal	34.36	33.99	33.39	32.82	32.45	32.12	31.77	31.56	31.37	31.12	30.94	30.75	30.53
Metallurgical Coal Coal Subtotal	1.17 35.54	1.15 35.14	1.12 34.51	1.10 33.92	1.09 33.55	1.08 33.20	1.07 32.84	1.06 32.62	1.05 32.42	1.04 32.16	1.04 31.97	1.03 31.78	1.02 31.55
Purchased Electricity	5.96	5.94	5.87	5.81	5.76	5.70	5.64	5.60	5.57	5.54	5.51	5.47	5.44
Total	54.19	53.45	52.47	51.57	50.99	50.45	49.88	49.52	49.20	48.80	48.50	48.18	47.83
Carbon Dioxide Emissions 3/ (million metric tons)	35.1	35.9	37.5	39.0	39.6	40.2	41.0	41.0	40.9	41.3	41.2	41.1	41.3
Combined Heat and Power 4/ Generating Capacity (gigawatts)													
Petroleum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Coal	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Other 5/ Total	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04
Net Generation (billion kilowatthours)													
Petroleum	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Natural Gas	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Coal	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Other 5/ Total	0.00 0.20	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19
Disposition													
Sales to the Grid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generation for Own Use	0.20	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Thermal Output (trillion Btu)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Energy Input (trillion Btu)													
Petroleum	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Natural Gas	1.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Coal	4.8	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Other 5/ Total	0.0 8.6	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5
Efficiency 6/	0.708	0.716	0.716	0.716	0.716	0.716	0.716	0.716	0.716	0.716	0.716	0.716	0.716
Power-to-Heat Ratio 7/	0.125	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118

Table 29. Cement Industry Energy Consumption

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Value of Shipments (billion 1996 dollars)	9.03	9.15	9.27	9.38	9.46	9.54	9.63	9.72	9.82	9.93	10.03	1.7%
Energy Consumption (trillion Btu)												
Residual Oil	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	N/A
Distillate Oil	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	0.6%
Petroleum Coke	38.6	38.8	39.0	39.3	39.5	39.7	40.0	40.1	40.4	40.6	40.9	0.8%
Other Petroleum 2/ Petroleum Subtotal	26.0 68.9	26.1 69.2	26.3 69.6	26.5 70.1	26.6 70.5	26.7 70.8	26.9 71.2	27.0 71.5	27.2 72.0	27.3 72.4	27.5 72.8	0.8%
Natural Gas	28.3	28.6	28.9	29.2	29.3	29.5	29.7	29.9	30.1	30.3	30.5	0.9%
Steam Coal	274.3	275.8	277.5	279.0	279.6	280.4	281.5	282.3	283.5	284.9	286.5	0.9%
Metallurgical Coal	9.1	9.2	9.2	9.2	9.2	9.2	9.3	9.3	9.3	9.3	9.3	0.7%
Coal Subtotal	283.5	284.9	286.7	288.2	288.9	289.6	290.7	291.6	292.8	294.2	295.9	0.9%
Purchased Electricity	48.9	49.2	49.5	49.8	49.9	50.1	50.4	50.6	50.9	51.3	51.7	1.0%
Total	429.6	431.9	434.7	437.3	438.5	440.1	442.0	443.5	445.8	448.2	450.8	0.9%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)												
Residual Oil	0.24	0.23	0.23	0.23	0.23	0.22	0.22	0.22	0.22	0.22	0.21	-1.6%
Distillate Oil	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.23	0.23	-1.0%
Petroleum Coke	4.27	4.24	4.21	4.19	4.18	4.16	4.15	4.13	4.11	4.09	4.07	-0.8%
Other Petroleum 2/ Petroleum Subtotal	2.88 7.63	2.85 7.57	2.84 7.52	2.82 7.48	2.81 7.45	2.80 7.42	2.79 7.39	2.78 7.36	2.77 7.33	2.75 7.29	2.74 7.26	-0.9%
Natural Gas	3.14	3.13	3.12	3.11	3.10	3.09	3.08	3.07	3.06	3.05	3.04	-0.7%
Steam Coal	30.36	30.16	29.95	29.75	29.57	29.40	29.22	29.05	28.87	28.69	28.56	-0.8%
Metallurgical Coal	1.01	1.00	0.99	0.98	0.98	0.97	0.96	0.95	0.95	0.94	0.93	-1.0%
Coal Subtotal	31.37	31.16	30.94	30.73	30.55	30.36	30.18	30.00	29.81	29.63	29.49	-0.8%
Purchased Electricity	5.41	5.37	5.34	5.31	5.28	5.25	5.23	5.20	5.18	5.16	5.15	-0.6%
Total	47.55	47.23	46.92	46.62	46.37	46.13	45.88	45.64	45.39	45.14	44.94	-0.8%
Carbon Dioxide Emissions 3/ (million metric tons)	41.2	41.4	41.6	41.9	42.0	42.1	42.3	42.5	42.8	43.0	43.3	0.9%
Combined Heat and Power 4/ Generating Capacity (gigawatts)												
Petroleum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Natural Gas	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	N/A
Coal	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	N/A
Other 5/ Total	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	0.00 0.04	N/A
Net Generation (billion kilowatthours)												
Petroleum	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	N/A
Natural Gas	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	N/A
Coal	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	N/A
Other 5/ Total	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	0.00 0.19	N/A
Disposition												
Sales to the Grid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Generation for Own Use	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	N/A
Thermal Output (trillion Btu)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	N/A
Energy Input (trillion Btu)												
Petroleum	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	N/A
Natural Gas	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	N/A
Coal	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	N/A
Other 5/ Total	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	0.0 8.5	N/A
Efficiency 6/	0.716	0.716	0.716	0.716	0.716	0.716	0.716	0.716	0.716	0.716	0.716	N/A
Power-to-Heat Ratio 7/	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	N/A

Table 29. Cement Industry Energy Consumption

1/ Fuel consumption includes consumption for combined heat and power.

2/ Includes petroleum coke, lubricants, and miscellaneous petroleum products.

3/ Includes emissions attributable to the fuels consumed to generate the purchased electricity.

4/ Includes industrial-owned generators not classified as combined heat and power, such as standby generators.

5/ Includes wood and other biomass, waste heat, municipal solid waste, and renewable sources.

6/ Efficiency is calculated as the sum of the thermal output and electrical generation in Btus divided by the energy input.

