

California Greenhouse Gas Inventory for 2000-2012 — by IPCC Category

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

Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1 - Energy	407.80	422.62	418.83	420.35	429.73	420.71	416.62	421.68	418.00	391.36	384.01	376.83	381.68
1A - Fuel Combustion Activities	401.86	416.94	413.59	415.19	424.92	416.03	411.31	416.38	412.65	385.87	378.73	371.39	376.42
1A1 - Energy Industries	159.08	175.90	161.51	167.77	172.71	163.86	157.59	165.70	171.46	154.26	144.73	137.04	144.72
1A1a - Main Activity Electricity and Heat Production	116.38	132.30	119.13	122.24	127.50	119.42	115.88	124.34	129.71	113.36	102.64	98.66	105.81
1A1ai - Electricity Generation	84.807	103.491	86.520	92.863	98.063	91.191	88.844	98.221	104.630	84.154	75.812	72.112	81.075
1A1aii - Combined Heat and Power Generation (CHP)	31.572	28.811	32.608	29.381	29.433	28.233	27.040	26.120	25.075	29.203	26.832	26.550	24.733
1A1b - Petroleum Refining	24.61	25.17	25.27	25.98	25.25	25.87	25.52	25.00	24.22	24.55	26.47	22.85	22.80
1A1c - Manufacture of Solid Fuels and Other Energy Industries	18.09	18.43	17.11	19.55	19.96	18.56	16.19	16.35	17.54	16.35	15.61	15.52	16.11
1A1cii - Other Energy Industries	18.085	18.429	17.109	19.547	19.964	18.563	16.192	16.353	17.537	16.351	15.611	15.524	16.111
1A2 - Manufacturing Industries and Construction	22.71	21.54	22.86	19.24	19.53	18.64	18.72	17.01	18.12	16.61	18.77	19.91	19.89
1A2c - Chemicals	4.55	4.08	3.97	2.60	3.22	3.81	3.79	3.13	3.91	3.82	5.36	6.32	5.71
1A2d - Pulp, Paper and Print	1.05	0.94	1.01	0.92	0.94	0.62	0.64	0.55	0.46	0.40	0.40	0.44	0.44
1A2e - Food Processing, Beverages and Tobacco	3.89	3.51	3.80	3.12	3.16	3.02	3.31	3.32	3.18	3.12	3.08	3.16	3.26
1A2f - Non-Metallic Minerals	5.42	5.28	5.47	5.29	5.27	5.32	5.32	4.78	4.34	2.93	2.89	2.85	3.07
1A2g - Transport Equipment	0.46	0.48	0.52	0.31	0.27	0.27	0.26	0.28	0.29	0.25	0.25	0.24	0.24
1A2h - Machinery	1.75	1.27	1.33	0.98	1.01	1.02	1.04	0.99	0.93	0.82	0.80	0.82	0.81
1A2i - Mining (excluding fuels) and Quarrying	0.86	0.31	0.31	0.34	0.36	0.34	0.11	0.16	0.19	0.14	0.15	0.15	0.16
1A2j - Wood and Wood Products	0.40	0.31	0.19	0.16	0.11	0.11	0.11	0.08	0.07	0.05	0.05	0.04	0.03
1A2k - Construction	0.41	0.61	0.62	0.64	0.78	0.74	0.62	0.50	0.44	0.43	0.50	0.59	0.52
1A2l - Textile and Leather	0.56	0.54	0.59	0.45	0.44	0.43	0.39	0.35	0.31	0.23	0.24	0.23	0.22
1A2m - Non-specified Industry.	2.55	3.42	4.13	3.69	3.25	2.35	2.68	2.34	3.48	4.06	4.57	4.57	4.91
1A3 - Transport	175.01	175.53	182.72	182.52	185.87	188.07	188.20	188.26	177.08	170.62	169.52	167.24	166.56
1A3a - Civil Aviation	4.15	4.07	4.12	4.25	4.50	4.50	4.57	4.98	4.51	4.04	3.85	3.75	3.72
1A3aii - Domestic Aviation	3.885	3.829	3.848	3.983	4.254	4.281	4.360	4.755	4.318	3.883	3.717	3.613	3.601
1A3b - Road Transportation	162.88	163.46	169.64	168.81	171.48	172.68	172.37	172.41	163.00	158.46	157.38	154.91	154.06
1A3bi - Cars	64.294	62.959	63.341	60.358	59.835	58.813	58.514	58.257	55.443	54.907	55.107	54.178	54.132
1A3bii - Light-duty Trucks	65.457	66.592	70.655	72.024	72.935	73.040	72.331	71.509	67.766	66.385	65.118	63.422	62.892
1A3biii - Heavy-duty Trucks and Buses	32.781	33.499	35.185	35.904	38.134	39.922	40.577	41.614	38.732	36.044	35.996	36.055	35.776
1A3biv - Motorcycles	0.232	0.268	0.312	0.343	0.366	0.390	0.410	0.430	0.423	0.423	0.428	0.426	0.431
1A3c - Railways	1.88	1.89	2.50	2.70	2.91	3.34	3.53	3.17	2.38	1.94	2.33	2.49	2.48
1A3d - Water-borne Navigation	3.39	3.21	3.56	3.78	3.84	4.12	4.20	4.31	4.04	3.68	3.71	3.72	3.83
1A3di - International Water-borne Navigation (International Bunkers)	1.125	1.181	1.239	1.300	1.364	1.431	1.481	1.565	1.449	1.212	1.245	1.244	1.334
1A3dii - Domestic Water-borne Navigation	2.264	2.034	2.325	2.476	2.472	2.692	2.716	2.749	2.594	2.469	2.465	2.476	2.497
1A3e - Other Transportation	2.63	2.79	2.77	2.84	3.03	3.22	3.32	3.18	2.82	2.25	2.03	2.13	2.23
1A3eii - Off-road	2.631	2.790	2.768	2.843	3.029	3.217	3.315	3.176	2.819	2.246	2.033	2.133	2.234
1A4 - Other Sectors	45.06	43.98	46.51	45.66	46.80	45.46	46.80	45.42	45.99	44.38	45.71	47.20	45.25
1A4a - Commercial/Institutional	11.54	11.37	13.18	12.82	12.77	12.61	12.89	12.88	13.00	13.04	13.48	13.65	13.44
1A4b - Residential	29.70	28.77	28.93	28.47	29.51	28.22	28.58	28.73	29.07	28.69	29.42	29.89	28.09

