

California Greenhouse Gas Inventory for 2000-2009 — by IPCC Category

million tonnes of CO2 equivalent - (based upon IPCC Second Assessment Report's Global Warming Potentials)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1 - Energy	403.63	418.70	415.33	413.25	422.93	416.17	413.86	419.96	414.34	389.05
1A - Fuel Combustion Activities	398.31	413.54	409.79	408.26	418.09	410.79	407.83	413.97	408.35	383.86
1A1 - Energy Industries	157.09	172.57	158.28	163.09	167.81	159.70	154.87	163.50	167.58	148.87
1A1a - Main Activity Electricity and Heat Production	116.87	132.42	119.20	122.38	127.61	119.66	116.16	124.54	129.87	113.29
1A1ai - Electricity Generation	84.678	103.417	86.435	92.821	98.012	91.240	88.932	98.273	104.634	84.155
1A1aii - Combined Heat and Power Generation (CHP)	32.194	29.006	32.768	29.561	29.593	28.423	27.232	26.266	25.232	29.139
1A1b - Petroleum Refining	22.74	23.29	23.35	24.11	23.34	24.39	25.06	24.60	24.04	22.54
1A1c - Manufacture of Solid Fuels and Other Energy Industries	17.48	16.86	15.73	16.60	16.87	15.65	13.64	14.36	13.67	13.04
1A1cii - Other Energy Industries	17.477	16.858	15.731	16.595	16.872	15.654	13.645	14.357	13.673	13.037
1A2 - Manufacturing Industries and Construction	25.07	23.54	25.05	21.37	21.56	20.80	20.76	19.20	18.71	18.24
1A2c - Chemicals	4.63	4.07	3.96	2.59	3.21	3.80	3.77	3.12	3.41	3.94
1A2d - Pulp, Paper and Print	1.07	0.94	1.00	0.91	0.94	0.62	0.64	0.55	0.45	0.40
1A2e - Food Processing, Beverages and Tobacco	3.96	3.50	3.79	3.11	3.15	3.02	3.30	3.32	2.87	3.22
1A2f - Non-Metallic Minerals	5.45	5.28	5.47	5.29	5.27	5.32	5.32	4.78	4.27	2.95
1A2g - Transport Equipment	0.46	0.48	0.52	0.31	0.27	0.27	0.26	0.28	0.29	0.26
1A2h - Machinery	1.79	1.27	1.33	0.98	1.00	1.01	1.04	0.99	0.92	0.85
1A2i - Mining (excluding fuels) and Quarrying	0.87	0.31	0.31	0.34	0.36	0.34	0.11	0.16	0.19	0.15
1A2j - Wood and Wood Products	0.40	0.31	0.19	0.16	0.11	0.11	0.11	0.08	0.07	0.06
1A2k - Construction	0.41	0.60	0.62	0.63	0.78	0.74	0.62	0.50	0.45	0.43
1A2l - Textile and Leather	0.57	0.54	0.59	0.45	0.44	0.43	0.39	0.35	0.31	0.24
1A2m - Non-specified Industry.	4.63	5.46	6.36	5.85	5.31	4.53	4.75	4.56	4.96	5.39
1A3 - Transport	170.51	173.69	180.20	178.39	182.17	185.05	185.66	186.06	177.03	172.07
1A3a - Civil Aviation	3.84	3.64	3.92	3.77	4.27	4.74	4.90	5.13	5.09	4.99
1A3aii - Domestic Aviation	3.572	3.392	3.653	3.501	4.019	4.522	4.689	4.904	4.900	4.829
1A3b - Road Transportation	159.34	162.16	168.61	166.42	169.64	171.14	171.43	172.45	164.27	160.14
1A3bi - Cars	65.678	65.189	67.046	63.128	62.429	61.015	61.101	61.245	58.866	58.196
1A3bii - Light-duty Trucks	60.807	63.629	68.066	69.214	71.423	72.692	72.451	72.462	69.326	68.230
1A3biii - Heavy-duty Trucks and Buses	32.488	32.879	32.981	33.357	35.002	36.326	36.729	37.532	34.835	32.389
1A3biv - Motorcycles	0.242	0.319	0.362	0.534	0.580	0.594	0.609	0.623	0.607	0.608
1A3c - Railways	1.86	1.87	2.48	2.83	2.89	3.32	3.50	3.15	2.56	1.94
1A3d - Water-borne Navigation	3.27	3.04	3.33	3.49	3.48	3.75	3.81	3.78	3.69	3.48
1A3di - International Water-borne Navigation (International Bunkers)	0.878	0.923	0.970	1.019	1.070	1.123	1.178	1.139	1.119	0.979
1A3dii - Domestic Water-borne Navigation	2.388	2.117	2.364	2.467	2.413	2.632	2.634	2.644	2.566	2.502
1A4 - Other Sectors	45.63	43.74	46.26	45.41	46.55	45.24	46.54	45.21	45.03	44.68
1A4a - Commercial/Institutional	11.69	11.32	13.12	12.76	12.71	12.56	12.84	12.83	13.03	13.41
1A4b - Residential	30.12	28.61	28.77	28.31	29.34	28.08	28.40	28.60	28.13	28.61
1A4c - Agriculture/Forestry/Fishing/Fish Farms	3.82	3.81	4.37	4.35	4.50	4.60	5.30	3.78	3.87	2.65
1B - Fugitive Emissions from Fuels	5.32	5.16	5.54	4.99	4.84	5.38	6.03	5.99	5.99	5.20
1B1 - Solid Fuels	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
1B2 - Oil and Natural Gas	3.16	3.02	3.26	2.74	2.55	3.10	3.79	3.72	3.77	3.76