7/ Power-to-Heat is calculated as the electrical generation in Btus divided by the thermal output.

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Source: 2002 and 2003 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report," 2004 (preliminary). Other 2002 and 2003 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA, AEO2005 National Energy Modeling System run aeo2005.d102004a.

Table 30. Iron and Steel Industries Energy Consumption

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of Shipments (billion 1996 dollars)	70.53	65.34	69.70	72.56	72.05	72.99	76.20	78.36	78.57	78.73	78.90	78.46	78.80
Energy Consumption (trillion Btu)													
Distillate Oil	4.4	4.0	4.1	4.2	4.1	4.1	4.2	4.3	4.2	4.1	4.1	4.1	4.0
Residual Oil	21.4	26.2	27.5	25.7	23.5	23.4	22.3	22.1	21.3	20.6	20.1	19.8	19.7
Other Petroleum 2/ Petroleum Subtotal	7.5 33.3	7.3 37.5	7.2 38.7	7.0 36.9	6.8 34.5	6.7 34.2	6.5 33.0	6.4 32.7	6.2 31.7	6.1 30.8	5.9 30.1	5.8 29.6	5.6 29.4
Natural Gas	394.1	364.2	375.1	380.2	373.3	370.0	376.7	378.9	375.1	371.1	366.9	360.5	356.4
Metallurgical Coal	660.2	641.6	623.3	605.6	588.4	571.8	555.7	540.0	524.8	510.0	495.6	481.6	468.0
Net Coke Imports	37.3	31.0	36.0	35.6	31.8	30.7	33.1	34.5	34.5	34.6	34.1	32.9	32.4
Steam Coal	63.7	62.6	62.1	61.1	59.8	58.8	58.1	57.4	56.5	55.7	54.8	53.9	53.1
Coal Subtotal	761.2	735.2	721.4	702.2	680.0	661.3	646.9	631.9	615.8	600.3	584.6	568.4	553.5
Purchased Electricity	143.2	130.7	144.9	154.1	152.1	154.3	162.7	168.7	169.4	170.2	171.2	170.6	172.0
Total	1331.7	1267.7	1280.0	1273.4	1239.9	1219.8	1219.4	1212.2	1192.0	1172.3	1152.8	1129.0	1111.4
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)													
Distillate Oil	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05
Residual Oil	0.30	0.40	0.39	0.35	0.33	0.32	0.29	0.28	0.27	0.26	0.25	0.25	0.25
Other Petroleum 2/ Petroleum Subtotal	0.11 0.47	0.11 0.57	0.10 0.56	0.10 0.51	0.09 0.48	0.09 0.47	0.09 0.43	0.08 0.42	0.08 0.40	0.08 0.39	0.07 0.38	0.07 0.38	0.07 0.37
Natural Gas	5.59	5.57	5.38	5.24	5.18	5.07	4.94	4.84	4.77	4.71	4.65	4.59	4.52
Metallurgical Coal	9.36	9.82	8.94	8.35	8.17	7.83	7.29	6.89	6.68	6.48	6.28	6.14	5.94
Net Coke Imports	0.53	0.48	0.52	0.49	0.44	0.42	0.43	0.44	0.44	0.44	0.43	0.42	0.41
Steam Coal	0.90	0.96	0.89	0.84	0.83	0.81	0.76	0.73	0.72	0.71	0.70	0.69	0.67
Coal Subtotal	10.79	11.25	10.35	9.68	9.44	9.06	8.49	8.06	7.84	7.62	7.41	7.24	7.02
Purchased Electricity	2.03	2.00	2.08	2.12	2.11	2.11	2.14	2.15	2.16	2.16	2.17	2.17	2.18
Total	18.88	19.40	18.36	17.55	17.21	16.71	16.00	15.47	15.17	14.89	14.61	14.39	14.10
Carbon Dioxide Emissions 3/ (million metric tons)	121.5	115.7	117.5	117.5	114.5	113.1	113.6	113.3	111.5	109.8	108.1	106.0	104.5
Combined Heat and Power 4/ Generating Capacity (gigawatts)													
Petroleum	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Natural Gas	0.25	0.25	0.25	0.26	0.26	0.26	0.27	0.28	0.28	0.29	0.29	0.30	0.30
Coal	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
Other 5/ Total	0.85 1.60	0.85 1.60	0.85 1.60	0.85 1.60	0.85 1.60	0.85 1.61	0.85 1.61	0.85 1.62	0.85 1.63	0.85 1.63	0.85 1.64	0.85 1.64	0.85 1.65
Net Generation (billion kilowatthours)													
Petroleum	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Natural Gas	0.41	0.67	0.69	0.71	0.74	0.77	0.81	0.86	0.91	0.95	0.99	1.03	1.07
Coal	1.52	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Other 5/ Total	3.78 5.73	3.76 6.05	3.76 6.07	3.76 6.09	3.76 6.11	3.76 6.14	3.76 6.19	3.76 6.23	3.76 6.28	3.76 6.32	3.76 6.36	3.76 6.40	3.76 6.44
Disposition													
Sales to the Grid	0.67	0.74	0.75	0.75	0.75	0.75	0.76	0.76	0.77	0.77	0.78	0.78	0.78
Generation for Own Use	5.06	5.30	5.32	5.34	5.36	5.39	5.43	5.47	5.51	5.55	5.59	5.62	5.66
Thermal Output (trillion Btu)	39.5	32.4	32.4	32.4	32.5	32.5	32.6	32.7	32.8	32.9	33.0	33.0	33.1
Energy Input (trillion Btu)													
Petroleum	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Natural Gas	12.5	14.3	14.4	14.6	14.8	15.0	15.3	15.7	16.0	16.3	16.6	16.9	17.3
Coal	19.9	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4
Other 5/ Total	87.2 120.0	74.7 110.1	74.7 110.2	74.7 110.3	74.7 110.5	74.7 110.8	74.7 111.1	74.7 111.4	74.7 111.8	74.7 112.1	74.7 112.4	74.7 112.7	74.7 113.0
Efficiency 6/ Power-to-Heat Ratio 7/	0.492 0.494	0.482 0.637	0.482 0.639	0.482 0.640	0.483 0.642	0.483 0.644	0.484 0.647	0.484 0.650	0.485 0.653	0.486 0.656	0.486 0.658	0.487 0.661	0.487 0.664

