

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

Source: Carbon Monitoring for Action (CARMA) Database ([www.carma.org](http://www.carma.org))

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Rank	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	Canada	582,620,000	582,600,000	130,450,000	101,370,000	224	174	-22.3	<a href="http://carma.org/region/detail/6251999">http://carma.org/region/detail/6251999</a>
2	Spain	249,720,000	259,820,000	107,190,000	87,417,000	429	336	-21.7	<a href="http://carma.org/region/detail/2510769">http://carma.org/region/detail/2510769</a>
3	Netherlands	88,344,000	89,520,000	51,663,000	42,627,000	585	476	-18.6	<a href="http://carma.org/region/detail/2750405">http://carma.org/region/detail/2750405</a>
4	Iraq	29,859,000	42,651,000	25,392,000	30,336,000	850	711	-16.4	<a href="http://carma.org/region/detail/99237">http://carma.org/region/detail/99237</a>
5	Italy	262,510,000	274,240,000	150,950,000	137,030,000	575	500	-13.0	<a href="http://carma.org/region/detail/3175395">http://carma.org/region/detail/3175395</a>
6	Israel	42,261,000	49,786,000	36,910,000	38,260,000	873	768	-12.0	<a href="http://carma.org/region/detail/294640">http://carma.org/region/detail/294640</a>
7	India	615,830,000	836,370,000	571,380,000	699,440,000	928	836	-9.9	<a href="http://carma.org/region/detail/1269750">http://carma.org/region/detail/1269750</a>
8	China	2,044,000,000	3,494,700,000	1,837,300,000	2,838,100,000	899	812	-9.7	<a href="http://carma.org/region/detail/1814991">http://carma.org/region/detail/1814991</a>
9	Mexico	206,570,000	234,150,000	112,590,000	117,810,000	545	503	-7.7	<a href="http://carma.org/region/detail/3996063">http://carma.org/region/detail/3996063</a>
10	Greece	55,359,000	59,464,000	48,911,000	48,600,000	884	817	-7.6	<a href="http://carma.org/region/detail/390903">http://carma.org/region/detail/390903</a>
11	United States	3,839,800,000	3,882,000,000	2,468,200,000	2,315,600,000	643	596	-7.3	<a href="http://carma.org/region/detail/6252001">http://carma.org/region/detail/6252001</a>
12	Thailand	113,270,000	136,700,000	68,583,000	76,621,000	605	561	-7.3	<a href="http://carma.org/region/detail/1605651">http://carma.org/region/detail/1605651</a>
13	Romania	52,324,000	56,497,000	34,754,000	34,933,000	664	618	-6.9	<a href="http://carma.org/region/detail/798549">http://carma.org/region/detail/798549</a>
14	United Kingdom	358,510,000	356,230,000	187,060,000	174,630,000	522	490	-6.1	<a href="http://carma.org/region/detail/2635167">http://carma.org/region/detail/2635167</a>
15	United Arab Emirates	48,256,000	83,030,000	31,607,000	51,343,000	655	618	-5.7	<a href="http://carma.org/region/detail/290557">http://carma.org/region/detail/290557</a>
16	Poland	136,690,000	146,320,000	146,390,000	149,640,000	1,070	1,020	-4.7	<a href="http://carma.org/region/detail/798544">http://carma.org/region/detail/798544</a>
17	Australia	216,410,000	240,050,000	207,210,000	219,440,000	957	914	-4.5	<a href="http://carma.org/region/detail/2077456">http://carma.org/region/detail/2077456</a>
18	Russia	872,440,000	923,710,000	536,050,000	542,210,000	614	587	-4.4	<a href="http://carma.org/region/detail/2017370">http://carma.org/region/detail/2017370</a>
19	Germany	553,130,000	531,880,000	329,760,000	303,100,000	596	570	-4.4	<a href="http://carma.org/region/detail/2921044">http://carma.org/region/detail/2921044</a>
20	Taiwan	187,030,000	201,330,000	132,300,000	138,730,000	707	689	-2.5	<a href="http://carma.org/region/detail/1668284">http://carma.org/region/detail/1668284</a>