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Gross emissions & sinks	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1B2a - Oil	0.47	0.45	0.46	0.45	0.43	0.46	0.47	0.46	0.45	0.44
1B2ai - Venting	0.063	0.065	0.065	0.066	0.065	0.067	0.068	0.068	0.067	0.062
1B2aii - Flaring	0.056	0.058	0.058	0.059	0.058	0.060	0.061	0.060	0.060	0.055
1B2aiii - All Other	0.348	0.326	0.332	0.327	0.313	0.330	0.337	0.334	0.327	0.318
1B2b - Natural Gas	1.76	1.48	1.70	1.32	1.35	1.74	1.93	1.92	1.94	1.96
1B3 - Geothermal Energy Production	2.02	2.00	2.14	2.12	2.15	2.14	2.11	2.13	2.10	1.32
1B4 - Pollution control devices	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10
2 - Industrial Processes and Product Use	25.51	25.80	26.53	27.05	27.87	28.53	29.64	29.83	30.45	28.07
2A - Mineral Industry	5.51	5.58	5.66	5.74	5.84	5.92	5.86	5.61	5.35	3.63
2A1 - Cement Production	5.43	5.52	5.60	5.68	5.77	5.85	5.80	5.55	5.31	3.60
2A2 - Lime Production	0.07	0.07	0.06	0.06	0.08	0.07	0.07	0.05	0.04	0.03
2B - Chemical Industry	0.13	0.12	0.12	0.12	0.12	0.12	0.15	0.14	0.14	0.12
2B10 - Inorganic Chemical Manufacturing	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
2B2 - Nitric Acid Production	0.07	0.06	0.06	0.06	0.06	0.06	0.09	0.08	0.08	0.07
2D - Non-Energy Products from Fuels and Solvent Use	2.46	2.24	2.13	2.03	1.99	1.97	1.95	2.00	1.88	1.70
2D1 - Lubricant Use	2.10	1.92	1.90	1.75	1.78	1.77	1.72	1.78	1.65	1.48
2D3 - Solvent Use	0.36	0.32	0.23	0.27	0.21	0.20	0.22	0.22	0.23	0.21
2E - Electronics Industry	0.97	0.80	0.71	0.68	0.68	0.62	0.76	0.73	0.78	0.78
2F - Product Uses as Substitutes for Ozone Depleting Substances	8.55	9.25	10.02	10.77	11.53	12.14	12.71	13.08	13.95	14.51
2G - Other Product Manufacture and Use	1.87	1.77	1.77	1.71	1.74	1.73	1.75	1.72	1.73	1.65
2G1 - Electrical Equipment	1.25	1.24	1.16	1.14	1.13	1.12	1.07	1.01	1.03	1.03
2G1b - Use of Electrical Equipment	1.25	1.24	1.16	1.14	1.13	1.12	1.07	1.01	1.03	1.03
2G4 - CO ₂ , Limestone or Soda Ash consumption	0.62	0.53	0.62	0.57	0.60	0.61	0.68	0.71	0.69	0.62
2H - Other	6.04	6.04	6.11	6.00	5.97	6.03	6.46	6.56	6.62	5.68
2H3 - Hydrogen Production	6.04	6.04	6.11	6.00	5.97	6.03	6.46	6.56	6.62	5.68
3 - Agriculture, Forestry and Other Land Use	25.31	25.48	28.08	26.50	28.03	28.20	28.63	29.31	30.00	29.67
3A - Livestock	16.43	17.10	17.63	16.27	17.58	18.19	18.52	19.72	19.90	19.64
3A1 - Enteric Fermentation	8.24	8.40	8.65	8.32	8.68	8.97	9.05	9.47	9.45	9.30
3A1a - Cattle	7.94	8.10	8.33	7.98	8.32	8.57	8.65	9.07	9.06	8.90
3A1ai - Dairy Cows	5.372	5.562	5.803	5.470	5.855	6.039	6.203	6.554	6.660	6.592
3A1aii - Other Cattle	2.571	2.535	2.532	2.514	2.465	2.533	2.448	2.520	2.396	2.305
3A1c - Sheep	0.14	0.14	0.13	0.12	0.11	0.12	0.11	0.10	0.10	0.11
3A1d - Goats	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
3A1f - Horses	0.15	0.16	0.17	0.20	0.23	0.26	0.27	0.27	0.27	0.27