Table 30. Iron and Steel Industries Energy Consumption

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Value of Shipments (billion 1996 dollars)	79.14	79.33	80.07	81.06	81.65	82.32	81.97	82.51	82.93	83.21	83.36	1.1%
Energy Consumption (trillion Btu)												
Distillate Oil	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0.0%
Residual Oil	19.5	18.7	18.1	18.0	18.0	17.8	17.4	16.9	16.3	15.9	15.6	-2.3%
Other Petroleum 2/	5.5	5.4	5.3	5.1	5.0	4.9	4.8	4.7	4.6	4.5	4.3	-2.3%
Petroleum Subtotal	29.0	28.0	27.3	27.1	27.0	26.7	26.2	25.6	24.9	24.4	23.9	-2.0%
Natural Gas	353.1	351.7	351.9	352.4	351.6	351.3	348.0	347.8	347.4	346.4	345.0	-0.2%
Metallurgical Coal	454.8	442.0	429.5	417.4	405.7	394.2	383.1	372.3	361.8	351.6	341.7	-2.8%
Net Coke Imports	31.8	31.1	31.2	31.6	31.5	31.5	30.2	30.2	30.0	29.9	29.6	-0.2%
Steam Coal	52.3	51.5	50.8	50.2	49.5	48.8	48.1	47.5	46.8	46.2	45.6	-1.4%
Coal Subtotal	539.0	524.7	511.6	499.2	486.6	474.5	461.4	449.9	438.7	427.7	416.9	-2.5%
Purchased Electricity	173.5	174.3	176.6	179.8	181.9	184.3	184.0	185.9	187.5	188.8	189.9	1.7%
Total	1094.7	1078.7	1067.4	1058.5	1047.1	1036.9	1019.6	1009.1	998.5	987.3	975.6	-1.2%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)												
Distillate Oil	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-1.1%
Residual Oil	0.25	0.24	0.23	0.22	0.22	0.22	0.21	0.21	0.20	0.19	0.19	-3.4%
Other Petroleum 2/	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	-3.4%
Petroleum Subtotal	0.37	0.35	0.34	0.33	0.33	0.32	0.32	0.31	0.30	0.29	0.29	-3.1%
Natural Gas	4.46	4.43	4.39	4.35	4.31	4.27	4.25	4.21	4.19	4.16	4.14	-1.3%
Metallurgical Coal	5.75	5.57	5.36	5.15	4.97	4.79	4.67	4.51	4.36	4.23	4.10	-3.9%
Net Coke Imports	0.40	0.39	0.39	0.39	0.39	0.38	0.37	0.37	0.36	0.36	0.35	-1.3%
Steam Coal	0.66	0.65	0.63	0.62	0.61	0.59	0.59	0.58	0.56	0.56	0.55	-2.5%
Coal Subtotal	6.81	6.61	6.39	6.16	5.96	5.76	5.63	5.45	5.29	5.14	5.00	-3.6%
Purchased Electricity	2.19	2.20	2.21	2.22	2.23	2.24	2.24	2.25	2.26	2.27	2.28	0.6%
Total	13.83	13.60	13.33	13.06	12.83	12.59	12.44	12.23	12.04	11.86	11.70	-2.3%
Carbon Dioxide Emissions 3/ (million metric tons)	103.1	101.6	100.7	100.1	99.3	98.5	97.1	96.4	95.8	95.0	94.2	-0.9%
Combined Heat and Power 4/												
Generating Capacity (gigawatts)												
Petroleum	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	N/A
Natural Gas	0.31	0.31	0.32	0.33	0.33	0.34	0.34	0.35	0.35	0.36	0.36	1.7%
Coal	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	N/A
Other 5/	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	N/A
Total	1.65	1.66	1.66	1.67	1.68	1.68	1.69	1.69	1.70	1.70	1.71	0.3%
Net Generation (billion kilowatthours)												
Petroleum	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	N/A
Natural Gas	1.11	1.15	1.19	1.24	1.28	1.33	1.36	1.40	1.44	1.48	1.51	3.7%
Coal	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	N/A
Other 5/	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	N/A
Total	6.48	6.52	6.57	6.61	6.66	6.70	6.74	6.78	6.81	6.85	6.88	0.6%
Disposition												
Sales to the Grid	0.79	0.79	0.80	0.80	0.81	0.81	0.81	0.82	0.82	0.82	0.83	0.5%
Generation for Own Use	5.69	5.73	5.77	5.81	5.85	5.89	5.93	5.96	5.99	6.03	6.06	0.6%
Thermal Output (trillion Btu)	33.2	33.3	33.4	33.5	33.6	33.6	33.7	33.8	33.9	34.0	34.0	0.2%
Energy Input (trillion Btu)												
Petroleum	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	N/A
Natural Gas	17.6	17.9	18.2	18.6	18.9	19.2	19.5	19.8	20.1	20.4	20.7	1.7%
Coal	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	N/A
Other 5/	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7	N/A
Total	113.3	113.7	114.0	114.3	114.7	115.0	115.3	115.6	115.9	116.2	116.4	0.3%
Efficiency 6/	0.488	0.489	0.489	0.490	0.491	0.491	0.492	0.492	0.493	0.494	0.494	0.1%
Power-to-Heat Ratio 7/	0.666	0.669	0.672	0.674	0.677	0.679	0.682	0.684	0.686	0.688	0.690	0.4%

Table 30. Iron and Steel Industries Energy Consumption

1/ Fuel consumption includes consumption for combined heat and power.

2/ Includes petroleum coke, lubricants, and miscellaneous petroleum products.

3/ Includes emissions attributable to the fuels consumed to generate the purchased electricity.

4/ Includes industrial-owned generators not classified as combined heat and power, such as standby generators.

5/ Includes wood and other biomass, waste heat, municipal solid waste, and renewable sources.

6/ Efficiency is calculated as the sum of the thermal output and electrical generation in Btus divided by the energy input.

7/ Power-to-Heat is calculated as the electrical generation in Btus divided by the thermal output.

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Source: 2002 and 2003 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report," 2004 (preliminary). Other 2002 and 2003 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA, AEO2005 National Energy Modeling System run aeo2005.d102004a.

