

California Greenhouse Gas Inventory (millions of metric tonnes of CO2 equivalent) — By Sector and Activity

Last Updated: November 19, 2007

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Categories Included in the Inventory.	<i>(CO2 equivalence based upon IPCC Fourth Assessment Report's Global Warming Potentials)</i>														
► Electricity Generation (In State)	48.99	46.26	54.53	51.36	58.44	45.11	42.04	43.93	47.53	51.39	60.95	65.06	51.23	49.89	58.48
<i>CHP: Commercial</i>	0.70	0.62	0.71	0.72	0.79	0.77	0.79	0.77	0.76	0.75	0.73	0.68	0.69	0.88	0.84
<i>CHP: Industrial</i>	14.54	15.21	16.97	17.48	17.87	17.76	18.58	18.07	18.74	18.57	18.61	16.86	20.27	17.83	22.71
<i>Merchant Owned</i>	2.33	2.83	3.01	3.28	3.01	2.83	2.85	2.73	11.62	23.24	33.73	39.60	24.56	25.00	28.49
<i>Transmission and Distribution</i>	1.49	1.35	1.35	1.61	1.44	1.09	1.16	1.00	0.83	0.78	0.80	0.78	0.66	0.66	0.65
<i>Utility Owned</i>	29.92	26.25	32.49	28.27	35.32	22.65	18.66	21.36	15.57	8.05	7.08	7.14	5.05	5.51	5.79
► Electricity Generation (Imports)	61.52	57.20	49.86	55.61	55.73	54.25	49.71	55.95	58.46	55.66	40.55	51.17	51.29	57.87	61.22
<i>Specified Imports</i>	29.60	28.49	31.16	29.90	30.24	27.47	26.86	28.64	30.31	30.06	30.73	32.83	31.34	31.98	33.17
<i>Transmission and Distribution</i>	0.97	0.86	0.64	0.76	0.68	0.55	0.62	0.58	0.44	0.42	0.29	0.32	0.34	0.32	0.33
<i>Unspecified Imports</i>	30.95	27.84	18.06	24.96	24.80	26.23	22.23	26.73	27.71	25.18	9.53	18.02	19.60	25.57	27.73
► Transportation	150.59	146.50	152.72	148.58	150.97	154.55	156.10	158.41	161.65	166.06	169.90	173.64	179.77	175.62	182.29
<i>Aviation</i>	5.13	4.69	4.09	3.67	3.88	4.01	4.21	3.92	3.89	3.75	3.51	4.18	3.42	3.06	3.06
<i>Not Specified Transportation</i>	3.01	2.68	2.43	1.25	2.16	2.15	1.76	1.00	1.10	0.90	1.14	1.33	1.27	1.13	1.25
<i>On road</i>	137.92	134.41	141.66	139.34	140.37	143.47	144.97	148.28	151.22	155.79	159.24	162.19	168.90	165.39	171.43
<i>Rail</i>	2.33	2.46	2.24	1.97	2.13	2.43	2.59	2.57	2.70	2.80	3.07	2.90	3.04	2.78	3.19
<i>Water-borne</i>	2.21	2.26	2.30	2.34	2.43	2.49	2.56	2.65	2.74	2.84	2.94	3.04	3.15	3.26	3.37
► Industrial	105.30	101.87	99.19	97.03	96.50	97.95	100.47	106.04	107.10	104.48	106.47	106.95	101.96	103.26	98.43
<i>CHP: Industrial</i>	9.70	9.58	10.15	10.26	10.24	10.16	10.56	10.72	11.46	12.10	12.05	10.65	10.77	10.77	6.07
<i>Flaring</i>	0.15	0.07	0.08	0.04	0.03	0.04	0.07	0.07	0.09	0.10	0.07	0.12	0.09	0.15	0.11
<i>Landfills</i>	7.45	7.13	7.39	7.47	7.49	6.99	6.87	6.81	7.03	6.98	6.72	6.79	6.69	6.76	6.69
<i>Manufacturing</i>	32.09	29.61	27.55	26.95	28.44	28.21	27.37	28.03	29.72	30.38	31.67	31.53	28.33	26.36	27.62
<i>Mining</i>	0.03	0.03	0.04	0.04	0.04	0.31	0.34	0.32	0.32	0.32	0.33	0.31	0.30	0.33	0.10
<i>Not Specified Industrial</i>	2.69	2.34	2.41	2.40	2.26	2.22	2.04	2.03	2.28	2.58	2.21	2.15	2.37	2.13	1.99
<i>Oil & Gas Extraction</i>	14.82	14.10	13.96	11.64	10.49	13.13	13.95	19.02	16.59	14.56	13.65	15.71	12.96	15.11	14.93
<i>Petroleum Marketing</i>	0.02	0.02	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
<i>Petroleum Refining</i>	32.85	33.43	32.06	32.68	31.92	31.32	33.64	33.44	34.05	31.83	34.05	33.82	34.53	35.69	34.89
<i>Pipelines</i>	1.92	1.92	1.86	1.80	1.76	1.74	1.77	1.66	1.60	1.56	1.57	1.67	1.69	1.69	1.72
<i>Waste water treatment</i>	3.58	3.64	3.68	3.74	3.81	3.80	3.85	3.91	3.94	4.05	4.13	4.20	4.22	4.27	4.31
► Commercial	14.44	13.96	11.89	11.54	12.20	11.65	11.80	12.45	13.23	13.88	13.89	12.57	12.45	12.10	12.82
<i>CHP: Commercial</i>	0.40	0.34	0.41	0.42	0.48	0.45	0.62	1.15	0.93	0.91	1.09	1.05	1.02	0.19	0.48
<i>Communication</i>	0.07	0.07	0.06	0.04	0.06	0.06	0.06	0.08	0.06	0.07	0.06	0.05	0.11	0.09	0.09
<i>Domestic Utilities</i>	0.34	0.34	0.36	0.27	0.29	0.31	0.42	0.39	0.42	0.44	0.44	0.36	0.32	0.55	0.62
<i>Education</i>	1.42	1.28	1.09	1.13	1.27	0.98	0.95	1.04	1.22	1.37	1.30	0.99	1.06	1.00	1.06
<i>Food Services</i>	1.89	1.89	1.86	1.88	1.90	1.89	1.96	2.03	2.19	2.26	2.33	2.20	2.31	2.44	2.58
<i>Health Care</i>	1.32	1.33	1.13	1.06	1.22	1.14	1.15	1.16	1.21	1.28	1.27	1.20	1.17	1.24	1.28
<i>Hotels</i>	0.67	0.66	0.62	0.60	0.62	0.60	0.60	0.62	0.65	0.67	0.68	0.63	0.64	0.64	0.65
<i>National Security</i>	0.56	0.64	0.55	0.54	0.51	0.40	0.36	0.46	0.35	0.29	0.24	0.32	0.18	0.18	0.19

