

California Greenhouse Gas Inventory for 2000-2017 — by Sector and Activity

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
Electricity Generation (In State)	59.31	63.32	49.97	48.33	49.41	45.30	50.08	54.32	54.51	53.51	46.91	41.26	51.17	49.62	51.79	49.98	42.35	38.57
<i>CHP: Commercial</i>	0.73	0.67	0.76	0.86	0.69	0.73	0.72	0.78	0.77	1.05	0.79	0.76	0.62	0.79	0.84	1.11	0.75	1.03
<i>CHP: Industrial</i>	18.15	16.70	20.24	17.76	15.29	14.79	13.84	13.79	13.63	14.78	12.57	13.84	12.54	12.85	13.89	11.71	11.08	10.90
<i>Merchant Owned</i>	32.96	38.86	23.80	24.05	27.53	23.15	26.23	29.27	28.79	27.42	21.41	15.30	24.22	22.66	23.63	23.00	17.56	14.91
<i>Transmission and Distribution</i>	0.37	0.34	0.29	0.28	0.26	0.25	0.23	0.20	0.19	0.18	0.16	0.17	0.16	0.20	0.11	0.09	0.07	0.13
<i>Utility Owned</i>	7.10	6.75	4.89	5.38	5.64	6.39	9.06	10.28	11.14	10.07	11.98	11.20	13.63	13.12	13.32	14.06	12.89	11.60
Electricity Generation (Imports)	46.04	59.17	59.12	64.70	66.18	62.93	54.78	59.90	65.92	48.13	43.67	46.95	44.58	40.08	36.84	33.98	26.35	24.00
<i>Specified Imports</i>	31.64	33.59	32.04	32.51	33.13	32.79	26.73	27.08	27.90	33.05	30.14	31.35	27.02	28.15	23.35	22.72	16.64	15.10
<i>Transmission and Distribution</i>	0.14	0.15	0.16	0.14	0.14	0.12	0.10	0.10	0.10	0.09	0.08	0.08	0.08	0.10	0.06	0.05	0.03	0.06
<i>Unspecified Imports</i>	14.27	25.42	26.92	32.05	32.92	30.01	27.95	32.73	37.92	14.99	13.45	15.52	17.48	11.82	13.44	11.21	9.68	8.84
Transportation	183.21	183.78	191.42	189.23	191.21	193.47	193.74	193.76	182.40	175.28	170.23	166.78	166.24	165.82	167.39	170.91	173.31	174.31
<i>Aviation</i>	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
<i>Not Specified Transportation</i>	4.87	5.02	5.28	5.54	5.92	6.43	6.77	6.78	7.14	6.74	7.19	6.74	6.65	6.67	6.89	6.81	6.21	5.99
<i>Off Road</i>	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
<i>On Road</i>	164.76	165.30	171.57	168.36	169.41	170.20	169.64	169.64	159.79	155.07	151.20	148.03	147.71	147.07	148.04	151.52	154.62	155.75
<i>Rail</i>	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
<i>Water-borne</i>	4.86	4.75	5.14	5.38	5.46	5.79	5.93	6.02	5.78	5.25	3.66	3.52	3.43	3.42	3.49	3.42	3.24	3.32
Industrial	105.75	103.96	105.08	104.43	106.95	105.16	102.72	99.73	100.32	97.88	101.75	100.65	101.68	104.48	105.07	102.79	101.04	101.14
<i>CHP: Industrial</i>	11.69	10.48	10.65	10.59	12.92	12.41	12.16	11.15	10.40	12.56	12.61	11.15	10.81	10.99	9.64	8.98	7.99	7.79
<i>Landfills</i>	7.22	7.36	7.31	7.43	7.42	7.59	7.65	7.71	7.88	8.02	8.11	8.19	8.20	8.22	8.28	8.40	8.47	8.54
<i>Manufacturing</i>	27.81	26.81	28.64	25.07	25.48	24.53	24.71	22.76	23.42	20.24	22.22	22.85	24.39	25.11	25.46	24.86	24.43	24.56
<i>Mining</i>	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
<i>Not Specified Industrial</i>	2.86	2.84	2.98	2.97	3.13	3.32	3.43	3.59	3.60	3.45	3.70	3.80	3.83	4.17	4.42	4.57	4.93	5.13
<i>Oil & Gas: Production & Processing</i>	19.39	19.62	18.34	20.85	21.00	19.69	17.53	17.56	18.82	17.69	16.80	16.73	16.73	19.06	19.47	19.58	17.11	17.22
<i>Petroleum Marketing</i>	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.03	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.01
<i>Petroleum Refining and Hydrogen Production</i>	28.46	29.03	29.19	29.82	29.06	29.74	29.63	29.20	28.40	28.31	30.39	30.05	29.81	29.15	29.33	28.14	29.53	29.82
<i>Solid Waste Treatment</i>	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
<i>Solvents & Chemicals</i>	1.20	1.07	0.94	0.98	0.87	0.89	0.89	0.87	0.85	0.79	0.82	0.79	0.78	0.77	0.78	0.79	0.79	0.25
<i>Transmission and Distribution</i>	4.20	4.36	4.63	4.29	4.62	4.55	4.47	4.57	4.59	4.55	4.68	4.70	4.75	4.62	5.30	5.07	5.36	5.37
<i>Wastewater Treatment</i>	1.93	1.91	1.93	1.91	1.92	1.91	1.91	1.93	1.90	1.88	1.94	1.92	1.92	1.92	1.94	1.92	1.92	1.93
Commercial	14.12	14.08	16.10	15.30	15.83	15.80	16.54	17.07	17.68	18.64	20.09	20.73	21.11	21.64	21.37	22.05	23.18	23.26
<i>CHP: Commercial</i>	1.09	1.05	1.06	0.26	0.62	0.40	0.42	0.49	0.37	0.92	0.92	0.78	0.76	0.70	0.57	0.55	0.77	0.68
<i>Communication</i>	0.19	0.18	0.20	0.19	0.19	0.17	0.19	0.18	0.16	0.16	0.15	0.15	0.14	0.14	0.12	0.11	0.12	0.11
<i>Domestic Utilities</i>	0.25	0.18	0.17	0.37	0.33	0.23	0.29	0.30	0.28	0.28	0.27	0.26	0.26	0.25	0.25	0.23	0.24	0.23