California Greenhouse Gas Inventory for 2000-2012 — by IPCC Category

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

Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1A4c - Agriculture/Forestry/Fishing/Fish Farms	3.82	3.83	4.39	4.38	4.53	4.63	5.33	3.80	3.92	2.65	2.81	3.66	3.72
1B - Fugitive Emissions from Fuels	5.94	5.67	5.24	5.17	4.81	4.68	5.31	5.29	5.35	5.49	5.28	5.44	5.26
1B1 - Solid Fuels	0.08	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02
1B2 - Oil and Natural Gas	4.62	4.41	3.99	3.92	3.54	3.41	4.05	4.04	4.12	4.05	4.10	4.14	4.39
1B2a - Oil	0.48	0.46	0.47	0.46	0.44	0.46	0.48	0.47	0.46	0.45	0.49	0.52	0.47
1B2ai - Venting	0.067	0.069	0.069	0.071	0.069	0.071	0.073	0.072	0.071	0.066	0.053	0.072	0.061
1B2aii - Flaring	0.057	0.058	0.058	0.059	0.058	0.060	0.061	0.061	0.060	0.055	0.055	0.128	0.106
1B2aiii - All Other	0.358	0.331	0.338	0.330	0.315	0.334	0.341	0.338	0.330	0.324	0.377	0.322	0.305
1B2b - Natural Gas	2.82	2.48	2.28	2.18	2.28	2.14	2.21	2.25	2.29	2.23	2.25	2.09	2.36
1B3 - Geothermal Energy Production	1.13	1.11	1.11	1.10	1.12	1.12	1.10	1.11	1.09	1.31	1.10	1.22	0.83
1B4 - Pollution control devices	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.06	0.05	0.02
2 - Industrial Processes and Product Use	19.97	19.74	19.99	20.55	21.36	22.26	23.20	23.82	24.47	23.25	25.34	30.58	31.95
2A - Mineral Industry	5.51	5.58	5.66	5.74	5.84	5.92	5.86	5.61	5.33	3.63	3.49	4.11	4.69
2A1 - Cement Production	5.43	5.52	5.60	5.68	5.77	5.85	5.80	5.55	5.28	3.60	3.46	4.08	4.65
2A2 - Lime Production	0.07	0.07	0.06	0.06	0.08	0.07	0.07	0.05	0.04	0.03	0.03	0.04	0.04
2B - Chemical Industry	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.05
2B2 - Nitric Acid Production	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.05
2D - Non-Energy Products from Fuels and Solvent Use	2.46	2.23	2.13	2.03	1.98	1.97	1.94	2.00	1.88	1.69	1.87	1.77	1.64
2D1 - Lubricant Use	2.09	1.92	1.89	1.75	1.77	1.77	1.72	1.78	1.65	1.48	1.65	1.56	1.44
2D3 - Solvent Use	0.36	0.32	0.23	0.27	0.21	0.20	0.22	0.22	0.23	0.21	0.22	0.21	0.21
2E - Electronics Industry	0.70	0.50	0.47	0.48	0.40	0.36	0.39	0.36	0.36	0.23	0.29	0.53	0.45
2F - Product Uses as Substitutes for Ozone Depleting Substances	7.00	7.17	7.37	8.06	8.87	9.71	10.41	11.16	12.24	13.49	15.36	16.58	17.73
2G - Other Product Manufacture and Use	0.95	0.86	0.92	0.87	0.90	0.90	0.96	0.97	0.95	0.88	0.93	0.88	0.85
2G1 - Electrical Equipment	0.33	0.32	0.30	0.29	0.30	0.29	0.28	0.26	0.27	0.26	0.24	0.24	0.23
2G1b - Use of Electrical Equipment	0.33	0.32	0.30	0.29	0.30	0.29	0.28	0.26	0.27	0.26	0.24	0.24	0.23
2G4 - CO ₂ , Limestone or Soda Ash consumption	0.62	0.53	0.62	0.57	0.61	0.61	0.68	0.71	0.68	0.62	0.69	0.64	0.61
2H - Other	3.31	3.35	3.39	3.33	3.31	3.34	3.58	3.67	3.67	3.27	3.36	6.68	6.54
2H3 - Hydrogen Production	3.31	3.35	3.39	3.33	3.31	3.34	3.58	3.67	3.67	3.27	3.36	6.68	6.54