21	Czech Republic	71,465,000	69,830,000	52,670,000	50,228,000	737	719	-2.4	<a href="http://carma.org/region/detail/3077311">http://carma.org/region/detail/3077311</a>
22	Uzbekistan	47,041,000	46,967,000	31,293,000	30,560,000	665	651	-2.1	<a href="http://carma.org/region/detail/1512440">http://carma.org/region/detail/1512440</a>
23	Japan	966,130,000	937,730,000	406,770,000	387,430,000	421	413	-1.9	<a href="http://carma.org/region/detail/1861060">http://carma.org/region/detail/1861060</a>
24	Egypt	91,445,000	126,550,000	47,587,000	64,614,000	520	511	-1.7	<a href="http://carma.org/region/detail/357994">http://carma.org/region/detail/357994</a>
25	Saudi Arabia	143,510,000	197,320,000	118,880,000	160,850,000	828	815	-1.6	<a href="http://carma.org/region/detail/102358">http://carma.org/region/detail/102358</a>
26	Vietnam	43,698,000	79,035,000	17,587,000	32,294,000	402	409	1.7	<a href="http://carma.org/region/detail/1562822">http://carma.org/region/detail/1562822</a>
27	Kazakhstan	62,601,000	73,384,000	64,803,000	78,006,000	1,040	1,060	1.9	<a href="http://carma.org/region/detail/1522867">http://carma.org/region/detail/1522867</a>
28	Indonesia	108,860,000	139,100,000	83,835,000	110,890,000	770	797	3.5	<a href="http://carma.org/region/detail/1643084">http://carma.org/region/detail/1643084</a>
29	Philippines	51,931,000	57,416,000	25,221,000	28,913,000	486	504	3.7	<a href="http://carma.org/region/detail/1694008">http://carma.org/region/detail/1694008</a>
30	South Africa	228,360,000	235,600,000	205,340,000	224,930,000	899	955	6.2	<a href="http://carma.org/region/detail/953987">http://carma.org/region/detail/953987</a>
31	South Korea	326,190,000	410,130,000	174,480,000	233,180,000	535	569	6.4	<a href="http://carma.org/region/detail/1835841">http://carma.org/region/detail/1835841</a>
32	Hong Kong (China)	34,257,000	34,045,000	27,895,000	29,558,000	814	868	6.6	<a href="http://carma.org/region/detail/1819730">http://carma.org/region/detail/1819730</a>
33	France	535,420,000	512,850,000	42,781,000	44,594,000	79.9	87	8.9	<a href="http://carma.org/region/detail/3017382">http://carma.org/region/detail/3017382</a>
34	Ukraine	168,300,000	161,010,000	71,133,000	74,943,000	423	465	9.9	<a href="http://carma.org/region/detail/690791">http://carma.org/region/detail/690791</a>
35	Iran	152,620,000	187,880,000	89,255,000	121,190,000	585	645	10.3	<a href="http://carma.org/region/detail/130758">http://carma.org/region/detail/130758</a>
36	Argentina	91,493,000	111,150,000	30,036,000	41,626,000	328	374	14.0	<a href="http://carma.org/region/detail/3865483">http://carma.org/region/detail/3865483</a>
37	Malaysia	75,497,000	96,642,000	43,705,000	65,452,000	579	677	16.9	<a href="http://carma.org/region/detail/1733045">http://carma.org/region/detail/1733045</a>
38	Turkey	141,780,000	182,470,000	63,547,000	96,613,000	448	529	18.1	<a href="http://carma.org/region/detail/298795">http://carma.org/region/detail/298795</a>
39	Pakistan	77,158,000	79,690,000	33,572,000	41,094,000	435	516	18.6	<a href="http://carma.org/region/detail/1168579">http://carma.org/region/detail/1168579</a>
40	Kuwait	36,953,000	39,001,000	29,327,000	44,954,000	794	1,150	44.8	<a href="http://carma.org/region/detail/285570">http://carma.org/region/detail/285570</a>

Notes: Data are a mix of publicly-disclosed information and statistical model estimates. Totals are aggregate of all power plants located within the country and reflect the production (not consumption) of electricity.

List limited to the 40 largest national power sectors by CO2 emissions in 2009. Visit [www.carma.org](http://www.carma.org) for more details.