Table 31. Aluminum Industry Energy Consumption

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of Shipments (billion 1996 dollars)	28.14	28.83	28.74	28.10	27.88	28.81	29.12	28.79	28.40	28.89	29.24	29.59	30.08
Energy Consumption (trillion Btu)													
Distillate Oil	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Liquefied Petroleum Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Coke	5.3	5.2	5.1	5.0	4.9	4.8	4.7	4.7	4.6	4.5	4.4	4.4	4.3
Other Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Subtotal	5.7	5.6	5.5	5.4	5.3	5.2	5.1	5.0	4.9	4.9	4.8	4.7	4.6
Natural Gas	148.6	151.8	149.1	144.4	141.2	141.7	140.4	137.3	134.2	133.5	132.4	131.2	130.2
Steam Coal	29.6	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0
Purchased Electricity	215.1	212.6	209.5	205.1	201.5	199.7	197.2	193.8	190.5	188.4	186.2	183.9	181.8
Total	399.0	401.1	395.1	385.9	379.1	377.7	373.8	367.2	360.7	357.8	354.4	350.9	347.7
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)													
Distillate Oil	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Liquefied Petroleum Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Coke	0.19	0.18	0.18	0.18	0.18	0.17	0.16	0.16	0.16	0.16	0.15	0.15	0.14
Other Petroleum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Subtotal	0.20	0.19	0.19	0.19	0.19	0.18	0.18	0.17	0.17	0.17	0.16	0.16	0.15
Natural Gas	5.28	5.27	5.19	5.14	5.07	4.92	4.82	4.77	4.72	4.62	4.53	4.43	4.33
Steam Coal	1.05	1.08	1.08	1.10	1.11	1.08	1.07	1.08	1.09	1.07	1.06	1.05	1.03
Purchased Electricity	7.64	7.38	7.29	7.30	7.23	6.93	6.77	6.73	6.71	6.52	6.37	6.22	6.04
Total	14.18	13.91	13.75	13.73	13.60	13.11	12.83	12.75	12.70	12.38	12.12	11.86	11.56
Carbon Dioxide Emissions 2/ (million metric tons)	51.9	52.1	50.9	49.7	48.9	48.7	48.1	47.1	46.2	45.6	44.9	44.3	43.8
Combined Heat and Power 4/ Generating Capacity (gigawatts)													
Petroleum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Coal	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Other 5/	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Total	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Net Generation (billion kilowatthours)													
Petroleum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.17	0.18	0.18	0.18	0.19	0.19	0.20	0.20	0.21	0.22	0.22	0.23
Coal	2.56	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73
Other 5/	1.91	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03
Total	4.48	5.93	5.93	5.93	5.94	5.94	5.95	5.95	5.96	5.96	5.97	5.98	5.98
Disposition													
Sales to the Grid	1.72	3.03	3.03	3.03	3.03	3.03	3.03	3.04	3.04	3.04	3.04	3.04	3.05
Generation for Own Use	2.76	2.90	2.90	2.90	2.91	2.91	2.91	2.92	2.92	2.92	2.93	2.93	2.94
Thermal Output (trillion Btu)	0.0	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.4
Energy Input (trillion Btu)													
Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	0.0	5.2	5.2	5.3	5.3	5.3	5.4	5.4	5.5	5.5	5.6	5.6	5.7
Coal	29.6	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0
Other 5/	19.4	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total	49.0	66.9	66.9	66.9	67.0	67.0	67.0	67.1	67.2	67.2	67.2	67.3	67.3
Efficiency 6/	0.312	0.351	0.351	0.351	0.351	0.351	0.352	0.352	0.352	0.353	0.353	0.353	0.353
Power-to-Heat Ratio 7/	0.000	6.233	6.224	6.217	6.205	6.189	6.164	6.138	6.111	6.089	6.067	6.046	6.024

Table 31. Aluminum Industry Energy Consumption

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
Value of Shipments (billion 1996 dollars)	30.12	30.00	30.28	30.81	30.82	30.53	29.78	29.60	29.36	29.01	28.55	0.0%
Energy Consumption (trillion Btu)												
Distillate Oil	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0%
Liquefied Petroleum Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Petroleum Coke	4.2	4.2	4.1	4.0	4.0	3.9	3.9	3.8	3.8	3.7	3.6	-1.6%
Other Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Petroleum Subtotal	4.6	4.5	4.4	4.4	4.3	4.3	4.2	4.1	4.1	4.0	4.0	-1.5%
Natural Gas	128.6	127.6	127.6	128.1	127.4	126.0	123.4	122.4	121.2	119.6	117.7	-1.1%
Steam Coal	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	N/A
Purchased Electricity	179.1	176.2	173.9	171.9	169.3	166.6	163.2	160.7	158.4	156.0	153.5	-1.5%
Total	343.3	339.4	336.9	335.4	332.1	327.9	321.8	318.3	314.7	310.7	306.3	-1.2%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)												
Distillate Oil	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-0.9%
Liquefied Petroleum Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Petroleum Coke	0.14	0.14	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	-1.5%
Other Petroleum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Petroleum Subtotal	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	-1.5%
Natural Gas	4.27	4.25	4.21	4.16	4.13	4.13	4.14	4.14	4.13	4.12	4.12	-1.1%
Steam Coal	1.03	1.03	1.03	1.01	1.01	1.02	1.04	1.05	1.06	1.07	1.09	0.0%
Purchased Electricity	5.94	5.87	5.74	5.58	5.49	5.46	5.48	5.43	5.39	5.38	5.38	-1.4%
Total	11.40	11.31	11.13	10.89	10.78	10.74	10.81	10.75	10.72	10.71	10.73	-1.2%
Carbon Dioxide Emissions 2/ (million metric tons)	43.0	42.3	41.8	41.4	40.9	40.3	39.6	39.2	38.8	38.4	37.9	-1.4%
Combined Heat and Power 4/ Generating Capacity (gigawatts)												
Petroleum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Natural Gas	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	N/A
Coal	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	N/A
Other 5/	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	N/A
Total	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.1%
Net Generation (billion kilowatthours)												
Petroleum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Natural Gas	0.23	0.24	0.25	0.25	0.26	0.27	0.28	0.28	0.29	0.30	0.31	2.6%
Coal	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	N/A
Other 5/	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	N/A
Total	5.99	5.99	6.00	6.01	6.01	6.02	6.03	6.04	6.05	6.06	6.06	0.1%
Disposition												
Sales to the Grid	3.05	3.05	3.05	3.05	3.06	3.06	3.06	3.06	3.07	3.07	3.07	0.1%
Generation for Own Use	2.94	2.94	2.95	2.95	2.96	2.96	2.97	2.97	2.98	2.99	2.99	0.1%
Thermal Output (trillion Btu)	3.4	3.4	3.4	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	0.5%
Energy Input (trillion Btu)												
Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Natural Gas	5.7	5.8	5.8	5.9	6.0	6.0	6.1	6.2	6.3	6.3	6.4	0.9%
Coal	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	N/A
Other 5/	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	N/A
Total	67.4	67.4	67.5	67.6	67.6	67.7	67.8	67.8	67.9	68.0	68.1	0.1%
Efficiency 6/	0.354	0.354	0.354	0.355	0.355	0.355	0.356	0.356	0.356	0.357	0.357	0.1%
Power-to-Heat Ratio 7/	6.002	5.976	5.949	5.920	5.890	5.860	5.830	5.800	5.769	5.738	5.708	-0.4%

Table 31. Aluminum Industry Energy Consumption

1/ Fuel consumption includes consumption for combined heat and power.