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Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<i>Education</i>	1.22	1.07	1.24	1.09	1.09	1.08	1.12	1.10	1.01	1.03	1.05	1.06	0.99	1.02	0.85	0.84	0.90	0.94
<i>Food Services</i>	1.90	1.97	2.48	2.31	2.28	2.30	2.47	2.43	2.31	2.23	2.23	2.25	2.28	2.33	2.31	2.32	2.36	2.37
<i>Health Care</i>	1.39	1.42	1.65	1.48	1.43	1.43	1.52	1.49	1.45	1.45	1.51	1.55	1.54	1.56	1.46	1.46	1.50	1.51
<i>Hotels</i>	0.63	0.67	0.78	0.69	0.68	0.68	0.75	0.75	0.73	0.70	0.73	0.74	0.73	0.74	0.71	0.72	0.73	0.71
<i>Landscape</i>	0.50	0.51	0.51	0.52	0.53	0.53	0.53	0.54	0.54	0.55	0.55	0.55	0.56	0.57	0.57	0.58	0.58	0.58
<i>National Security</i>	0.20	0.31	0.21	0.19	0.20	0.18	0.21	0.20	0.17	0.18	0.17	0.18	0.16	0.14	0.13	0.13	0.14	0.13
<i>Not Specified Commercial</i>	4.99	5.18	5.88	6.38	6.69	7.01	7.09	7.58	8.47	8.96	10.28	10.92	11.29	11.88	12.35	13.01	13.66	13.76
<i>Offices</i>	0.77	0.55	0.66	0.67	0.70	0.68	0.72	0.63	0.69	0.67	0.68	0.69	0.66	0.64	0.49	0.49	0.51	0.53
<i>Retail & Wholesale</i>	0.82	0.87	1.13	1.03	1.01	1.02	1.11	1.06	0.97	1.00	1.02	1.05	1.18	1.09	0.99	1.05	1.11	1.18
<i>Transportation Services</i>	0.18	0.13	0.13	0.11	0.10	0.09	0.12	0.34	0.51	0.51	0.53	0.56	0.57	0.58	0.57	0.56	0.56	0.53
Residential	31.73	30.80	30.95	30.47	31.51	30.30	30.74	30.90	31.33	31.06	32.13	32.90	30.91	32.07	27.14	27.91	29.30	30.40
<i>Household Use</i>	29.38	28.47	28.62	28.14	29.17	27.98	28.36	28.50	28.82	28.47	29.19	29.64	27.34	28.15	22.87	23.29	24.38	25.11
<i>Landscape</i>	0.74	0.75	0.76	0.77	0.78	0.78	0.79	0.79	0.80	0.80	0.81	0.82	0.83	0.83	0.84	0.85	0.85	0.86
<i>Not Specified Residential</i>	0.84	0.80	0.78	0.76	0.75	0.71	0.76	0.77	0.86	0.94	1.26	1.57	1.88	2.22	2.55	2.88	3.17	3.54
<i>Transmission and Distribution</i>	0.78	0.79	0.79	0.80	0.81	0.83	0.84	0.85	0.85	0.85	0.87	0.87	0.87	0.88	0.88	0.89	0.89	0.89
Agriculture & Forestry	30.97	31.15	33.24	33.54	32.83	33.70	34.72	35.22	35.09	32.85	33.68	34.34	35.46	33.99	35.06	33.75	33.51	32.42
<i>Ag Energy Use</i>	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
<i>Ag Residue Burning</i>	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	0.09
<i>Ag Soil Management</i>	7.10	6.99	7.24	7.18	7.04	7.09	7.22	6.74	6.51	6.37	6.45	6.34	6.64	6.25	6.27	5.80	5.83	5.59
<i>Enteric Fermentation</i>	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	11.05
<i>Histosol Cultivation</i>	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
<i>Manure Management</i>	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	11.62
<i>Rice Cultivation</i>	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	0.88	0.80	0.68	0.90	0.80
Summary for Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
California Emissions	471.1	486.3	485.9	486.0	493.9	486.6	483.3	490.9	487.3	457.4	448.5	443.6	451.2	447.7	444.7	441.4	429.0	424.1