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<i>Not Specified Commercial</i>	5.58	5.33	3.89	3.62	3.75	3.89	3.76	3.60	4.04	4.16	4.24	4.07	3.20	3.28	3.33
<i>Offices</i>	1.46	1.40	1.27	1.32	1.40	1.31	1.37	1.35	1.54	1.74	1.59	1.41	1.80	1.84	1.91
<i>Retail & Wholesale</i>	0.68	0.63	0.62	0.62	0.65	0.59	0.49	0.55	0.57	0.62	0.60	0.23	0.60	0.61	0.59
<i>Transportation Services</i>	0.03	0.04	0.03	0.04	0.04	0.03	0.04	0.03	0.05	0.06	0.06	0.04	0.05	0.05	0.05
► Residential	29.74	30.32	28.65	29.15	29.87	27.27	27.38	26.78	31.47	32.26	30.66	28.64	28.58	27.97	29.15
<i>Household Use</i>	29.74	30.32	28.65	29.15	29.87	27.27	27.38	26.78	31.47	32.26	30.66	28.64	28.58	27.97	29.15
► Agriculture & Forestry	18.88	17.58	18.62	18.53	19.68	20.27	19.76	20.70	20.48	22.36	23.55	23.60	25.66	25.18	25.81
<i>Ag Energy Use</i>	4.51	3.86	4.33	4.20	4.48	3.73	4.13	4.96	4.73	5.45	5.56	5.35	4.91	4.13	4.86
<i>Ag Residue Burning</i>	0.13	0.12	0.11	0.12	0.11	0.11	0.10	0.09	0.09	0.09	0.10	0.08	0.08	0.08	0.09
<i>Ag Soil Management</i>	6.29	5.67	5.77	6.10	5.97	6.72	6.54	5.99	6.02	6.19	6.78	6.39	8.16	8.08	8.02
<i>Enteric Fermentation</i>	7.94	7.71	7.82	7.41	7.72	7.84	7.32	7.50	7.49	7.86	7.95	8.09	8.32	8.42	8.35
<i>Forest and range management</i>	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
<i>Histosol cultivation</i>	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.13
<i>Manure management</i>	5.82	5.93	6.05	5.81	6.20	6.48	6.08	6.52	6.41	6.96	7.14	7.57	7.87	8.15	8.07
<i>Net CO2 flux</i>	-6.69	-6.54	-6.33	-6.03	-5.79	-5.56	-5.42	-5.37	-5.19	-5.18	-5.02	-4.83	-4.69	-4.67	-4.66
<i>Rice cultivation</i>	0.49	0.43	0.49	0.54	0.60	0.57	0.62	0.64	0.57	0.62	0.68	0.58	0.65	0.63	0.73
► Not Specified	1.27	0.79	1.02	1.72	2.84	4.98	6.65	8.30	9.16	10.73	11.91	12.83	18.84	17.04	17.92
<i>Not Specified Not Specified</i>	1.27	0.79	1.02	1.72	2.84	4.98	6.65	8.30	9.16	10.73	11.91	12.83	18.84	17.04	17.92

Summary of Categories Included in the Inventory.*(using IPCC Fourth Assessment Report's GWPs)*