California Greenhouse Gas Inventory for 2000-2012 — by IPCC Category

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

Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
3 - Agriculture, Forestry and Other Land Use	28.70	28.92	31.60	32.13	31.73	31.92	32.42	33.23	34.07	33.19	32.92	32.68	34.14
3A - Livestock	19.66	20.44	21.06	21.63	21.06	21.81	22.22	23.73	24.09	23.88	23.35	23.38	23.92
3A1 - Enteric Fermentation	10.26	10.45	10.74	10.89	10.78	11.14	11.24	11.93	11.89	11.71	11.51	11.49	11.78
3A1a - Cattle	9.90	10.08	10.36	10.48	10.35	10.66	10.76	11.46	11.43	11.22	11.02	11.00	11.30
3A1ai - Dairy Cows	6.634	6.860	7.155	7.298	7.226	7.452	7.652	8.084	8.216	8.135	7.951	7.991	8.220
3A1aii - Other Cattle	3.264	3.221	3.210	3.185	3.125	3.212	3.110	3.376	3.210	3.086	3.073	3.007	3.080
3A1c - Sheep	0.16	0.16	0.15	0.15	0.14	0.14	0.13	0.12	0.12	0.13	0.12	0.12	0.11
3A1d - Goats	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02
3A1f - Horses	0.18	0.19	0.20	0.24	0.27	0.31	0.32	0.32	0.32	0.33	0.34	0.35	0.35
3A1h - Swine	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
3A2 - Manure Management	9.40	10.00	10.32	10.75	10.28	10.67	10.98	11.80	12.20	12.17	11.84	11.89	12.14
3A2a - Cattle	9.02	9.63	9.94	10.38	9.92	10.31	10.63	11.43	11.87	11.83	11.50	11.55	11.80
3A2ai - Dairy Cows	8.678	9.282	9.562	9.972	9.536	9.906	10.202	11.001	11.451	11.436	11.113	11.164	11.403
3A2aii - Other Cattle	0.344	0.348	0.375	0.403	0.385	0.403	0.424	0.429	0.419	0.398	0.387	0.387	0.401
3A2c - Sheep	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.04	0.03	0.03	0.03
3A2d - Goats	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
3A2f - Horses	0.06	0.07	0.07	0.08	0.08	0.09	0.09	0.09	0.08	0.08	0.09	0.09	0.09
3A2h - Swine	0.06	0.05	0.07	0.06	0.06	0.06	0.06	0.07	0.04	0.05	0.05	0.05	0.05
3A2i - Poultry	0.21	0.21	0.20	0.19	0.17	0.17	0.17	0.18	0.17	0.17	0.17	0.17	0.17
3C - Aggregate Sources and Non-CO₂ Emissions Sources on Land	9.05	8.48	10.54	10.49	10.67	10.11	10.20	9.50	9.98	9.31	9.57	9.30	10.22
3C1 - Emissions from Biomass Burning	0.08	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08
3C1b - Biomass Burning in Croplands	0.08	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08
3C2 - Liming	0.27	0.16	0.23	0.24	0.24	0.30	0.48	0.26	0.17	0.17	0.18	0.17	0.23
3C4 - Direct N₂O Emissions from Managed Soils	5.82	5.61	7.02	7.01	7.03	6.64	6.57	6.19	6.65	6.07	6.26	6.03	6.71
3C5 - Indirect N₂O Emissions from Managed Soils	1.69	1.62	2.08	2.08	2.06	1.96	1.95	1.83	1.97	1.79	1.86	1.77	2.00
3C7 - Rice Cultivations	1.19	1.02	1.14	1.10	1.28	1.14	1.13	1.15	1.12	1.20	1.20	1.26	1.20
