

Included Emissions

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

1 - Energy	411.4	426.4	423.4	422.5	430.4	421.7	417.0	421.4	417.8	390.5	381.8	373.9	379.5	375.7	369.6	367.8	355.1	349.5	349.3	343.6
1A - Fuel Combustion Activities	403.66	418.51	415.21	414.47	422.34	413.26	408.31	412.94	409.23	381.77	373.14	364.74	370.77	366.96	360.78	358.74	345.78	340.72	340.38	334.61
1A1 - Energy Industries	159.16	175.96	161.56	167.82	172.76	163.91	157.64	165.74	171.53	154.35	144.85	137.13	145.53	140.71	138.53	132.82	115.43	109.52	110.45	105.11
1A1a - Main Activity Electricity and Heat Production	116.37	132.29	119.12	122.23	127.49	119.41	115.87	124.33	129.70	113.42	102.69	98.41	106.71	99.99	96.71	92.16	75.74	69.65	71.05	66.12
1A1ai - Electricity Generation	84.80	103.49	86.52	92.86	98.06	91.19	88.84	98.22	104.63	84.20	75.85	72.60	82.39	75.01	72.73	69.66	54.78	49.66	50.93	47.56
1A1aii - Combined Heat and Power Generation (CHP)	31.56	28.80	32.60	29.38	29.43	28.23	27.03	26.11	25.07	29.22	26.84	25.80	24.33	24.99	23.98	22.50	20.96	19.99	20.12	18.56
1A1b - Petroleum Refining	24.67	25.23	25.33	26.03	25.31	25.93	25.57	25.06	24.28	24.59	26.54	23.18	23.18	23.14	23.32	22.43	23.59	23.81	23.70	23.50
1A1c - Manufacture of Solid Fuels and Other Energy Industries	18.12	18.44	17.11	19.55	19.97	18.57	16.19	16.35	17.56	16.35	15.61	15.55	15.64	17.58	18.50	18.23	16.11	16.06	15.70	15.50
1A1cii - Other Energy Industries	18.12	18.44	17.11	19.55	19.97	18.57	16.19	16.35	17.56	16.35	15.61	15.55	15.64	17.58	18.50	18.23	16.11	16.06	15.70	15.50
1A2 - Manufacturing Industries and Construction	22.65	21.44	22.69	19.14	19.41	18.66	18.72	16.99	17.96	16.33	18.68	19.90	20.20	20.83	20.71	20.37	20.11	19.74	19.67	20.89
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	5.67	6.25	5.89	6.40	6.13	6.32	7.54
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	0.43	0.41	0.44	0.45	0.39	0.38	0.38
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	3.27	3.31	3.33	3.29	3.22	3.27	3.28
1A2f - Non-Metallic Minerals	5.42	5.28	5.47	5.29	5.27	5.32	5.32	4.78	4.34	2.94	2.90	3.24	3.51	3.51	3.68	3.56	3.71	3.67	3.74	3.66
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	0.28	0.27	0.27	0.28	0.29	0.29	0.21
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	0.79	0.77	0.76	0.76	0.74	0.73	0.75
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	0.16	0.17	0.17	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	0.03	0.04	0.04	0.04	0.04	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	0.48	0.47	0.64	1.26	0.71	0.33	0.21	0.20	0.12	0.13
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	0.22	0.21	0.20	0.20	0.23	0.21	0.19
1A2m - Non-specified Industry.	2.49	3.33	3.97	3.60	3.15	2.39	2.70	2.34	3.33	3.79	4.50	4.30	4.65	4.68	4.39	4.95	4.11	4.16	3.94	4.12
1A3 - Transport	177.20	177.52	184.85	182.30	183.82	185.57	185.47	185.11	173.86	167.14	164.08	160.77	160.46	160.31	161.61	165.13	168.76	170.25	168.73	165.36
1A3a - Civil Aviation	4.21	4.02	4.17	4.25	4.49	4.49	4.56	4.97	4.50	4.03	3.84	3.73	3.75	3.93	3.90	4.22	4.44	4.68	4.65	4.36
1A3aii - Domestic Aviation	3.95	3.78	3.89	3.98	4.25	4.28	4.36	4.76	4.32	3.88	3.72	3.63	3.60	3.79	3.73	4.03	4.35	4.59	4.64	4.34
1A3b - Road Transportation	164.76	165.30	171.57	168.36	169.41	170.20	169.64	169.64	159.79	155.07	151.20	148.08	147.71	147.15	147.85	151.20	155.16	156.57	154.57	151.58
1A3bi - Cars	69.05	67.67	69.23	64.91	63.42	61.82	60.94	60.30	56.92	56.66	55.18	53.96	54.53	54.89	55.14	57.47	58.51	59.23	59.33	59.55
1A3bii - Light-duty Trucks	55.84	57.80	61.10	62.28	63.02	64.10	63.99	63.79	60.70	59.50	57.72	56.13	55.96	55.38	55.74	57.34	58.95	58.98	58.25	57.55
1A3biii - Heavy-duty Trucks and Buses	39.51	39.37	40.73	40.61	42.37	43.33	43.68	44.45	41.00	37.68	37.07	36.71	35.94	35.62	35.65	34.88	36.14	36.45	35.09	32.47
1A3biv - Motorcycles	0.24	0.32	0.36	0.38	0.39	0.43	0.48	0.51	0.53	0.52	0.49	0.48	0.49	0.48	0.49	0.51	0.52	0.53	0.54	0.55
1A3c - Railways	1.88	1.89	2.50	2.86	2.91	3.34	3.53	3.17	2.38	1.95	2.31	2.64	2.47	2.40	2.63	2.42	2.17	1.83	2.22	1.60
1A3d - Water-borne Navigation	2.93	2.72	3.00	3.13	3.10	3.32	3.36	3.33	3.23	3.04	3.71	3.56	3.60	3.86	3.95	3.89	3.72	3.82	3.74	3.84
1A3di - International Water-borne Navigation (International Bunkers)	0.84	0.89	0.93	0.98	1.03	1.08	1.13	1.09	1.07	0.94	1.37	1.35	1.31	1.47	1.53	1.51	1.56	1.61	1.67	1.72
1A3dii - Domestic Water-borne Navigation	2.09	1.84	2.07	2.15	2.08	2.24	2.23	2.24	2.16	2.10	2.34	2.22	2.30	2.40	2.42	2.37	2.16	2.21	2.08	2.12
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	2.33	2.43	2.53	2.63	2.73	2.83	2.93
1A3eii - Off-road	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	2.33	2.43	2.53	2.63	2.73	2.83	2.93

