

Table 29. Cement Industry Energy Consumption

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Value of Shipments (billion 2000 dollars)	8.47	8.40	8.37	7.97	7.89	8.19	8.58	8.74	8.80	8.82	8.89	8.97	8.97
Energy Consumption (trillion Btu) 1/													
Residual Fuel Oil	1.2	1.1	1.1	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Distillate Fuel Oil	10.4	10.2	9.8	9.1	9.1	9.0	9.0	8.9	8.8	8.6	8.6	8.5	8.3
Petroleum Coke	60.7	59.6	58.9	55.6	54.5	56.2	58.1	58.7	58.6	58.3	58.2	58.3	57.9
Other Petroleum 2/	38.7	38.1	37.6	35.5	34.8	35.9	37.1	37.5	37.4	37.2	37.2	37.2	36.9
Petroleum Subtotal	111.0	109.0	107.5	101.3	99.4	102.1	105.3	106.2	105.9	105.2	105.1	105.1	104.2
Natural Gas	24.0	24.3	24.3	23.1	22.7	23.5	24.4	24.7	24.8	24.8	25.0	25.1	25.0
Steam Coal	258.3	254.3	251.9	238.6	234.2	241.5	249.7	252.3	252.2	251.2	251.3	251.8	250.3
Metallurgical Coal	9.0	8.9	8.8	8.4	8.2	8.5	8.7	8.8	8.8	8.8	8.8	8.8	8.8
Coal Subtotal	267.3	263.2	260.7	247.0	242.4	249.9	258.5	261.2	261.1	260.0	260.1	260.6	259.1
Purchased Electricity	48.9	48.5	48.2	45.5	44.8	46.5	48.6	49.4	49.6	49.6	49.9	50.2	50.1
Total	451.2	445.0	440.6	416.9	409.3	422.1	436.7	441.5	441.4	439.7	440.0	440.9	438.4
Energy Consumption per Unit of Output (thousand Btu per 2000 dollar shipments)													
Residual Fuel Oil	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12
Distillate Fuel Oil	1.23	1.21	1.17	1.14	1.15	1.10	1.04	1.02	1.00	0.98	0.96	0.95	0.93
Petroleum Coke	7.16	7.10	7.04	6.98	6.91	6.86	6.78	6.71	6.66	6.60	6.55	6.50	6.45
Other Petroleum 2/	4.57	4.53	4.50	4.45	4.41	4.38	4.33	4.29	4.25	4.22	4.18	4.15	4.12
Petroleum Subtotal	13.10	12.98	12.84	12.70	12.60	12.47	12.28	12.14	12.03	11.92	11.82	11.72	11.62
Natural Gas	2.83	2.89	2.90	2.90	2.88	2.87	2.84	2.83	2.82	2.82	2.81	2.80	2.79
Steam Coal	30.50	30.29	30.10	29.94	29.69	29.47	29.12	28.86	28.66	28.47	28.27	28.08	27.92
Metallurgical Coal	1.06	1.06	1.05	1.05	1.04	1.03	1.02	1.01	1.00	1.00	0.99	0.98	0.98
Coal Subtotal	31.56	31.34	31.15	30.98	30.73	30.50	30.14	29.87	29.66	29.46	29.26	29.06	28.90
Purchased Electricity	5.78	5.78	5.76	5.71	5.68	5.67	5.65	5.63	5.63	5.61	5.60	5.58	
Total	53.27	53.00	52.65	52.30	51.89	51.52	50.92	50.50	50.15	49.83	49.50	49.18	48.89
Carbon Dioxide Emissions 3/ (million metric tons)	44.8	44.0	43.6	41.1	40.4	41.6	43.1	43.6	43.6	43.4	43.4	43.5	43.3
Combined Heat and Power 4/													
Generating Capacity (gigawatts)													
Petroleum	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Natural Gas	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Coal	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
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	0.12	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13
Net Generation (billion kilowatthours)													
Petroleum	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Natural Gas	0.29	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.35	0.36	0.37	0.38
Coal	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Other 5/	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
Total	0.52	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.59	0.60
Disposition													
Sales to the Grid	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06
Generation for Own Use	0.48	0.46	0.47	0.48	0.49	0.49	0.50	0.51	0.51	0.52	0.53	0.53	0.54