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Excluded Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Transportation	50.30	43.98	48.81	43.10	47.44	49.90	52.51	55.54	52.29	51.10	52.74	48.50	45.73	45.05	44.53	49.72	54.21	56.94
<i>Aviation</i>	35.12	32.55	35.14	33.80	36.18	35.84	36.79	38.44	34.87	34.20	33.50	34.26	32.70	35.21	37.65	40.42	42.64	43.88
<i>Water-borne</i>	15.18	11.43	13.67	9.30	11.27	14.06	15.73	17.09	17.42	16.90	19.24	14.24	13.03	9.85	6.88	9.30	11.57	13.06
Industrial	2.75	2.74	2.75	2.75	2.76	2.77	2.79	2.82	2.82	2.81	2.80	2.80	2.80	2.77	2.79	2.79	2.79	2.79
<i>Oil & Gas: Production & Processing</i>	2.75	2.74	2.75	2.75	2.76	2.77	2.79	2.82	2.82	2.81	2.80	2.80	2.80	2.77	2.79	2.79	2.79	2.79
Military	3.81	4.36	4.13	4.16	3.88	3.41	3.11	2.93	2.77	2.71	3.10	2.68	3.30	2.68	3.30	2.76	2.32	2.48
<i>Not Specified Military</i>	3.81	4.36	4.13	4.16	3.88	3.41	3.11	2.93	2.77	2.71	3.10	2.68	3.30	2.68	3.30	2.76	2.32	2.48
Summary for Excluded Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
International and Interstate Emissions	56.9	51.1	55.7	50.0	54.1	56.1	58.4	61.3	57.9	56.6	58.6	54.0	51.8	50.5	50.6	55.3	59.3	62.2