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3A1h - Swine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3A2 - Manure Management	8.18	8.69	8.98	7.95	8.90	9.22	9.47	10.26	10.45	10.35
3A2a - Cattle	7.84	8.36	8.64	7.61	8.58	8.89	9.15	9.92	10.15	10.04
3A2ai - Dairy Cows	7.506	8.021	8.265	7.213	8.197	8.492	8.732	9.509	9.747	9.658
3A2aii - Other Cattle	0.337	0.341	0.370	0.399	0.380	0.398	0.421	0.415	0.406	0.385
3A2c - Sheep	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.04
3A2d - Goats	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3A2f - Horses	0.06	0.06	0.06	0.07	0.08	0.08	0.08	0.08	0.07	0.07
3A2h - Swine	0.05	0.04	0.06	0.05	0.06	0.05	0.05	0.06	0.03	0.04
3A2i - Poultry	0.19	0.19	0.18	0.17	0.15	0.15	0.15	0.16	0.16	0.15
3B - Land	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
3B1 - Forest Land	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
3C - Aggregate Sources and Non-CO₂ Emissions Sources on Land	8.70	8.20	10.26	10.05	10.26	9.82	9.92	9.40	9.91	9.84
3C1 - Emissions from Biomass Burning	0.08	0.06	0.06	0.06	0.06	0.07	0.06	0.07	0.07	0.07
3C1b - Biomass Burning in Croplands	0.08	0.06	0.06	0.06	0.06	0.07	0.06	0.07	0.07	0.07
3C2 - Liming	0.27	0.16	0.23	0.24	0.24	0.30	0.48	0.26	0.17	0.17
3C4 - Direct N ₂ O Emissions from Managed Soils	6.03	5.80	7.27	7.11	7.21	6.88	6.81	6.59	7.06	6.96
3C5 - Indirect N ₂ O Emissions from Managed Soils	1.75	1.68	2.15	2.11	2.14	2.04	2.02	1.93	2.08	2.06
3C7 - Rice Cultivations	0.57	0.49	0.55	0.53	0.61	0.55	0.54	0.55	0.54	0.58
4 - Waste	9.20	9.27	9.24	9.34	9.34	9.65	9.76	9.73	9.92	9.98
4A - Solid Waste Disposal	6.13	6.21	6.14	6.23	6.17	6.47	6.54	6.49	6.66	6.70
4A1 - Managed Waste Disposal Sites	6.13	6.21	6.14	6.23	6.17	6.47	6.54	6.49	6.66	6.70
4B - Biological Treatment of Solid Waste	0.42	0.44	0.46	0.48	0.51	0.53	0.55	0.57	0.60	0.62
4D - Wastewater Treatment and Discharge	2.65	2.62	2.63	2.63	2.66	2.65	2.67	2.67	2.66	2.66
4D1 - Domestic Wastewater Treatment and Discharge	1.89	1.91	1.89	1.90	1.91	1.92	1.91	1.91	1.91	1.91
4D2 - Industrial Wastewater Treatment and Discharge	0.76	0.72	0.74	0.73	0.75	0.74	0.76	0.76	0.75	0.76
Summary for Gross emissions & sinks	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Gross California Emissions	463.65	479.25	479.18	476.14	488.16	482.54	481.89	488.83	484.72	456.77
Sinks from Forests and Rangelands	-4.49	-4.30	-4.16	-4.16	-4.16	-4.03	-3.87	-3.94	-3.84	-3.80
Net California Emissions	459.17	474.95	475.02	471.98	484.00	478.52	478.02	484.89	480.88	452.97

