

Included Emissions

California Carbon Dioxide Inventory for 2000-2015 — by IPCC Category

CO2

million tonnes of CO2 equivalent - (based upon IPCC Fourth Assessment Report's 100-yr Global Warming Potentials)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1 - Energy	397.5	412.8	409.7	409.2	417.4	408.7	404.2	409.4	406.2	379.4	370.0	361.5	366.1	363.5	358.6	356.3
1A - Fuel Combustion Activities	395.72	411.03	407.90	407.41	415.64	406.89	402.43	407.62	404.40	377.41	368.25	359.65	364.63	361.88	356.91	354.46
1A1 - Energy Industries	158.46	175.23	160.87	167.09	172.04	163.19	156.97	165.06	170.82	153.79	144.29	136.56	143.71	141.20	139.42	132.34
1A1a - Main Activity Electricity and Heat Production	115.84	131.71	118.56	121.65	126.91	118.84	115.34	123.78	129.12	112.98	102.27	98.30	105.40	99.85	97.11	91.56
1A1ai - Electricity Generation	84.418	103.047	86.082	92.399	97.603	90.742	88.435	97.788	104.163	83.873	75.534	71.807	80.769	74.567	72.223	69.276
1A1aii - Combined Heat and Power Generation (CHP)	31.427	28.665	32.483	29.256	29.306	28.100	26.908	25.992	24.959	29.106	26.739	26.488	24.631	25.286	24.888	22.281
1A1b - Petroleum Refining	24.55	25.11	25.21	25.91	25.19	25.81	25.45	24.94	24.16	24.47	26.42	22.74	22.69	23.74	23.84	22.27
1A1c - Manufacture of Solid Fuels and Other Energy Industries	18.07	18.41	17.09	19.53	19.94	18.54	16.18	16.34	17.54	16.33	15.59	15.53	15.62	17.60	18.47	18.51
1A1cii - Other Energy Industries	18.067	18.410	17.091	19.526	19.944	18.544	16.175	16.336	17.539	16.334	15.595	15.528	15.620	17.604	18.466	18.511
1A2 - Manufacturing Industries and Construction	22.61	21.42	22.78	19.17	19.41	18.51	18.60	16.91	18.01	16.53	18.63	19.44	19.68	20.19	20.12	19.89
1A2c - Chemicals	4.54	4.08	3.97	2.60	3.21	3.81	3.78	3.12	3.90	3.81	5.36	6.31	5.71	5.66	6.46	6.01
1A2d - Pulp, Paper and Print	1.05	0.94	1.00	0.92	0.94	0.62	0.64	0.55	0.46	0.40	0.40	0.44	0.44	0.43	0.41	0.44
1A2e - Food Processing, Beverages and Tobacco	3.89	3.50	3.80	3.11	3.15	3.02	3.31	3.32	3.18	3.12	3.08	3.15	3.26	3.27	3.30	3.32
1A2f - Non-Metallic Minerals	5.39	5.25	5.44	5.26	5.24	5.29	5.29	4.75	4.31	2.92	2.88	2.84	3.05	3.03	3.10	3.17
1A2g - Transport Equipment	0.45	0.48	0.52	0.31	0.27	0.27	0.26	0.28	0.29	0.25	0.25	0.23	0.24	0.28	0.27	0.27
1A2h - Machinery	1.75	1.27	1.33	0.98	1.01	1.01	1.04	0.99	0.93	0.82	0.80	0.82	0.81	0.79	0.77	0.76
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	0.17	0.16	0.15	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	0.05	0.05	0.04	0.03	0.03	0.04	0.04
1A2k - Construction	0.41	0.60	0.62	0.62	0.75	0.72	0.60	0.48	0.42	0.41	0.47	0.47	0.63	1.26	0.70	0.33
1A2l - Textile and Leather	0.56	0.54	0.59	0.45	0.44	0.43	0.39	0.35	0.30	0.23	0.24	0.23	0.22	0.22	0.21	0.20
1A2m - Non-specified Industry.	2.51	3.36	4.10	3.68	3.20	2.29	2.63	2.29	3.43	4.02	4.49	4.25	4.61	4.54	4.18	4.73
1A3 - Transport	170.12	170.92	178.29	176.07	177.98	180.18	180.48	180.67	169.80	163.27	159.93	156.80	156.76	155.52	157.48	162.07
1A3a - Civil Aviation	4.11	4.03	4.08	4.21	4.45	4.45	4.52	4.93	4.46	3.99	3.81	3.68	3.72	3.88	3.85	4.17
1A3aii - Domestic Aviation	3.847	3.791	3.811	3.944	4.213	4.240	4.319	4.710	4.277	3.846	3.682	3.579	3.567	3.739	3.684	3.979
1A3b - Road Transportation	157.25	158.12	164.50	161.55	162.95	164.16	164.00	164.36	155.03	150.67	146.95	143.99	143.88	142.18	143.40	147.92
1A3bi - Cars	63.916	62.652	64.014	59.934	58.485	57.154	56.472	56.077	53.051	52.968	51.653	50.500	51.303	51.430	52.353	55.349
1A3bii - Light-duty Trucks	57.064	59.259	63.025	64.196	65.331	66.594	66.756	66.683	63.478	62.188	60.269	58.814	58.569	57.485	57.281	59.276
1A3biii - Heavy-duty Trucks and Buses	35.938	35.789	37.003	36.913	38.597	39.536	39.836	40.571	37.418	34.380	33.878	33.484	32.811	32.182	32.465	31.972
1A3biv - Motorcycles	0.209	0.270	0.308	0.323	0.331	0.361	0.401	0.426	0.444	0.438	0.415	0.402	0.403	0.397	0.399	0.421
1A3c - Railways	1.87	1.88	2.49	2.85	2.90	3.33	3.52	3.16	2.37	1.94	2.30	2.63	2.46	2.39	2.74	2.41
1A3d - Water-borne Navigation	3.49	3.31	3.62	3.78	3.79	4.03	4.08	4.24	4.00	3.63	3.70	3.55	3.59	3.85	3.94	3.87
1A3di - International Water-borne Navigation (International Bunkers)	1.124	1.180	1.239	1.300	1.364	1.431	1.482	1.567	1.453	1.212	1.362	1.324	1.286	1.473	1.527	1.514
1A3dii - Domestic Water-borne Navigation	2.367	2.131	2.382	2.481	2.423	2.603	2.598	2.675	2.542	2.413	2.336	2.226	2.305	2.377	2.409	2.359