Table 29. Cement Industry Energy Consumption

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2006-2030
Value of Shipments (billion 2000 dollars)	8.94	8.94	8.96	8.99	8.98	8.96	8.94	8.92	8.89	8.88	8.84	8.80	8.74	0.2%
Energy Consumption (trillion Btu) 1/														
Residual Fuel Oil	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	-0.9%
Distillate Fuel Oil	8.2	8.2	8.1	8.1	8.0	8.0	7.9	7.8	7.7	7.6	7.5	7.5	7.4	-1.4%
Petroleum Coke	57.3	56.9	56.6	56.4	56.0	55.5	55.0	54.5	54.1	53.8	53.4	52.9	52.4	-0.5%
Other Petroleum 2/	36.6	36.3	36.1	36.0	35.7	35.4	35.0	34.7	34.5	34.3	34.0	33.7	33.4	-0.5%
Petroleum Subtotal	103.1	102.4	101.8	101.4	100.7	99.8	98.9	98.0	97.3	96.7	95.9	95.0	94.0	-0.6%
Natural Gas	24.9	24.9	24.9	25.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5	24.4	24.2	0.0%
Steam Coal	248.4	247.0	246.0	245.5	244.5	243.4	242.3	241.2	239.9	239.0	237.4	235.8	233.9	-0.3%
Metallurgical Coal	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.6	8.6	8.6	8.5	8.5	8.4	-0.2%
Coal Subtotal	257.1	255.7	254.7	254.2	253.2	252.1	250.9	249.8	248.5	247.5	246.0	244.3	242.3	-0.3%
Purchased Electricity	49.8	49.7	49.6	49.7	49.5	49.3	49.1	48.9	48.6	48.4	48.1	47.8	47.4	-0.1%
Total	434.9	432.6	431.0	430.3	428.5	426.2	423.8	421.5	419.1	417.3	414.4	411.5	407.9	-0.4%
Energy Consumption per Unit of Output (thousand Btu per 2000 dollar shipments)														
Residual Fuel Oil	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	-1.0%
Distillate Fuel Oil	0.92	0.91	0.90	0.90	0.89	0.89	0.88	0.88	0.87	0.86	0.85	0.85	0.84	-1.5%
Petroleum Coke	6.41	6.36	6.32	6.27	6.23	6.19	6.15	6.11	6.09	6.06	6.04	6.01	5.99	-0.7%
Other Petroleum 2/	4.09	4.06	4.03	4.00	3.97	3.95	3.92	3.89	3.88	3.86	3.85	3.83	3.82	-0.7%
Petroleum Subtotal	11.53	11.45	11.36	11.29	11.21	11.14	11.06	10.99	10.94	10.89	10.85	10.80	10.76	-0.8%
Natural Gas	2.79	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.77	2.77	2.77	2.77	2.77	-0.2%
Steam Coal	27.77	27.62	27.47	27.32	27.22	27.16	27.09	27.03	26.98	26.92	26.86	26.81	26.77	-0.5%
Metallurgical Coal	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	-0.4%
Coal Subtotal	28.74	28.59	28.44	28.29	28.19	28.12	28.06	28.00	27.94	27.88	27.83	27.78	27.73	-0.5%
Purchased Electricity	5.57	5.55	5.54	5.53	5.51	5.50	5.49	5.48	5.46	5.45	5.44	5.43	5.42	-0.3%
Total	48.63	48.37	48.12	47.88	47.69	47.54	47.39	47.24	47.12	47.00	46.89	46.78	46.68	-0.5%
Carbon Dioxide Emissions 3/ (million metric tons)	43.0	42.7	42.6	42.5	42.3	42.1	41.9	41.7	41.4	41.3	41.0	40.7	40.4	-0.4%
Combined Heat and Power 4/														
Generating Capacity (gigawatts)														
Petroleum	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.0%
Natural Gas	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	3.4%
Coal	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	0.0%
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	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.8%
Net Generation (billion kilowatthours)														
Petroleum	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.0%
Natural Gas	0.39	0.39	0.40	0.41	0.41	0.42	0.42	0.43	0.43	0.44	0.44	0.45	0.45	2.0%
Coal	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.0%
Other 5/	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	0.0%
Total	0.61	0.62	0.62	0.63	0.63	0.64	0.65	0.65	0.66	0.66	0.67	0.67	0.67	1.2%
Disposition														
Sales to the Grid	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	3.1%
Generation for Own Use	0.54	0.55	0.55	0.56	0.56	0.57	0.57	0.58	0.58	0.58	0.59	0.59	0.59	1.0%

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.

-- = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2006 are model results and may differ slightly from official EIA data reports.

Source: 2005 and 2006 nonutility and CHP summer capacity, net generation, fuel use, and thermal output: Energy Information Administration (EIA), Form EIA-860:

"Annual Electric Generator Report," (preliminary). Other 2005 and 2006 data based on: EIA, Manufacturing Energy Consumption Survey, 1998. Projections: EIA,

AEO2008 National Energy Modeling System run aeo2008.d030208f.