

CARMA Global Company Ranking by Change in Carbon Intensity (2004 to 2009)

Source: Carbon Monitoring for Action (CARMA) Database (www.carma.org)

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Rank	Company	Country	net MWh (2004)	net MWh (2009)	metric tons CO2 (2004)	metric tons CO2 (2009)	kg CO2 per MWh (2004)	kg CO2 per MWh (2009)	% change CO2 intensity (2004-2009)	URL
1	SHENHUA GROUP CORP LTD	China	18,839,000	99,112,000	20,685,000	90,819,000	1,100	916	-16.7	http://carma.org/company/detail/
2	ENEL SPA	Italy	226,370,000	193,910,000	148,230,000	107,290,000	655	553	-15.6	http://carma.org/company/detail/
3	STATE GRID CORP OF CHINA	China	120,170,000	129,140,000	102,320,000	93,441,000	851	724	-14.9	http://carma.org/company/detail/
4	TENNESSEE VALLEY AUTHORITY	United States	160,130,000	145,240,000	96,820,000	75,414,000	605	519	-14.2	http://carma.org/company/detail/
5	CHINA POWER INVESTMENT CORP	China	148,630,000	221,530,000	130,870,000	167,630,000	881	757	-14.1	http://carma.org/company/detail/
6	E.ON AG	Germany	251,210,000	238,770,000	145,520,000	120,280,000	579	504	-13.0	http://carma.org/company/detail/
7	CHINA DATANG CORP	China	233,610,000	366,850,000	238,850,000	325,680,000	1,020	888	-12.9	http://carma.org/company/detail/
8	KOREA SOUTHEAST POWER CO	South Korea	39,149,000	53,847,000	40,067,000	48,410,000	1,020	899	-11.9	http://carma.org/company/detail/
9	CHINA HUADIAN GROUP CORP	China	188,830,000	333,190,000	196,930,000	306,940,000	1,040	921	-11.4	http://carma.org/company/detail/
10	NTPC LTD	India	144,810,000	209,700,000	149,260,000	191,860,000	1,030	915	-11.2	http://carma.org/company/detail/
11	BERKSHIRE HATHAWAY	United States	58,132,000	70,552,000	58,177,000	63,678,000	1,000	903	-9.7	http://carma.org/company/detail/
12	MINISTRY OF ECONOMIC AFFAIRS	Taiwan	108,230,000	125,280,000	69,304,000	72,756,000	640	581	-9.2	http://carma.org/company/detail/
13	PPL CORP	United States	69,898,000	75,983,000	52,791,000	52,240,000	755	688	-8.9	http://carma.org/company/detail/
14	CHINA GUODIAN CORP	China	170,440,000	339,550,000	172,220,000	312,980,000	1,010	922	-8.7	http://carma.org/company/detail/
15	EDISON INTERNATIONAL	United States	70,010,000	76,638,000	49,801,000	50,801,000	711	663	-6.8	http://carma.org/company/detail/
16	CHINA RESOURCES POWER HOLDINGS	China	54,212,000	115,680,000	58,547,000	117,380,000	1,080	1,010	-6.5	http://carma.org/company/detail/
17	AES CORP	United States	120,360,000	135,890,000	82,165,000	86,983,000	683	640	-6.3	http://carma.org/company/detail/
18	CHINA HUANENG GROUP CORP	China	276,620,000	440,010,000	280,710,000	416,990,000	1,010	948	-6.1	http://carma.org/company/detail/
19	SOUTHERN CO	United States	193,890,000	187,340,000	159,160,000	145,140,000	821	775	-5.6	http://carma.org/company/detail/
20	GDF SUEZ SA	Belgium	165,100,000	173,110,000	58,327,000	57,732,000	353	334	-5.4	http://carma.org/company/detail/
21	FIRSTENERGY CORP	United States	108,820,000	91,732,000	77,826,000	62,789,000	715	684	-4.3	http://carma.org/company/detail/
22	EDF GROUP	France	645,880,000	610,050,000	65,659,000	59,552,000	102	97.6	-4.3	http://carma.org/company/detail/
23	AMEREN CORP	United States	68,270,000	68,851,000	62,334,000	60,388,000	913	877	-3.9	http://carma.org/company/detail/
24	COMISION FEDERAL DE ELEC	Mexico	141,320,000	134,470,000	80,723,000	73,945,000	571	550	-3.7	http://carma.org/company/detail/
25	GAZPROM	Russia	118,020,000	124,030,000	107,180,000	110,940,000	908	894	-1.5	http://carma.org/company/detail/
26	EGYPTIAN ELEC HOLDING CO	Egypt	78,345,000	118,920,000	39,722,000	59,632,000	507	501	-1.2	http://carma.org/company/detail/
27	PGE POLSKA GRUPA ENERGETYCZNA	Poland	47,537,000	54,132,000	50,967,000	57,292,000	1,070	1,060	-0.9	http://carma.org/company/detail/
28	XCEL ENERGY INC	United States	72,299,000	66,543,000	64,302,000	58,929,000	889	886	-0.3	http://carma.org/company/detail/
29	NRG ENERGY INC	United States	63,780,000	57,452,000	62,229,000	57,126,000	976	994	1.8	http://carma.org/company/detail/
30	RAO UES RUSSIA	Russia	136,740,000	157,150,000	67,282,000	78,862,000	492	502	2.0	http://carma.org/company/detail/
31	RWE AG	Germany	132,750,000	126,420,000	110,130,000	107,290,000	830	849	2.3	http://carma.org/company/detail/
32	DUKE ENERGY CORP	United States	151,330,000	119,760,000	95,666,000	77,832,000	632	650	2.9	http://carma.org/company/detail/
33	MAHARASHTRA STATE POWER GEN CO	India	49,912,000	46,637,000	49,962,000	48,365,000	1,000	1,040	4.0	http://carma.org/company/detail/
34	SAUDI ELECTRICITY CO	Saudi Arabia	109,260,000	122,880,000	92,446,000	108,590,000	846	884	4.5	http://carma.org/company/detail/
35	GENON ENERGY INC	United States	63,085,000	51,444,000	56,856,000	48,820,000	901	949	5.3	http://carma.org/company/detail/
36	AMERICAN ELECTRIC POWER CO INC	United States	158,500,000	136,790,000	140,260,000	128,620,000	885	940	6.2	http://carma.org/company/detail/
37	ESKOM	South Africa	220,160,000	227,770,000	195,890,000	215,910,000	890	948	6.5	http://carma.org/company/detail/
38	CHUBU ELECTRIC POWER CO	Japan	126,560,000	106,440,000	54,313,000	49,347,000	429	464	8.2	http://carma.org/company/detail/
39	TOKYO ELECTRIC POWER CO	Japan	255,840,000	219,440,000	73,513,000	70,513,000	287	321	11.8	http://carma.org/company/detail/
40	VATTENFALL GROUP	Germany	183,100,000	163,230,000	86,565,000	89,762,000	473	550	16.3	http://carma.org/company/detail/

Notes: Data are a mix of publicly-disclosed information and statistical model estimates. Totals are aggregate of all power plants for which the company is considered the ultimate corporate owner/operator.

List limited to the 40 largest power companies by CO2 emissions in 2009. 'Country' gives the location of most of the company's generating capacity. This may differ from the official headquarter country. Visit www.carma.org for more details.