2/ Includes emissions attributable to the fuels consumed to generate the purchased electricity.

4/ Includes industrial-owned generators not classified as combined heat and power, such as standby generators.

5/ Includes wood and other biomass, waste heat, municipal solid waste, and renewable sources.

6/ Efficiency is calculated as the sum of the thermal output and electrical generation in Btus divided by the energy input.

7/ Power-to-Heat is calculated as the electrical generation in Btus divided by the thermal output.

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Source: 2002 and 2003 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report," 2004 (preliminary). Other 2002 and 2003 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA, AEO2005 National Energy Modeling System run aeo2005.d102004a.

**Table 32. Other Industrial Sector Energy Consumption
(Trillion Btu)**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Agriculture													
Distillate Oil	459.8	455.0	441.6	445.9	451.4	453.3	459.2	460.5	460.1	461.8	462.3	464.9	469.2
Liquefied Petroleum Gas	204.7	202.1	196.4	198.6	201.3	202.8	206.5	207.9	208.2	209.6	210.4	212.1	214.7
Motor Gasoline	101.2	99.9	97.0	98.0	99.4	100.1	101.9	102.6	102.7	103.4	103.8	104.6	105.9
Other Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Subtotal	765.7	757.0	735.0	742.5	752.1	756.3	767.6	771.0	771.1	774.7	776.5	781.6	789.9
Natural Gas	221.7	220.7	215.0	217.9	221.4	223.2	227.2	228.8	229.8	231.8	233.2	235.8	239.0
Steam Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	23.1	23.2	22.7	23.2	23.7	24.0	24.6	24.9	25.2	25.5	25.8	26.3	26.8
Purchased Electricity	176.4	174.5	169.7	171.6	174.1	175.7	179.1	180.6	181.0	182.3	183.3	184.9	187.4
Total	1186.9	1175.4	1142.4	1155.2	1171.3	1179.2	1198.6	1205.3	1207.0	1214.4	1218.8	1228.6	1243.1
Value of Shipments (billion 1996 dollars)	283.33	279.31	272.12	275.66	280.49	284.21	291.52	295.24	296.69	299.95	302.46	306.21	311.77
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)	4.19	4.21	4.20	4.19	4.18	4.15	4.11	4.08	4.07	4.05	4.03	4.01	3.99
Carbon Dioxide Emissions 1/ (million metric tons)	98.6	97.9	94.8	95.7	97.1	97.9	99.5	99.9	99.9	100.3	100.6	101.3	102.3
Construction													
Distillate Oil	275.5	279.9	286.0	281.7	271.0	271.6	273.2	275.0	276.8	281.1	284.2	287.4	292.8
Liquefied Petroleum Gas	160.5	161.9	165.7	163.0	156.5	156.7	157.5	158.7	159.8	162.4	164.4	166.3	169.4
Motor Gasoline	76.1	77.3	79.4	78.3	75.5	75.8	76.4	77.2	78.0	79.5	80.7	82.0	83.8
Asphalt and Road Oil	1235.7	1242.9	1265.4	1237.2	1181.9	1176.8	1176.7	1180.0	1182.3	1195.9	1204.6	1213.9	1231.4
Petroleum Subtotal	1747.7	1762.0	1796.5	1760.2	1685.0	1681.0	1683.8	1691.0	1696.9	1718.9	1733.9	1749.6	1777.4
Natural Gas	267.3	271.2	281.1	276.7	266.0	266.7	268.7	271.5	273.7	278.4	281.9	285.6	291.2
Purchased Electricity	110.7	113.1	116.2	114.9	111.0	111.6	112.7	114.1	115.4	117.9	119.9	122.0	124.9
Total	2125.7	2146.2	2193.7	2151.8	2062.0	2059.2	2065.2	2076.6	2086.0	2115.3	2135.8	2157.2	2193.6
Value of Shipments (billion 1996 dollars)	791.44	810.61	839.24	831.71	804.66	811.00	822.08	836.22	849.64	872.67	891.62	911.17	938.20
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)	2.69	2.65	2.61	2.59	2.56	2.54	2.51	2.48	2.46	2.42	2.40	2.37	2.34
Carbon Dioxide Emissions 1/ (million metric tons)	70.6	71.9	73.6	72.5	69.8	70.2	70.7	71.3	71.8	73.0	73.9	74.8	76.3
Mining													
Residual Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Distillate Oil	309.3	301.5	307.4	316.9	320.6	324.1	325.3	327.0	324.8	323.6	322.5	320.6	320.2
Motor Gasoline	23.8	23.6	24.0	24.5	24.8	25.0	25.2	25.5	25.3	25.3	25.3	25.1	25.0
Other Petroleum	40.8	40.6	41.1	41.8	42.1	42.4	42.8	43.4	42.9	43.0	43.0	42.4	42.2
Petroleum Subtotal	374.0	365.7	372.5	383.2	387.5	391.5	393.4	396.0	393.0	392.0	390.9	388.2	387.4
Natural Gas	753.4	734.4	767.0	785.4	797.9	806.2	813.8	824.0	819.5	822.1	823.3	818.7	818.0
Lease and Plant Fuel	1144.59	1151.43	1148.91	1163.03	1153.08	1162.57	1181.40	1204.08	1202.99	1230.10	1245.37	1243.30	1249.34
Steam Coal	30.7	29.9	31.0	32.5	33.4	34.0	34.2	34.6	34.6	34.6	34.7	34.7	34.9
Renewables	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.6	1.6	1.5	1.5
Purchased Electricity	222.1	218.5	223.6	230.8	234.7	237.7	239.7	242.3	241.0	241.2	241.3	240.1	240.0
Total	2526.3	2501.4	2544.5	2596.3	2608.1	2633.5	2664.0	2702.6	2692.7	2721.5	2737.0	2726.6	2731.2
Value of Shipments (billion 1996 dollars)	165.49	164.05	167.49	172.76	175.58	178.22	180.85	183.86	182.75	183.79	184.53	183.55	183.66
Energy Consumption per Unit of Output													

