CALIFORNIA AIR RESOURCES BOARD

California Greenhouse Gas Inventory for 2000-2017 — 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
1 - Energy	**413.8**	**428.9**	**426.0**	**425.1**	**433.1**	**424.1**	**419.4**	**424.2**	**420.6**	**393.0**	**382.0**	**372.9**	**378.2**	**376.2**	**371.4**	**367.7**	**353.1**	**348.9**
1A - Fuel Combustion Activities	***405.67***	***420.68***	***417.56***	***416.87***	***424.82***	***415.72***	***410.88***	***415.66***	***411.95***	***384.30***	***373.31***	***364.02***	***369.99***	***367.52***	***362.46***	***358.55***	***343.76***	***339.71***
1A1 - Energy Industries	**159.12**	**175.95**	**161.56**	**167.81**	**172.76**	**163.91**	**157.64**	**165.74**	**171.53**	**154.35**	**144.85**	**137.00**	**144.66**	**141.57**	**140.17**	**132.77**	**114.58**	**109.66**
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	98.61	106.23	100.15	97.73	92.19	75.88	69.87
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*	*72.12*	*81.51*	*74.82*	*72.81*	*69.85*	*55.29*	*49.48*
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*	*26.49*	*24.72*	*25.33*	*24.92*	*22.34*	*20.59*	*20.39*
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	22.85	22.80	23.85	23.95	22.35	22.57	23.58
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	17.56	16.35	15.61	15.54	15.64	17.57	18.48	18.24	16.14	16.22
1A1cii - Other Energy Industries	*18.09*	*18.43*	*17.11*	*19.55*	*19.96*	*18.56*	*16.19*	*16.35*	*17.56*	*16.35*	*15.61*	*15.54*	*15.64*	*17.57*	*18.48*	*18.24*	*16.14*	*16.22*
1A2 - Manufacturing Industries and Construction	**22.75**	**21.58**	**22.90**	**19.28**	**19.52**	**18.63**	**18.71**	**17.01**	**18.11**	**16.62**	**18.72**	**19.14**	**20.22**	**20.75**	**20.76**	**20.24**	**19.92**	**19.88**
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	6.48	6.02	6.23	6.25
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
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
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	2.46	3.51	3.51	3.66	3.58	3.71	3.67
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
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
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
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
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
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
1A2m - Non-specified Industry.	2.60	3.46	4.17	3.75	3.27	2.36	2.70	2.36	3.49	4.08	4.55	4.32	4.67	4.60	4.24	4.67	4.09	4.18
1A3 - Transport	**179.13**	**179.56**	**186.99**	**184.54**	**186.18**	**188.04**	**188.03**	**187.80**	**176.41**	**169.35**	**164.19**	**160.87**	**160.49**	**160.04**	**161.62**	**165.19**	**167.76**	**168.93**
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
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*
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	148.03	147.71	147.07	148.04	151.52	154.62	155.75
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*	*54.88*	*55.14*	*57.48*	*58.51*	*59.23*
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*	*58.94*	*58.97*
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*	*36.65*	*35.93*	*35.55*	*35.83*	*35.19*	*35.61*	*35.81*
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*
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
1A3d - Water-borne Navigation	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
1A3di - International Water-borne Navigation (International Bunkers)	*1.98*	*2.08*	*2.18*	*2.29*	*2.40*	*2.51*	*2.62*	*2.66*	*2.56*	*2.23*	*1.35*	*1.33*	*1.22*	*1.24*	*1.29*	*1.28*	*1.32*	*1.36*
1A3dii - Domestic Water-borne Navigation	*2.88*	*2.67*	*2.96*	*3.09*	*3.06*	*3.28*	*3.31*	*3.36*	*3.22*	*3.02*	*2.31*	*2.19*	*2.21*	*2.18*	*2.20*	*2.15*	*1.92*	*1.96*
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
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*

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Included Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
1A4 - Other Sectors	**44.67**	**43.60**	**46.11**	**45.23**	**46.37**	**45.14**	**46.50**	**45.11**	**45.90**	**43.97**	**45.55**	**47.01**	**44.62**	**45.16**	**39.90**	**40.35**	**41.50**	**41.24**
1A4a - Commercial/Institutional	11.47	11.31	13.11	12.84	12.70	12.55	12.83	12.82	12.99	12.89	13.58	13.71	13.41	13.30	12.52	12.67	13.14	13.02
1A4b - Residential	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
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
1B - Fugitive Emissions from Fuels	***8.17***	***8.20***	***8.49***	***8.22***	***8.30***	***8.42***	***8.55***	***8.53***	***8.60***	***8.73***	***8.66***	***8.84***	***8.23***	***8.72***	***8.94***	***9.19***	***9.35***	***9.20***
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**
1B2 - Oil and Natural Gas	**6.89**	**6.95**	**7.23**	**6.97**	**7.03**	**7.15**	**7.30**	**7.27**	**7.38**	**7.29**	**7.48**	**7.53**	**7.36**	**7.77**	**7.99**	**8.02**	**7.86**	**8.20**
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	0.61	0.64	0.54	0.44	0.43
1B2ai - Venting	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.07*	*0.05*	*0.07*	*0.06*	*0.16*	*0.21*	*0.15*	*0.15*	*0.15*
1B2aii - Flaring	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	*0.13*	*0.11*	*0.10*	*0.09*	*0.09*	*0.03*	*0.03*
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*	*0.32*	*0.31*	*0.34*	*0.34*	*0.30*	*0.26*	*0.25*
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
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**	**0.93**	**0.92**	**1.15**	**1.48**	**0.93**
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**	**0.00**	**0.05**
2 - Industrial Processes and Product Use	**19.6**	**19.4**	**20.3**	**20.8**	**21.7**	**22.4**	**23.4**	**24.1**	**24.3**	**22.6**	**23.9**	**28.3**	**29.6**	**29.3**	**30.8**	**32.2**	**34.2**	**33.6**
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***
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**
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**
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***
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**
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***
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**
2D - Non-Energy Products from Fuels and Solvent Use	***3.30***	***2.99***	***2.83***	***2.73***	***2.65***	***2.66***	***2.61***	***2.65***	***2.50***	***2.27***	***2.47***	***2.35***	***2.22***	***2.30***	***2.37***	***2.51***	***2.72***	***1.88***
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**	**1.92**	**1.64**
2D3 - Solvent Use	**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**
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***	***0.16***	***0.17***
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***
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***	***1.13***	***1.10***	***1.18***
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**
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
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**	**0.99**	**1.00**	**0.99**