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Excluded Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1 - Energy	48.96	44.38	48.55	40.89	44.83	49.06	49.93	53.63	51.02	53.00
1A - Fuel Combustion Activities	48.96	44.38	48.55	40.89	44.83	49.06	49.93	53.63	51.02	53.00
1A3 - Transport	46.02	40.97	45.26	37.56	41.39	46.45	47.58	51.28	48.71	50.90
1A3a - Civil Aviation	28.93	28.30	30.19	27.47	28.96	30.13	29.63	31.89	28.96	30.98
1A3ai - International Aviation (International Bunkers)	13.807	13.206	13.494	11.827	12.632	13.607	13.556	14.552	13.821	14.785
1A3aia - Domestic Aviation	15.122	15.092	16.692	15.642	16.332	16.522	16.079	17.335	15.142	16.198
1A3d - Water-borne Navigation	17.09	12.68	15.08	10.10	12.43	16.32	17.94	19.39	19.75	19.91
1A3di - International Water-borne Navigation (International Bunkers)	17.093	12.677	15.079	10.096	12.427	16.317	17.941	19.392	19.751	19.913
1A5 - Non-Specified	2.94	3.41	3.29	3.32	3.44	2.61	2.36	2.35	2.31	2.11
1A5b - Mobile	2.86	3.12	2.81	2.81	2.90	2.51	2.25	2.24	2.22	1.97
1A5bi - Mobile (Aviation Component)	2.864	3.119	2.805	2.809	2.903	2.513	2.249	2.236	2.221	1.967
Summary for Excluded Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
International and Interstate Emissions	48.96	44.38	48.55	40.89	44.83	49.06	49.93	53.63	51.02	53.00

Archive

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CO2 from biogenic materials	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1 - Energy	17.45	17.58	15.73	16.12	16.16	15.42	15.22	15.11	14.96	15.54
1A - Fuel Combustion Activities	17.45	17.58	15.73	16.12	16.16	15.42	15.22	15.11	14.96	15.54
1A1 - Energy Industries	9.54	9.40	9.11	9.36	9.30	9.75	10.04	9.62	9.63	10.47
1A1a - Main Activity Electricity and Heat Production	9.54	9.40	9.11	9.36	9.30	9.75	10.04	9.62	9.63	10.47
1A1ai - Electricity Generation	6.190	5.866	6.622	6.590	6.413	6.516	6.782	6.402	6.604	7.991
1A1aii - Combined Heat and Power Generation (CHP)	3.347	3.535	2.485	2.769	2.887	3.234	3.255	3.219	3.026	2.476
1A1b - Petroleum Refining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1A2 - Manufacturing Industries and Construction	3.78	4.26	2.64	2.57	2.60	2.86	2.61	2.67	2.38	2.23
1A2f - Non-Metallic Minerals	0.06	0.06	0.07	0.07	0.07	0.08	0.05	0.06	0.06	0.07
1A2m - Non-specified Industry.	3.72	4.19	2.57	2.50	2.53	2.78	2.56	2.61	2.32	2.16
1A4 - Other Sectors	4.13	3.92	3.99	4.19	4.26	2.82	2.57	2.82	2.95	2.84
1A4a - Commercial/Institutional	0.58	0.59	0.60	0.63	0.61	0.39	0.36	0.38	0.41	0.40
1A4b - Residential	3.55	3.33	3.38	3.56	3.65	2.43	2.21	2.44	2.55	2.44
3 - Agriculture, Forestry and Other Land Use	1.39	1.16	1.16	1.20	1.18	1.26	1.17	1.32	1.32	1.38
3C - Aggregate Sources and Non-CO2 Emissions Sources on Land	1.39	1.16	1.16	1.20	1.18	1.26	1.17	1.32	1.32	1.38
3C1 - Emissions from Biomass Burning	1.39	1.16	1.16	1.20	1.18	1.26	1.17	1.32	1.32	1.38
3C1b - Biomass Burning in Croplands	1.39	1.16	1.16	1.20	1.18	1.26	1.17	1.32	1.32	1.38
4 - Waste	5.42	5.73	5.97	5.96	6.02	6.31	6.53	6.47	6.63	6.73
4A - Solid Waste Disposal	5.42	5.73	5.97	5.96	6.02	6.31	6.53	6.47	6.63	6.73
4A1 - Managed Waste Disposal Sites	5.42	5.73	5.97	5.96	6.02	6.31	6.53	6.47	6.63	6.73
Summary for CO2 from biogenic materials	24.25	24.47	22.86	23.27	23.37	22.99	22.91	22.90	22.92	23.64
Carbon dioxide from Biogenic sources	24.25	24.47	22.86	23.27	23.37	22.99	22.91	22.90	22.92	23.64