**Table 32. Other Industrial Sector Energy Consumption
(Trillion Btu)**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
(thousand Btu per 1996 dollar shipments)	15.27	15.25	15.19	15.03	14.85	14.78	14.73	14.70	14.73	14.81	14.83	14.85	14.87
Carbon Dioxide Emissions 1/ (million metric tons)	112.0	110.1	112.9	116.0	117.8	119.4	120.2	121.3	120.4	120.3	120.1	119.3	119.1
Metal-Based Durables Consumption													
Residual Oil	4.6	5.9	6.6	6.5	6.2	6.2	6.1	6.3	6.4	6.4	6.6	6.7	7.0
Distillate Oil	20.9	24.0	25.1	26.6	26.1	26.2	25.7	27.0	27.0	26.5	27.2	28.0	29.4
Liquefied Petroleum Gas	13.0	12.7	12.4	13.5	14.8	15.0	15.0	15.6	15.8	16.1	16.4	16.7	17.5
Petroleum Subtotal	38.5	42.6	44.1	46.7	47.1	47.4	46.8	48.9	49.1	49.0	50.2	51.5	53.8
Natural Gas	609.1	583.9	616.0	640.5	651.9	673.2	698.3	726.5	746.2	756.7	768.1	776.6	791.7
Steam Coal	54.1	53.6	53.8	53.9	53.9	53.9	54.0	54.1	54.1	54.1	54.1	54.1	54.1
Renewables	40.9	42.5	45.5	48.1	49.2	51.2	53.4	56.0	58.0	59.5	61.1	62.7	64.9
Purchased Electricity	613.9	613.3	649.3	679.3	690.1	710.8	734.1	765.0	786.1	800.4	817.0	831.1	853.2
Total	1356.6	1335.9	1408.7	1468.5	1492.1	1536.6	1586.5	1650.4	1693.5	1719.6	1750.6	1776.0	1817.8
Value of Shipments (billion 1996 dollars)	1684.26	1697.69	1821.99	1925.41	1970.57	2051.35	2137.32	2244.69	2322.20	2380.00	2446.36	2507.12	2595.37
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)	0.81	0.79	0.77	0.76	0.76	0.75	0.74	0.74	0.73	0.72	0.72	0.71	0.70
Carbon Dioxide Emissions 1/ (million metric tons)	156.9	156.8	164.1	171.1	173.7	179.3	184.8	191.8	196.1	198.7	201.8	204.5	209.0
Other Manufacturing Consumption													
Residual Oil	36.2	45.4	51.1	48.8	45.2	45.3	44.7	45.7	45.6	45.8	46.5	47.5	49.2
Distillate Oil	49.4	58.6	60.1	61.9	59.5	58.7	56.6	57.6	56.4	55.2	56.2	57.6	59.9
Liquefied Petroleum Gas	30.3	30.4	27.6	31.1	35.0	34.2	32.9	33.5	33.2	33.8	34.6	35.5	37.4
Petroleum Subtotal	115.9	134.5	138.8	141.8	139.7	138.2	134.2	136.8	135.2	134.8	137.3	140.6	146.5
Natural Gas	1182.5	1161.1	1196.8	1213.5	1221.6	1241.7	1274.9	1298.1	1316.9	1337.2	1357.8	1376.6	1400.1
Steam Coal	223.7	225.7	226.9	227.3	226.9	227.1	227.6	228.0	228.1	228.4	228.7	229.0	229.5
Renewables	258.0	264.3	276.0	282.7	285.5	291.4	299.4	307.1	313.0	319.9	327.5	335.0	344.2
Purchased Electricity	826.1	839.0	868.0	883.6	886.9	897.7	914.9	931.6	942.7	957.1	973.1	987.8	1007.1
Total	2606.3	2624.6	2706.5	2749.0	2760.7	2796.1	2851.0	2901.7	2935.9	2977.4	3024.5	3068.9	3127.5
Value of Shipments (billion 1996 dollars)	1084.86	1105.21	1152.91	1180.98	1190.66	1213.06	1243.79	1272.93	1294.47	1320.24	1348.73	1376.29	1410.95
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)	2.40	2.37	2.35	2.33	2.32	2.30	2.29	2.28	2.27	2.26	2.24	2.23	2.22
Carbon Dioxide Emissions 1/ (million metric tons)	249.1	253.5	259.5	263.2	264.0	267.7	272.2	276.2	278.3	281.3	284.8	288.2	292.8
Agriculture, Mining, Construction, Metal Based Durables, and Other Manufacturing													
Combined Heat and Power 2/ Generating Capacity (gigawatts)													
Petroleum	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Natural Gas	0.61	0.61	0.66	0.71	0.76	0.81	0.88	0.95	1.04	1.12	1.21	1.31	1.44
Coal	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Other 3/	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Total	1.76	1.76	1.82	1.86	1.91	1.97	2.03	2.11	2.19	2.27	2.36	2.47	2.59
Net Generation (billion kilowatthours)													
Petroleum	0.24	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Natural Gas	1.23	0.99	1.38	1.71	2.06	2.44	2.92	3.47	4.06	4.64	5.29	6.04	6.92
Coal	1.72	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68
Other 3/	1.94	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17
Total	5.12	5.19	5.57	5.90	6.25	6.63	7.11	7.66	8.25	8.83	9.48	10.24	11.11
Disposition													
Sales to the Grid	1.53	1.61	1.80	1.97	2.15	2.34	2.58	2.85	3.15	3.44	3.77	4.15	4.59
Generation for Own Use	3.59	3.58	3.77	3.93	4.11	4.29	4.53	4.80	5.10	5.39	5.71	6.09	6.52
Thermal Output (trillion Btu)	48.8	47.4	48.7	49.7	50.8	51.9	53.4	55.2	57.0	58.8	60.9	63.2	65.9
Energy Input (trillion Btu)													
Petroleum	4.7	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
Natural Gas	19.7	16.6	20.3	23.4	26.7	30.1	34.6	39.7	45.2	50.5	56.6	63.5	71.5
Coal	48.0	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9
Other 3/	41.7	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6
Total	114.2	117.2	120.9	124.0	127.3	130.7	135.2	140.3	145.8	151.2	157.2	164.1	172.1
Efficiency 4/	0.581	0.555	0.560	0.563	0.567	0.570	0.575	0.579	0.584	0.589	0.593	0.598	0.603
Power-to-Heat Ratio 5/	0.358	0.373	0.391	0.405	0.420	0.435	0.454	0.474	0.494	0.512	0.532	0.553	0.575