4 - Waste	9.84	9.95	9.90	10.02	10.05	10.25	10.28	10.44	10.56	10.63	10.79	10.86	10.91
4A - Solid Waste Disposal	7.11	7.23	7.14	7.26	7.24	7.40	7.42	7.53	7.66	7.78	7.86	7.92	7.97
4A1 - Managed Waste Disposal Sites	7.11	7.23	7.14	7.26	7.24	7.40	7.42	7.53	7.66	7.78	7.86	7.92	7.97
4B - Biological Treatment of Solid Waste	0.24	0.26	0.29	0.31	0.33	0.36	0.38	0.40	0.43	0.45	0.47	0.50	0.52
4D - Wastewater Treatment and Discharge	2.49	2.46	2.47	2.45	2.47	2.50	2.49	2.51	2.47	2.41	2.45	2.44	2.42
4D1 - Domestic Wastewater Treatment and Discharge	1.60	1.61	1.59	1.59	1.59	1.60	1.59	1.60	1.59	1.59	1.59	1.58	1.54
4D2 - Industrial Wastewater Treatment and Discharge	0.89	0.85	0.88	0.87	0.89	0.90	0.89	0.91	0.88	0.82	0.86	0.85	0.88

California Greenhouse Gas Inventory for 2000-2012 — by IPCC Category

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

Included Emissions

Summary for Included Emissions

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
California Emissions	466.32	481.23	480.32	483.05	492.86	485.13	482.52	489.16	487.10	458.44	453.06	450.94	458.68

Archive

California Greenhouse Gas Inventory for 2000-2012 — by IPCC Category

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

Excluded Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1 - Energy	54.74	48.38	53.09	47.44	51.24	54.09	56.30	58.95	55.31	54.75	54.55	49.91	47.69
1A - Fuel Combustion Activities	54.74	48.38	53.09	47.44	51.24	54.09	56.30	58.95	55.31	54.75	54.55	49.91	47.69
1A3 - Transport	50.94	44.02	48.97	43.26	47.36	50.68	53.19	56.03	52.54	52.04	51.39	47.20	44.40
1A3a - Civil Aviation	35.18	32.51	35.19	33.80	36.18	35.84	36.79	38.44	34.87	34.20	33.50	34.00	32.70
1A3ai - International Aviation (International Bunkers)	16.794	15.171	15.722	14.555	15.779	16.187	16.830	17.546	16.619	16.468	16.203	17.049	16.445
1A3aia - Domestic Aviation	18.389	17.334	19.467	19.245	20.396	19.650	19.958	20.899	18.250	17.733	17.297	16.948	16.253
1A3d - Water-borne Navigation	15.75	11.51	13.78	9.46	11.18	14.84	16.40	17.58	17.67	17.84	17.89	13.20	11.70
1A3di - International Water-borne Navigation (International Bunkers)	15.753	11.512	13.779	9.462	11.184	14.844	16.399	17.582	17.675	17.844	17.893	13.199	11.698
1A5 - Non-Specified	3.81	4.36	4.13	4.18	3.88	3.41	3.11	2.93	2.77	2.70	3.16	2.71	3.30
1A5b - Mobile	3.74	4.07	3.64	3.66	3.34	3.31	3.00	2.81	2.68	2.56	2.58	2.31	2.87
1A5bi - Mobile (Aviation Component)	3.736	4.069	3.640	3.661	3.338	3.313	3.004	2.807	2.682	2.562	2.584	2.308	2.874
Summary for Excluded Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
International and Interstate Emissions	54.74	48.38	53.09	47.44	51.24	54.09	56.30	58.95	55.31	54.75	54.55	49.91	47.69