California Greenhouse Gas Inventory for 2000-2019 — by IPCC Category
million tonnes of CO2 equivalent - (based upon IPCC Fourth Assessment Report's 100-yr Global Warming Potentials)

Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1A4 - Other Sectors	44.65	43.59	46.10	45.22	46.35	45.12	46.48	45.09	45.88	43.95	45.54	46.93	44.58	45.11	39.93	40.41	41.48	41.20	41.53	43.26
1A4a - Commercial/Institutional	11.47	11.31	13.11	12.83	12.69	12.55	12.83	12.82	12.99	12.88	13.57	13.69	13.40	13.29	12.49	12.69	13.14	12.99	13.46	13.67
1A4b - Residential	29.38	28.46	28.62	28.14	29.16	27.97	28.35	28.49	28.80	28.46	29.19	29.59	27.31	28.11	22.92	23.33	24.36	25.10	24.84	27.05
1A4c - Agriculture/Forestry/Fishing/Fish Farms	3.81	3.82	4.38	4.25	4.50	4.60	5.30	3.78	4.09	2.61	2.77	3.65	3.88	3.71	4.51	4.40	3.97	3.11	3.23	2.54
1B - Fugitive Emissions from Fuels	7.74	7.85	8.20	7.98	8.09	8.41	8.70	8.49	8.57	8.73	8.61	9.13	8.76	8.75	8.82	9.07	9.31	8.81	8.96	8.96
1B1 - Solid Fuels	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.02	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	6.56	6.68	7.04	6.83	6.91	7.23	7.54	7.33	7.42	7.37	7.47	7.90	7.80	7.83	7.89	7.90	7.84	7.88	8.08	8.11
1B2a - Oil	0.48	0.46	0.47	0.46	0.44	0.46	0.48	0.47	0.46	0.45	0.49	0.79	0.75	0.60	0.63	0.53	0.50	0.47	0.47	0.48
1B2ai - Venting	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.05	0.27	0.27	0.19	0.21	0.15	0.15	0.15	0.21	0.16
1B2aii - Flaring	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.12	0.13	0.10	0.09	0.08	0.07	0.05	0.05	0.10
1B2aiii - All Other	0.36	0.33	0.34	0.33	0.31	0.33	0.34	0.34	0.33	0.32	0.38	0.40	0.35	0.31	0.32	0.30	0.28	0.27	0.22	0.23
1B2b - Natural Gas	4.42	4.48	4.82	4.58	4.67	4.72	4.87	4.85	4.93	4.97	4.95	4.94	4.85	4.86	4.88	4.94	4.96	4.99	5.00	5.05
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	1.17	0.92	0.90	0.90	1.15	1.45	0.87	0.87	0.83
1B4 - Pollution control devices	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.04	0.01	0.00	0.00	0.00	0.00	0.04	0.00	0.00
2 - Industrial Processes and Product Use	18.9	18.7	19.7	20.2	21.1	21.9	22.8	23.6	23.8	22.1	23.7	27.4	28.5	29.9	31.4	32.0	32.7	33.5	34.1	33.1
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	3.74	4.26	4.51	4.83	4.75	4.73	4.93	5.02	4.98
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	3.70	4.22	4.47	4.78	4.69	4.67	4.85	4.96	4.92
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	0.06	0.07	0.06	0.06
2B - Chemical Industry	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.04	0.05	0.03	0.05	0.05	0.01	0.03	0.00	0.00	0.00	0.00
2B2 - Nitric Acid Production	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.04	0.05	0.03	0.05	0.05	0.01	0.03	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00
2D - Non-Energy Products from Fuels and Solvent Use	2.52	2.32	2.25	2.11	2.11	2.12	2.08	2.13	2.00	1.81	2.22	2.04	1.90	1.98	2.00	2.17	2.09	1.97	1.92	1.73
2D1 - Lubricant Use	2.10	1.92	1.90	1.76	1.78	1.77	1.73	1.78	1.65	1.49	1.89	1.71	1.59	1.67	1.70	1.85	1.77	1.65	1.60	1.39
2D3 - Solvent Use	0.43	0.40	0.35	0.36	0.33	0.35	0.35	0.35	0.35	0.33	0.33	0.32	0.31	0.31	0.31	0.31	0.31	0.32	0.32	0.34
2E - Electronics Industry	0.20	0.14	0.12	0.14	0.14	0.14	0.14	0.10	0.08	0.06	0.08	0.08	0.06	0.08	0.14	0.14	0.14	0.15	0.15	0.14
2F - Product Uses as Substitutes for Ozone Depleting Substances	5.57	6.01	6.52	7.20	7.95	8.75	9.64	10.43	11.27	11.96	13.20	14.21	15.25	16.38	17.42	18.32	19.00	19.64	20.09	20.30
2G - Other Product Manufacture and Use	1.52	1.42	1.45	1.38	1.39	1.37	1.39	1.39	1.38	1.28	1.20	1.16	1.12	1.25	1.20	1.19	1.11	1.17	1.08	1.14
2G1 - Electrical Equipment	0.51	0.49	0.44	0.42	0.40	0.37	0.33	0.29	0.30	0.27	0.24	0.24	0.24	0.29	0.17	0.14	0.10	0.18	0.14	0.14
2G1b - Use of Electrical Equipment	0.51	0.49	0.44	0.42	0.40	0.37	0.33	0.29	0.30	0.27	0.24	0.24	0.24	0.29	0.17	0.14	0.10	0.18	0.14	0.14
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	1.05	1.01	0.99	0.94	1.01

Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
2H - Other	3.31	3.35	3.39	3.33	3.31	3.34	3.58	3.67	3.67	3.27	3.36	6.05	5.85	5.62	5.76	5.32	5.62	5.70	5.83	4.77	
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	6.05	5.85	5.62	5.76	5.32	5.62	5.70	5.83	4.77	
3 - Agriculture, Forestry and Other Land Use	28.4	28.6	30.1	30.6	29.6	30.4	30.7	32.8	32.3	31.6	32.3	32.1	33.0	31.5	31.6	30.6	30.7	30.8	31.0	30.7	
3A - Livestock	19.12	19.40	20.64	21.08	20.30	20.93	21.28	23.54	23.55	22.85	23.41	23.26	23.89	22.92	23.24	22.66	22.57	22.89	22.82	22.60	
3A1 - Enteric Fermentation	9.86	9.76	10.39	10.47	10.25	10.55	10.60	11.71	11.46	11.10	11.55	11.40	11.52	11.22	11.28	10.95	10.93	11.14	11.13	10.97	
3A1a - Cattle	9.51	9.39	10.01	10.07	9.83	10.07	10.12	11.25	10.99	10.61	11.07	10.92	11.03	10.73	10.79	10.47	10.45	10.65	10.65	10.49	
3A1ai - Dairy Cows	6.41	6.33	6.96	7.05	6.86	7.02	7.17	8.04	7.94	7.59	8.07	8.01	8.06	7.81	7.83	7.65	7.60	7.67	7.64	7.60	
3A1aii - Other Cattle	3.10	3.06	3.05	3.03	2.97	3.05	2.95	3.21	3.05	3.01	3.00	2.90	2.97	2.92	2.97	2.82	2.85	2.98	3.01	2.89	
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	0.12	0.12	0.12	0.12	0.12	0.12	0.11	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	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	0.35	0.35	0.35	0.35	0.35	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3A2 - Manure Management	9.26	9.64	10.25	10.60	10.04	10.39	10.68	11.82	12.09	11.75	11.86	11.86	12.38	11.71	11.96	11.70	11.64	11.75	11.69	11.63	
3A2a - Cattle	8.88	9.28	9.88	10.24	9.69	10.02	10.33	11.46	11.77	11.41	11.53	11.52	12.04	11.40	11.67	11.41	11.35	11.45	11.40	11.34	
3A2ai - Dairy Cows	8.54	8.93	9.50	9.84	9.31	9.62	9.91	11.03	11.35	11.02	11.14	11.14	11.64	11.00	11.24	10.98	10.92	11.02	10.97	10.91	
3A2aii - Other Cattle	0.34	0.34	0.37	0.40	0.38	0.40	0.42	0.42	0.41	0.40	0.38	0.38	0.40	0.40	0.43	0.43	0.43	0.43	0.43	0.43	
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	0.03	0.03	0.03	0.03	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	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	0.09	0.09	0.09	0.09	0.09	0.09	0.09	
3A2h - Swine	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.04	0.05	0.04	0.05	0.05	0.04	0.05	0.04	0.04	0.04	0.04	0.04	
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	0.14	0.12	0.13	0.13	0.13	0.13	0.13	