**Table 32. Other Industrial Sector Energy Consumption
(Trillion Btu)**

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003- 2025
Agriculture												
Distillate Oil	475.3	478.7	482.9	487.5	491.1	494.2	497.0	500.9	505.1	508.7	512.2	0.5%
Liquefied Petroleum Gas	217.7	219.4	221.8	224.3	226.3	228.2	229.8	232.0	234.3	236.5	238.6	0.8%
Motor Gasoline	107.4	108.0	109.0	110.2	111.2	112.1	112.8	113.9	115.0	116.1	117.1	0.7%
Other Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Petroleum Subtotal	800.3	806.2	813.6	822.0	828.6	834.4	839.6	846.9	854.4	861.2	867.9	0.6%
Natural Gas	242.5	244.8	247.7	250.8	253.7	256.2	258.7	261.7	264.9	267.6	270.2	0.9%
Steam Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A
Renewables	27.3	27.7	28.1	28.5	28.9	29.3	29.7	30.1	30.5	30.9	31.4	1.4%
Purchased Electricity	190.2	191.7	193.4	195.4	197.0	198.4	199.7	201.5	203.4	205.2	207.0	0.8%
Total	1260.3	1270.3	1282.9	1296.8	1308.2	1318.4	1327.6	1340.2	1353.3	1365.0	1376.4	0.7%
Value of Shipments (billion 1996 dollars)	318.32	322.12	326.51	331.23	335.05	338.59	341.62	345.82	349.99	354.01	357.99	1.1%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)	3.96	3.94	3.93	3.92	3.90	3.89	3.89	3.88	3.87	3.86	3.84	-0.4%
Carbon Dioxide Emissions 1/ (million metric tons)	103.6	104.2	105.2	106.2	107.1	107.9	108.7	109.8	111.0	112.1	113.1	0.7%
Construction												
Distillate Oil	297.2	298.8	302.7	307.2	313.3	319.5	325.2	330.4	336.0	341.3	346.7	1.0%
Liquefied Petroleum Gas	171.3	171.8	173.7	176.0	179.3	182.7	185.8	188.6	191.7	194.5	197.4	0.9%
Motor Gasoline	85.0	85.4	86.5	87.9	89.9	91.9	93.7	95.5	97.4	99.1	101.0	1.2%
Asphalt and Road Oil	1240.7	1244.0	1261.3	1281.2	1308.6	1337.0	1363.5	1388.6	1415.5	1441.0	1467.2	0.8%
Petroleum Subtotal	1794.3	1800.0	1824.2	1852.3	1891.1	1931.0	1968.2	2003.1	2040.6	2076.0	2112.2	0.8%
Natural Gas	295.3	296.5	300.2	304.5	310.7	317.1	322.9	328.4	334.3	339.6	345.0	1.1%
Purchased Electricity	127.0	127.7	129.6	131.6	134.6	137.6	140.4	143.1	145.9	148.7	151.5	1.3%
Total	2216.5	2224.2	2253.9	2288.5	2336.3	2385.7	2431.6	2474.6	2520.9	2564.3	2608.8	0.9%
Value of Shipments (billion 1996 dollars)	958.07	966.91	984.73	1004.97	1032.10	1060.03	1086.14	1110.72	1136.98	1161.90	1187.42	1.8%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)	2.31	2.30	2.29	2.28	2.26	2.25	2.24	2.23	2.22	2.21	2.20	-0.8%
Carbon Dioxide Emissions 1/ (million metric tons)	77.3	77.6	78.5	79.7	81.3	83.0	84.6	86.1	87.8	89.4	91.0	1.1%
Mining												
Residual Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1%
Distillate Oil	319.9	321.2	325.1	328.6	329.8	331.0	331.4	332.0	334.1	336.9	338.5	0.5%
Motor Gasoline	24.7	24.6	25.0	25.2	25.3	25.2	25.0	24.9	24.8	25.0	25.1	0.3%
Other Petroleum	41.3	40.9	41.6	42.0	41.9	41.6	41.0	40.4	40.0	40.3	40.2	0.0%
Petroleum Subtotal	385.9	386.8	391.7	395.9	397.0	397.8	397.4	397.3	399.0	402.2	403.7	0.5%
Natural Gas	812.1	813.7	827.6	838.0	840.6	840.9	838.6	835.9	836.2	842.1	843.6	0.6%
Lease and Plant Fuel	1229.52	1250.46	1307.51	1331.19	1332.88	1324.57	1316.96	1305.36	1295.80	1303.91	1305.31	0.6%
Steam Coal	35.1	35.4	35.9	36.4	36.7	37.0	37.2	37.4	37.8	38.0	38.3	1.1%
Renewables	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	0.0%
Purchased Electricity	238.6	238.9	242.2	244.8	245.4	245.7	245.3	244.9	245.7	247.8	248.8	0.6%
Total	2702.7	2726.7	2806.4	2847.8	2854.1	2847.5	2837.0	2822.3	2815.9	2835.5	2841.2	0.6%
Value of Shipments (billion 1996 dollars)	181.98	181.95	185.44	188.10	188.60	188.66	187.90	187.09	187.31	189.31	190.16	0.7%
Energy Consumption per Unit of Output												