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	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1A3e - Other Transportation	2.62	2.78	2.76	2.83	3.02	3.21	3.30	3.17	2.81	2.24	2.03	2.13	2.23	2.33	2.43	2.52
1A3eii - Off-road	2.622	2.780	2.758	2.834	3.018	3.206	3.304	3.165	2.809	2.238	2.026	2.126	2.226	2.326	2.425	2.525
1A4 - Other Sectors	44.52	43.45	45.96	45.08	46.21	45.01	46.37	44.98	45.76	43.82	45.41	46.86	44.49	44.98	39.89	40.17
1A4a - Commercial/Institutional	11.44	11.28	13.08	12.81	12.67	12.53	12.81	12.80	12.97	12.86	13.55	13.68	13.38	13.27	12.49	12.74
1A4b - Residential	29.27	28.36	28.51	28.03	29.06	27.89	28.28	28.41	28.72	28.36	29.09	29.54	27.24	28.02	22.75	23.05
1A4c - Agriculture/Forestry/Fishing/Fish Farms	3.80	3.81	4.37	4.24	4.49	4.59	5.28	3.77	4.08	2.60	2.77	3.64	3.86	3.70	4.65	4.38
1B - Fugitive Emissions from Fuels	1.80	1.79	1.79	1.79	1.79	1.81	1.80	1.80	1.77	1.97	1.79	1.83	1.49	1.63	1.70	1.87
1B2 - Oil and Natural Gas	0.56	0.57	0.57	0.58	0.56	0.57	0.58	0.58	0.57	0.55	0.63	0.64	0.64	0.82	0.90	0.85
1B2a - Oil	0.39	0.39	0.40	0.41	0.39	0.41	0.42	0.41	0.41	0.38	0.45	0.45	0.42	0.56	0.59	0.50
1B2ai - Venting	0.042	0.043	0.043	0.044	0.043	0.044	0.045	0.045	0.044	0.041	0.028	0.021	0.025	0.159	0.212	0.150
1B2aii - Flaring	0.050	0.051	0.051	0.052	0.051	0.052	0.054	0.053	0.052	0.049	0.054	0.120	0.099	0.097	0.086	0.080
1B2aiii - All Other	0.294	0.301	0.303	0.309	0.301	0.310	0.318	0.315	0.311	0.288	0.365	0.309	0.293	0.307	0.296	0.266
1B2b - Natural Gas	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	0.00	0.00	0.00
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	1.13	0.83	0.80	0.79	1.02
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	0.00	0.00	0.00
2 - Industrial Processes and Product Use	12.5	12.0	12.5	12.4	12.5	12.5	12.6	12.6	12.1	9.7	9.8	13.6	13.9	12.4	13.0	13.4
2A - Mineral Industry	5.60	5.35	5.88	5.93	6.11	6.04	5.88	5.71	5.33	3.63	3.49	4.11	4.69	4.97	5.32	5.23
2A1 - Cement Production	5.52	5.28	5.82	5.87	6.03	5.96	5.81	5.66	5.28	3.60	3.46	4.08	4.65	4.93	5.27	5.17
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	0.04	0.05	0.06
2C - Metal Industry	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.06	0.07	0.06	0.05
2C5 - Lead Production	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.06	0.07	0.06	0.05
2D - Non-Energy Products from Fuels and Solvent Use	2.46	2.26	2.20	2.07	2.06	2.04	2.00	2.05	1.92	1.74	1.91	1.81	1.68	1.70	1.83	1.90
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	1.52	1.59	1.73
2D3 - Solvent Use	0.37	0.35	0.30	0.31	0.28	0.28	0.28	0.28	0.27	0.26	0.27	0.25	0.24	0.18	0.24	0.17
2G - Other Product Manufacture and Use	1.01	0.93	1.00	0.96	0.99	1.00	1.06	1.10	1.08	1.01	0.96	0.91	0.88	0.95	1.03	0.97
2G4 - CO2, Limestone or Soda Ash consumption	1.01	0.93	1.00	0.96	0.99	1.00	1.06	1.10	1.08	1.01	0.96	0.91	0.88	0.95	1.03	0.97
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	4.69	4.73	5.26
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	4.69	4.73	5.26