3C - Aggregate Sources and Non-CO2 Emissions Sources on Land	9.27	9.19	9.49	9.49	9.34	9.48	9.46	9.23	8.79	8.74	8.85	8.79	9.08	8.59	8.33	7.90	8.17	7.93	8.14	8.06	
3C1 - Emissions from Biomass Burning	0.08	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.10
3C1b - Biomass Burning in Croplands	0.08	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.10
3C2 - Liming	0.27	0.16	0.23	0.21	0.24	0.30	0.48	0.26	0.17	0.17	0.18	0.17	0.23	0.21	0.17	0.17	0.09	0.09	0.13	0.11	
3C4 - Direct N2O Emissions from Managed Soils	6.42	6.45	6.59	6.57	6.44	6.42	6.39	6.15	6.01	5.92	5.99	5.85	6.08	5.64	5.56	5.28	5.38	5.32	5.42	5.30	
3C5 - Indirect N2O Emissions from Managed Soils	1.81	1.78	1.84	1.84	1.82	1.83	1.82	1.82	1.82	1.78	1.80	1.84	1.86	1.80	1.74	1.70	1.73	1.78	1.76	1.76	
3C7 - Rice Cultivations	0.70	0.73	0.76	0.81	0.79	0.86	0.71	0.94	0.71	0.80	0.81	0.85	0.83	0.86	0.78	0.67	0.89	0.65	0.75	0.80	
4 - Waste	9.3	9.4	9.4	9.5	9.6	9.7	9.8	9.9	10.0	10.1	10.2	10.3	10.2	10.3	10.3	10.4	10.5	10.6	10.7	10.9	
4A - Solid Waste Disposal	7.24	7.39	7.34	7.46	7.45	7.61	7.66	7.73	7.87	7.95	8.03	8.09	8.02	8.05	8.09	8.15	8.23	8.31	8.37	8.48	
4A1 - Managed Waste Disposal Sites	7.24	7.39	7.34	7.46	7.45	7.61	7.66	7.73	7.87	7.95	8.03	8.09	8.02	8.05	8.09	8.15	8.23	8.31	8.37	8.48	
4B - Biological Treatment of Solid Waste	0.13	0.15	0.16	0.17	0.18	0.20	0.21	0.22	0.24	0.25	0.26	0.27	0.29	0.30	0.31	0.33	0.34	0.35	0.36	0.38	

California Greenhouse Gas Inventory for 2000-2019 — by IPCC Category
million tonnes of CO2 equivalent - (based upon IPCC Fourth Assessment Report's 100-yr Global Warming Potentials)

Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
4D - Wastewater Treatment and Discharge	1.93	1.91	1.93	1.91	1.92	1.91	1.91	1.93	1.90	1.88	1.94	1.93	1.93	1.92	1.95	1.93	1.93	1.94	2.00	2.00
4D1 - Domestic Wastewater Treatment and Discharge	1.60	1.59	1.60	1.59	1.59	1.58	1.59	1.59	1.58	1.57	1.63	1.61	1.61	1.61	1.63	1.62	1.62	1.62	1.68	1.68
4D2 - Industrial Wastewater Treatment and Discharge	0.33	0.31	0.34	0.32	0.32	0.32	0.33	0.34	0.32	0.31	0.31	0.32	0.32	0.31	0.31	0.31	0.31	0.32	0.33	0.32
Summary for Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
California Emissions	468.0	483.1	482.7	482.8	490.7	483.7	480.4	487.7	484.0	454.3	447.9	443.6	451.3	447.4	443.0	440.7	429.0	424.5	425.1	418.2