**Table 32. Other Industrial Sector Energy Consumption
(Trillion Btu)**

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2003-2025
(thousand Btu per 1996 dollar shipments)	14.85	14.99	15.13	15.14	15.13	15.09	15.10	15.09	15.03	14.98	14.94	-0.1%
Carbon Dioxide Emissions 1/ (million metric tons)	118.2	118.2	119.9	121.2	121.5	121.7	121.6	121.5	122.0	123.1	123.7	0.5%
Metal-Based Durables Consumption												
Residual Oil	7.2	7.1	7.3	7.6	7.8	8.0	8.2	8.3	8.3	8.5	8.6	1.7%
Distillate Oil	30.4	30.5	31.3	32.7	34.2	35.6	36.4	37.1	38.0	38.8	39.3	2.3%
Liquefied Petroleum Gas	17.8	17.8	18.2	18.9	19.6	20.1	20.5	20.8	21.1	21.5	22.0	2.5%
Petroleum Subtotal	55.3	55.4	56.8	59.2	61.6	63.7	65.1	66.2	67.4	68.8	69.9	2.3%
Natural Gas	801.4	811.6	830.2	852.6	873.0	891.0	907.7	926.5	948.4	968.2	986.6	2.4%
Steam Coal	54.1	54.1	54.1	54.1	54.1	54.1	54.0	54.0	54.0	54.0	53.9	0.0%
Renewables	66.5	67.8	69.9	72.6	75.1	77.4	79.5	81.8	84.3	86.8	89.3	3.4%
Purchased Electricity	867.9	878.6	899.4	926.2	949.4	971.1	990.7	1011.9	1035.9	1059.2	1080.9	2.6%
Total	1845.2	1867.5	1910.4	1964.7	2013.2	2057.1	2096.9	2140.4	2190.0	2237.0	2280.5	2.5%
Value of Shipments (billion 1996 dollars)	2656.43	2707.12	2791.94	2896.53	2995.70	3084.90	3167.20	3256.45	3356.29	3454.86	3549.34	3.4%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)	0.69	0.69	0.68	0.68	0.67	0.67	0.66	0.66	0.65	0.65	0.64	-0.9%
Carbon Dioxide Emissions 1/ (million metric tons)	211.5	213.4	218.1	224.0	229.4	234.5	239.4	244.9	251.4	257.5	263.2	2.4%
Other Manufacturing Consumption												
Residual Oil	50.5	49.9	50.7	52.3	54.1	55.2	56.1	56.3	56.2	56.8	57.4	1.1%
Distillate Oil	61.6	61.4	62.2	64.1	66.3	68.4	69.6	70.4	71.4	72.4	72.7	1.0%
Liquefied Petroleum Gas	38.2	37.9	38.7	40.2	41.6	42.6	43.5	44.0	43.7	44.4	45.1	1.8%
Petroleum Subtotal	150.3	149.2	151.6	156.6	162.1	166.2	169.2	170.6	171.3	173.7	175.2	1.2%
Natural Gas	1420.4	1439.0	1468.6	1498.5	1529.6	1560.2	1590.2	1622.4	1658.6	1690.5	1721.5	1.8%
Steam Coal	229.7	229.5	229.7	230.1	230.4	230.6	230.8	231.0	231.2	231.4	231.5	0.1%
Renewables	351.6	356.5	364.4	373.0	381.9	390.4	398.5	406.6	415.4	423.9	432.1	2.3%
Purchased Electricity	1020.9	1026.5	1040.8	1057.4	1072.6	1087.8	1101.5	1115.2	1130.4	1144.5	1157.5	1.5%
Total	3172.9	3200.7	3255.0	3315.6	3376.6	3435.2	3490.2	3545.8	3607.0	3663.9	3717.8	1.6%
Value of Shipments (billion 1996 dollars)	1437.64	1453.62	1482.35	1513.92	1546.44	1576.62	1604.99	1633.64	1664.68	1693.99	1722.15	2.0%
Energy Consumption per Unit of Output (thousand Btu per 1996 dollar shipments)	2.21	2.20	2.20	2.19	2.18	2.18	2.17	2.17	2.17	2.16	2.16	-0.4%
Carbon Dioxide Emissions 1/ (million metric tons)	295.8	297.0	301.0	305.7	310.5	315.2	319.9	324.8	330.5	335.7	340.5	1.3%
Agriculture, Mining, Construction, Metal Based Durables, and Other Manufacturing												
Combined Heat and Power 2/ Generating Capacity (gigawatts)												
Petroleum	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	N/A
Natural Gas	1.57	1.72	1.89	2.08	2.29	2.51	2.74	2.98	3.22	3.47	3.74	8.6%
Coal	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	N/A
Other 3/	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	N/A
Total	2.72	2.87	3.05	3.24	3.44	3.67	3.90	4.13	4.37	4.63	4.89	4.7%
Net Generation (billion kilowatthours)												
Petroleum	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	N/A
Natural Gas	7.86	8.94	10.16	11.51	12.98	14.56	16.19	17.85	19.58	21.38	23.23	15.4%
Coal	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	N/A
Other 3/	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	N/A
Total	12.06	13.13	14.35	15.70	17.18	18.75	20.38	22.04	23.77	25.57	27.43	7.9%
Disposition												
Sales to the Grid	5.06	5.60	6.21	6.88	7.62	8.41	9.22	10.05	10.92	11.82	12.75	9.9%
Generation for Own Use	6.99	7.53	8.14	8.82	9.55	10.34	11.15	11.99	12.85	13.75	14.68	6.6%
Thermal Output (trillion Btu)	68.9	72.2	76.0	80.2	84.7	89.5	94.4	99.4	104.6	110.0	115.4	4.1%
Energy Input (trillion Btu)												
Petroleum	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	N/A
Natural Gas	80.2	90.0	101.1	113.3	126.6	140.8	155.3	170.1	185.4	201.3	217.6	12.4%
Coal	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9	48.9	N/A
Other 3/	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	45.6	N/A
Total	180.8	190.6	201.7	213.9	227.3	241.4	255.9	270.7	286.0	301.9	318.2	4.6%
Efficiency 4/	0.609	0.614	0.620	0.625	0.631	0.636	0.641	0.645	0.649	0.653	0.657	0.8%
Power-to-Heat Ratio 5/	0.597	0.620	0.644	0.668	0.692	0.715	0.736	0.756	0.775	0.793	0.811	3.6%

Table 32. Other Industrial Sector Energy Consumption (Trillion Btu)

- 1/ Includes emissions attributable to the fuels consumed to generate the purchased electricity.
 - 2/ Includes industrial-owned generators not classified as combined heat and power, such as standby generators.
 - 3/ Includes wood and other biomass, waste heat, municipal solid waste, and renewable sources.
 - 4/ Efficiency is calculated as the sum of the thermal output and electrical generation in Btus divided by the energy input.
 - 5/ Power-to-Heat is calculated as the electrical generation in Btus divided by the thermal output.
- Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Source: 2002 and 2003 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report," 2004 (preliminary). Other 2002 and 2003 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA, AEO2005 National Energy Modeling System run aeo2005.d102004a.