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CO2 from biogenic materials	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Electricity Generation (In State)	7.07	7.17	7.41	7.60	6.92	6.96	7.07	6.73	6.76	7.75	7.28	8.39	8.32	8.50	8.74	6.87	6.26	6.50
<i>CHP: Commercial</i>	0.13	0.05	0.08	0.15	0.15	0.19	0.18	0.16	0.15	0.08	0.01	0.13	0.07	0.17	0.19	0.14	0.18	0.20
<i>CHP: Industrial</i>	1.69	2.33	1.64	1.80	1.36	1.24	1.22	1.23	1.09	0.93	0.94	1.16	1.31	1.36	1.19	1.10	0.97	1.68
<i>Merchant Owned</i>	5.12	4.68	5.56	5.47	5.28	5.36	5.50	5.17	5.34	6.44	5.95	6.19	5.80	6.30	6.77	5.12	4.56	4.32
<i>Utility Owned</i>	0.13	0.11	0.12	0.17	0.14	0.17	0.17	0.18	0.18	0.30	0.37	0.91	1.14	0.67	0.59	0.51	0.54	0.29
Electricity Generation (Imports)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.82	0.27	0.40	2.09	1.62	1.77	1.79	1.55
<i>Specified Imports</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.82	0.27	0.40	2.09	1.62	1.77	1.79	1.55
Transportation	0.34	0.46	0.57	3.14	4.79	5.11	5.24	5.18	5.41	5.38	8.23	8.88	8.32	10.25	10.71	11.45	13.53	14.52
<i>Aviation</i>	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
<i>On Road</i>	0.34	0.46	0.57	3.12	4.77	5.08	5.21	5.15	5.38	5.35	8.19	8.84	8.28	10.20	10.66	11.41	13.51	14.50
<i>Water-borne</i>	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.03	0.04	0.04	0.04	0.03	0.01	0.02
Industrial	12.15	12.79	11.09	11.11	11.81	12.66	12.73	12.96	12.79	12.53	12.67	13.20	13.36	13.42	13.18	12.89	13.96	14.76
<i>CHP: Industrial</i>	1.29	1.03	0.61	0.62	1.14	1.49	1.52	1.52	1.48	1.23	1.06	1.29	1.21	1.23	1.12	0.84	1.29	1.46
<i>Landfills</i>	6.28	6.62	6.88	6.86	6.90	7.08	7.28	7.39	7.47	7.57	7.68	7.73	7.87	7.91	7.95	8.00	8.05	8.11
<i>Manufacturing</i>	0.06	0.07	0.07	0.10	0.13	0.13	0.10	0.10	0.11	0.11	0.19	0.15	0.22	0.31	0.33	0.32	0.25	0.27
<i>Not Specified Industrial</i>	3.72	4.19	2.57	2.50	2.53	2.78	2.56	2.61	2.31	2.13	2.16	2.37	2.33	2.16	1.90	1.77	2.32	2.81
<i>Petroleum Refining and Hydrogen Production</i>	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
<i>Solid Waste Treatment</i>	0.80	0.87	0.95	1.03	1.11	1.19	1.26	1.34	1.42	1.50	1.57	1.65	1.73	1.81	1.88	1.96	2.04	2.12
Commercial	0.60	0.60	0.61	0.64	0.64	0.44	0.43	0.45	0.47	0.53	0.50	0.54	0.48	0.56	0.55	0.61	0.60	1.28
<i>CHP: Commercial</i>	0.02	0.01	0.01	0.01	0.03	0.05	0.06	0.07	0.06	0.03	0.01	0.07	0.06	0.07	0.07	0.07	0.05	0.05
<i>Not Specified Commercial</i>	0.58	0.59	0.60	0.63	0.61	0.39	0.36	0.39	0.41	0.50	0.49	0.47	0.42	0.48	0.48	0.54	0.55	1.23
Residential	3.47	3.33	3.38	3.56	3.65	2.43	2.15	2.38	2.66	3.50	3.05	3.12	2.91	4.02	4.02	3.05	2.42	1.89
<i>Household Use</i>	3.47	3.33	3.38	3.56	3.65	2.43	2.15	2.38	2.66	3.50	3.05	3.12	2.91	4.02	4.02	3.05	2.42	1.89
Agriculture & Forestry	1.39	1.16	1.17	1.21	1.23	1.22	1.24	1.29	1.39	1.41	1.45	1.53	1.53	1.55	1.51	1.49	1.55	1.65
<i>Ag Energy Use</i>	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.04	0.05	0.03	0.04	0.01	0.00	0.00
<i>Ag Residue Burning</i>	1.39	1.16	1.17	1.20	1.21	1.20	1.22	1.28	1.38	1.41	1.44	1.49	1.49	1.52	1.47	1.49	1.55	1.64
Summary for CO2 from biogenic materials	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Carbon dioxide from Biogenic sources	25.0	25.5	24.2	27.3	29.0	28.8	28.9	29.0	29.5	31.5	34.0	35.9	35.3	40.4	40.3	38.1	40.1	42.1

Other Emissions

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

This section of the inventory is currently under development

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