Archiving

California Greenhouse Gas Inventory for 2000-2012 — by IPCC Category

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

CO₂ from biogenic materials	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1 - Energy	16.22	16.39	14.65	14.98	14.95	14.17	13.78	13.67	13.62	14.09	13.43	15.36	15.24
1A - Fuel Combustion Activities	16.22	16.39	14.65	14.98	14.95	14.17	13.78	13.67	13.62	14.09	13.43	15.36	15.24
1A1 - Energy Industries	8.39	8.21	8.02	8.22	8.09	8.50	8.65	8.31	8.30	9.00	8.34	9.40	9.22
1A1a - Main Activity Electricity and Heat Production	8.39	8.21	8.02	8.22	8.09	8.50	8.65	8.31	8.30	9.00	8.34	9.40	9.22
1A1ai - Electricity Generation	5.249	4.790	5.687	5.638	5.414	5.530	5.670	5.343	5.513	6.738	6.323	6.763	6.479
1A1aii - Combined Heat and Power Generation (CHP)	3.137	3.419	2.338	2.581	2.679	2.966	2.983	2.968	2.783	2.266	2.018	2.639	2.743
1A1b - Petroleum Refining	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
1A2 - Manufacturing Industries and Construction	3.78	4.25	2.64	2.57	2.60	2.86	2.61	2.65	2.37	2.25	2.31	2.36	2.42
1A2f - Non-Metallic Minerals	0.06	0.06	0.07	0.07	0.07	0.07	0.05	0.05	0.06	0.07	0.10	0.09	0.14
1A2m - Non-specified Industry.	3.72	4.19	2.57	2.50	2.53	2.78	2.56	2.59	2.32	2.18	2.21	2.28	2.28
1A4 - Other Sectors	4.05	3.92	3.99	4.19	4.26	2.82	2.51	2.71	2.95	2.84	2.78	3.59	3.59
1A4a - Commercial/Institutional	0.58	0.59	0.60	0.63	0.61	0.39	0.36	0.38	0.41	0.40	0.40	0.47	0.47
1A4b - Residential	3.47	3.33	3.38	3.56	3.65	2.43	2.15	2.32	2.55	2.44	2.38	3.12	3.12
3 - Agriculture, Forestry and Other Land Use	1.39	1.16	1.16	1.20	1.21	1.20	1.22	1.26	1.34	1.36	1.39	1.43	1.43
3C - Aggregate Sources and Non-CO₂ Emissions Sources on Land	1.39	1.16	1.16	1.20	1.21	1.20	1.22	1.26	1.34	1.36	1.39	1.43	1.43
3C1 - Emissions from Biomass Burning	1.39	1.16	1.16	1.20	1.21	1.20	1.22	1.26	1.34	1.36	1.39	1.43	1.43
3C1b - Biomass Burning in Croplands	1.39	1.16	1.16	1.20	1.21	1.20	1.22	1.26	1.34	1.36	1.39	1.43	1.43
4 - Waste	6.19	6.51	6.75	6.73	6.80	6.95	7.13	7.21	7.28	7.37	7.47	7.51	7.54
4A - Solid Waste Disposal	6.19	6.51	6.75	6.73	6.80	6.95	7.13	7.21	7.28	7.37	7.47	7.51	7.54
4A1 - Managed Waste Disposal Sites	6.19	6.51	6.75	6.73	6.80	6.95	7.13	7.21	7.28	7.37	7.47	7.51	7.54
Summary for CO₂ from biogenic materials	23.80	24.06	22.56	22.90	22.96	22.33	22.13	22.14	22.25	22.82	22.29	24.29	24.21
Carbon dioxide from Biogenic sources	23.80	24.06	22.56	22.90	22.96	22.33	22.13	22.14	22.25	22.82	22.29	24.29	24.21

California Greenhouse Gas Inventory for 2000-2012 — by IPCC Category

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

Forested Lands & Wood Products ————— **2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012**

This section of the inventory is currently under development

Archive