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Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
3 - Agriculture, Forestry and Other Land Use	0.3	0.2	0.2	0.2	0.2	0.3	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
3C - Aggregate Sources and Non-CO2 Emissions Sources on Land	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	0.22	0.21	0.19
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	0.22	0.21	0.19
Summary for Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
California CO2 Emissions	410.2	424.9	422.5	421.8	430.2	421.5	417.3	422.3	418.4	389.3	380.0	375.2	380.2	376.1	371.8	369.9

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Excluded Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1 - Energy	54.3	48.0	52.7	47.0	50.8	53.7	55.9	58.5	54.9	54.4	56.0	53.8	52.9	54.0	56.7	59.1
1A - Fuel Combustion Activities	54.34	48.01	52.70	47.05	50.85	53.69	55.88	58.52	54.91	54.36	56.01	53.80	52.94	54.01	56.67	59.13
1A3 - Transport	50.57	43.69	48.61	42.93	47.00	50.31	52.80	55.62	52.16	51.68	52.93	51.15	49.67	51.15	53.15	56.16
1A3a - Civil Aviation	34.87	32.22	34.88	33.50	35.86	35.52	36.46	38.11	34.56	33.90	33.21	33.70	32.41	34.70	37.08	39.85
1A3ai - International Aviation (International Bunkers)	16.647	15.038	15.584	14.427	15.641	16.045	16.682	17.392	16.474	16.323	16.061	16.899	16.301	17.838	19.552	21.647
1A3aia - Domestic Aviation	18.228	17.182	19.296	19.076	20.217	19.478	19.782	20.716	18.090	17.578	17.145	16.800	16.110	16.867	17.530	18.204
1A3d - Water-borne Navigation	15.69	11.47	13.73	9.42	11.14	14.78	16.33	17.51	17.60	17.78	19.73	17.45	17.26	16.44	16.06	16.31
1A3di - International Water-borne Navigation (International Bunkers)	15.694	11.467	13.726	9.422	11.139	14.784	16.334	17.509	17.600	17.775	19.728	17.447	17.258	16.442	16.063	16.311
1A5 - Non-Specified	3.77	4.32	4.09	4.12	3.85	3.38	3.09	2.90	2.75	2.68	3.08	2.66	3.27	2.87	3.53	2.97
1A5b - Mobile	3.70	4.03	3.61	3.63	3.31	3.28	2.98	2.78	2.66	2.54	2.56	2.29	2.85	2.36	2.36	2.36
1A5bi - Mobile (Aviation Component)	3.703	4.033	3.608	3.629	3.308	3.283	2.977	2.782	2.659	2.540	2.562	2.287	2.849	2.358	2.358	2.358
Summary for Excluded Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
International and Interstate CO2 Emissions	54.3	48.0	52.7	47.0	50.8	53.7	55.9	58.5	54.9	54.4	56.0	53.8	52.9	54.0	56.7	59.1

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This section of the inventory is currently under development