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Gross California Emissions	437.41	421.01	422.83	419.55	432.01	421.61	419.32	437.93	454.27	462.01	462.90	479.28	474.48	473.61	490.79
Sinks from Forests and Rangelands	-6.69	-6.54	-6.33	-6.03	-5.79	-5.56	-5.42	-5.37	-5.19	-5.18	-5.02	-4.83	-4.69	-4.67	-4.66
Net California Emissions	430.72	414.48	416.50	413.52	426.22	416.04	413.90	432.56	449.07	456.83	457.88	474.45	469.78	468.95	486.12

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Categories Excluded from the Inventory.															
<i>(CO2 equivalence based upon IPCC Fourth Assessment Report's Global Warming Potentials)</i>															
Carbon from fossil fuels —															
▶ Transportation	59.01	52.99	45.38	46.21	52.90	55.12	56.50	48.60	48.36	50.46	55.51	51.07	53.05	40.79	44.15
<i>Aviation</i>	33.94	32.41	31.59	32.94	36.56	34.98	38.20	38.27	39.11	36.62	38.57	35.53	38.42	30.83	32.91
<i>Water-borne</i>	25.06	20.58	13.79	13.27	16.34	20.13	18.30	10.33	9.25	13.85	16.94	15.54	14.63	9.95	11.24
Carbon from biogenic sources —															
▶ Electricity Generation (In State)	9.34	8.61	9.57	8.99	9.25	7.29	7.06	7.35	7.13	7.77	8.22	8.37	8.66	8.77	7.94
<i>CHP: Commercial</i>	0.00	0.00	0.00	0.04	0.10	0.26	0.25	0.25	0.24	0.26	0.27	0.10	0.24	0.31	0.31
<i>CHP: Industrial</i>	2.82	2.36	2.48	2.08	1.74	1.40	1.21	1.45	1.16	1.28	1.76	2.40	1.80	1.60	0.99
<i>Merchant Owned</i>	6.51	6.23	7.09	6.87	7.41	5.63	5.55	5.53	5.60	6.09	6.06	5.65	6.38	6.53	6.37
<i>Utility Owned</i>	0.00	0.01	0.00	0.00	0.00	0.00	0.05	0.12	0.11	0.14	0.13	0.21	0.24	0.33	0.27
▶ Industrial	9.86	9.33	9.26	7.79	7.82	7.71	7.40	8.24	7.62	7.95	8.42	8.84	8.34	8.48	9.06
<i>CHP: Industrial</i>	1.96	1.87	1.75	1.05	1.16	1.03	0.85	1.09	1.03	1.16	1.36	1.09	0.62	0.68	1.39
<i>Landfills</i>	1.76	1.96	2.13	2.33	2.42	2.68	3.05	3.02	3.18	3.11	3.06	3.27	3.77	3.84	3.72
<i>Manufacturing</i>	0.01	0.02	0.02	0.03	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05
<i>Not Specified Industrial</i>	6.13	5.49	5.36	4.38	4.19	3.95	3.46	4.09	3.37	3.64	3.97	4.45	3.90	3.90	3.90
▶ Commercial	0.38	0.40	0.43	0.45	0.48	0.50	0.54	0.44	0.44	0.51	0.48	0.46	0.45	0.46	0.49
<i>CHP: Commercial</i>	0.00	0.00	0.00	0.00	0.02	0.05	0.05	0.05	0.05	0.04	0.04	0.02	0.01	0.02	0.04
<i>Not Specified Commercial</i>	0.38	0.40	0.43	0.45	0.46	0.46	0.50	0.39	0.39	0.47	0.44	0.44	0.44	0.44	0.44
▶ Residential	5.96	6.28	6.60	5.60	5.49	6.09	6.08	3.54	3.20	3.41	3.58	3.06	3.36	3.36	3.36
<i>Household Use</i>	5.96	6.28	6.60	5.60	5.49	6.09	6.08	3.54	3.20	3.41	3.58	3.06	3.36	3.36	3.36
▶ Agriculture & Forestry	2.05	1.87	1.77	1.89	1.86	1.80	1.73	1.53	1.59	1.59	1.67	1.42	1.45	1.50	1.53
<i>Ag Residue Burning</i>	2.05	1.87	1.77	1.89	1.86	1.80	1.73	1.53	1.59	1.59	1.67	1.42	1.45	1.50	1.53
Summary of Categories Excluded from the Inventory.															
<i>(using IPCC Fourth Assessment Report's GWPs)</i>															
Carbon from fossil fuels —															
Gross California Emissions	59.01	52.99	45.38	46.21	52.90	55.12	56.50	48.60	48.36	50.46	55.51	51.07	53.05	40.79	44.15
Carbon from biogenic sources —															
Gross California Emissions	27.58	26.49	27.64	24.71	24.90	23.39	22.81	21.09	19.98	21.22	22.36	22.15	22.26	22.56	22.37
Net California Emissions	86.59	79.48	73.02	70.92	77.80	78.50	79.31	69.69	68.33	71.69	77.88	73.22	75.32	63.35	66.52