

California Greenhouse Gas Inventory for 2000-2015 — by Sector and Activity

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

Inventory Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
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	41.36	51.18	49.60	51.81	50.21
<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	0.86	0.62	0.84	0.88	1.16
<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
<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
<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	0.12	0.09	0.27
<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
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	46.94	44.15	40.24	36.56	33.88
<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	31.34	26.59	28.35	23.07	22.52
<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	0.06	0.05	0.15
<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
Transportation	179.51	179.85	187.01	184.72	186.71	188.89	189.17	189.35	178.24	171.45	168.11	164.70	164.38	163.05	164.89	169.38
<i>Aviation</i>	4.15	4.07	4.12	4.25	4.49	4.49	4.56	4.97	4.50	4.03	3.84	3.71	3.75	3.91	3.89	4.20
<i>Not Specified Transportation</i>	5.01	5.08	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	6.91
<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
<i>On Road</i>	162.35	162.70	168.72	165.43	166.56	167.36	166.91	167.00	157.39	152.85	149.03	145.92	145.67	143.86	144.98	149.42
<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	2.75	2.42
<i>Water-borne</i>	3.50	3.32	3.63	3.79	3.80	4.05	4.09	4.26	4.01	3.64	3.71	3.56	3.60	3.86	3.95	3.89
Industrial	104.55	102.81	104.17	103.53	106.16	104.57	102.25	99.16	99.63	97.31	101.12	101.08	101.46	104.27	104.69	102.97
<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
<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
<i>Manufacturing</i>	28.11	26.98	28.84	25.26	25.64	24.66	24.89	22.97	23.53	20.33	22.31	23.79	24.57	25.27	25.51	25.19
<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
<i>Not Specified Industrial</i>	2.88	2.86	3.03	3.03	3.18	3.58	3.73	3.69	3.65	3.52	3.78	3.93	3.97	4.34	4.61	4.69
<i>Oil & Gas: Production & Processing</i>	19.08	19.36	18.12	20.68	20.87	19.60	17.48	17.56	18.85	17.75	16.90	16.88	16.93	19.27	19.62	19.83
<i>Petroleum Marketing</i>	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
<i>Petroleum Refining & 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
<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
<i>Transmission and Distribution [1]</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	5.36
<i>Wastewater Treatment</i>	1.93	1.90	1.93	1.91	1.91	1.90	1.91	1.92	1.90	1.88	1.93	1.95	1.95	1.95	1.94	1.89
Commercial	14.26	14.13	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	22.17
<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	0.71	0.58	0.56
<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
<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
<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
<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
<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
<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

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Inventory Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<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	0.56	0.57	0.57
<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
<i>Not Specified Commercial</i>	5.13	5.23	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	13.12
<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
<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
<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
Residential	31.18	30.12	30.15	29.67	30.70	29.47	29.91	30.06	30.48	30.21	31.26	32.03	30.04	31.19	26.26	26.93
<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	28.14	22.87	23.17
<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	0.82	0.83	0.84	0.85
<i>Not Specified Residential</i>	1.06	0.91	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	2.91
Agriculture & Forestry	31.95	31.95	34.15	34.39	33.85	34.52	35.70	36.02	36.06	33.83	34.64	35.28	36.42	34.93	36.03	34.65
<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	4.66	4.39
<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
<i>Ag Soil Management</i>	7.10	7.00	7.24	7.21	7.04	7.10	7.24	6.74	6.49	6.39	6.45	6.30	6.62	6.29	6.37	5.86
<i>Enteric Fermentation</i>	10.36	10.25	10.91	11.00	10.77	11.08	11.13	12.31	12.04	11.65	12.13	11.98	12.10	11.78	11.85	11.54
<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
<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	11.71
<i>Rice Cultivation</i>	1.19	1.02	1.15	1.10	1.28	1.14	1.13	1.15	1.12	1.20	1.20	1.26	1.22	1.22	0.96	0.91
Not Specified	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
<i>Solvents & Chemicals</i>	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
Summary for Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Included Inventory Emissions	467.19	481.69	480.98	480.94	489.13	481.75	478.70	486.16	482.78	453.34	446.06	442.38	448.97	445.08	441.85	440.36

[1] The exceptional Aliso Canyon natural gas leak event released 1.96 MMTCO₂e of unanticipated emissions in calendar year 2015 and an additional 0.52 MMTCO₂e in 2016. These emissions will be mitigated in the future according to legal settlement and are presented alongside but tracked separately from routine inventory emissions.

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Excluded Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Transportation	50.93	44.01	48.96	43.25	47.35	50.67	53.18	56.01	52.53	52.04	53.30	51.50	50.01	51.51	53.53	56.57
<i>Aviation</i>	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	35.01	37.41	40.20
<i>Water-borne</i>	15.75	11.51	13.77	9.45	11.18	14.83	16.39	17.57	17.66	17.84	19.79	17.51	17.32	16.50	16.12	16.37
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
<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
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	2.89	3.55	2.99
<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	2.89	3.55	2.99
Summary for Excluded Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
International and Interstate Emissions	57.5	51.1	55.8	50.2	54.0	56.9	59.1	61.8	58.1	57.6	59.2	57.0	56.1	57.2	59.9	62.4

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CO₂ from biogenic materials	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
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	7.99	7.75	8.68	9.02	7.32
<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
<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	1.15
<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	6.16	5.78	6.49	7.05	5.52
<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	0.53	0.59	0.67	0.59	0.51
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	0.28	1.30	2.01	1.31	1.72
<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	0.28	1.30	2.01	1.31	1.72
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	10.95	11.45	11.50
<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
<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	10.91	11.40	11.45
<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
Industrial	12.15	12.79	11.09	11.11	11.81	12.66	12.73	12.96	12.79	12.53	12.67	13.22	13.37	13.42	13.18	13.00
<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	0.88
<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
<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	0.17	0.23	0.31	0.33	0.25
<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	1.90
<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
<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
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	0.55
<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
<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	0.48
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	4.02
<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	4.02
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
<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
<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
Summary for CO₂ from biogenic material	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
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	35.6	35.7	41.2	41.0	39.6

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Forested Lands & Wood Products **2000** **2001** **2002** **2003** **2004** **2005** **2006** **2007** **2008** **2009** **2010** **2011** **2012** **2013** **2014** **2015**

This section of the inventory is currently under development