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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***	***6.52***	***5.81***
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**	**6.52**	**5.81**
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**	**31.7**	**32.0**	**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***	***22.68***
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**	**11.05**
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	10.57
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*	*7.59*
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*
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
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
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
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
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**	**11.62**
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	11.33
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*	*10.90*
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*
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
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
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
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
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
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***	***8.76***	***8.71***	***8.12***	***8.39***	***8.07***
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**	**0.09**
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	0.09
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**
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**	**5.98**	**5.85**	**6.08**	**5.78**	**5.91**	**5.49**	**5.58**	**5.35**
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**	**1.81**	**1.76**	**1.71**	**1.74**	**1.74**
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**	**0.88**	**0.80**	**0.68**	**0.90**	**0.80**
4 - Waste	**9.3**	**9.4**	**9.4**	**9.5**	**9.5**	**9.7**	**9.8**	**9.9**	**10.0**	**10.2**	**10.3**	**10.4**	**10.4**	**10.4**	**10.5**	**10.7**	**10.7**	**10.8**
4A - Solid Waste Disposal	***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***
4A1 - Managed Waste Disposal Sites	**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**
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***
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***	***1.92***	***1.92***	***1.92***	***1.94***	***1.92***	***1.92***	***1.94***
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**

CALIFORNIA AIR RESOURCES BOARD

California Greenhouse Gas Inventory for 2000-2017 — 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
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	0.31	0.31	0.31	0.30	0.30	0.30	0.32

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

CALIFORNIA AIR RESOURCES BOARD

California Greenhouse Gas Inventory for 2000-2017 — by IPCC Category

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

Excluded Emissions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
1 - Energy	**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**
1A - Fuel Combustion Activities	***54.11***	***48.34***	***52.93***	***47.26***	***51.33***	***53.31***	***55.63***	***58.47***	***55.07***	***53.80***	***55.84***	***51.18***	***49.03***	***47.73***	***47.83***	***52.48***	***56.53***	***59.43***
1A3 - Transport	**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**
1A3a - Civil Aviation	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
1A3ai - International Aviation (International Bunkers)	*16.76*	*15.19*	*15.70*	*14.55*	*15.78*	*16.19*	*16.83*	*17.55*	*16.62*	*16.47*	*16.20*	*17.18*	*16.44*	*18.10*	*19.85*	*21.96*	*23.16*	*23.64*
1A3aii - Domestic Aviation	*18.36*	*17.36*	*19.44*	*19.25*	*20.40*	*19.65*	*19.96*	*20.90*	*18.25*	*17.73*	*17.30*	*17.08*	*16.25*	*17.11*	*17.80*	*18.46*	*19.48*	*20.24*
1A3d - Water-borne Navigation	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
1A3di - International Water-borne Navigation (International Bunkers)	*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*
1A5 - Non-Specified	**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**
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	2.17	2.12	2.15	2.15	2.15
1A5bi - Mobile (Aviation Component)	*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*	*2.17*	*2.12*	*2.15*	*2.15*	*2.15*
1B - Fugitive Emissions from Fuels	***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***
1B2 - Oil and Natural Gas	**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**

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**

CALIFORNIA AIR RESOURCES BOARD

California Greenhouse Gas Inventory for 2000-2017 — by IPCC Category

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

CO2 from biogenic materials	***2000***	***2001***	***2002***	***2003***	***2004***	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***2016***	***2017***
1 - Energy	**16.6**	**16.8**	**15.2**	**18.2**	**19.8**	**19.4**	**19.1**	**19.0**	**19.2**	**21.1**	**23.3**	**25.1**	**24.2**	**29.2**	**29.0**	**26.7**	**28.5**	**30.3**
1A - Fuel Combustion Activities	***16.56***	***16.85***	***15.23***	***18.16***	***19.83***	***19.36***	***19.10***	***18.98***	***19.21***	***21.07***	***23.30***	***25.07***	***24.25***	***29.16***	***29.02***	***26.69***	***28.47***	***30.27***
1A1 - Energy Industries	**8.39**	**8.21**	**8.02**	**8.22**	**8.09**	**8.50**	**8.65**	**8.31**	**8.30**	**9.45**	**9.17**	**10.03**	**9.99**	**11.89**	**11.55**	**9.55**	**9.39**	**9.55**
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	9.45	9.17	10.02	9.99	11.89	11.54	9.55	9.39	9.55
1A1ai - Electricity Generation	*5.25*	*4.79*	*5.69*	*5.64*	*5.41*	*5.53*	*5.67*	*5.34*	*5.51*	*7.18*	*7.14*	*7.37*	*7.34*	*9.06*	*8.99*	*7.39*	*6.89*	*6.16*
1A1aii - Combined Heat and Power Generation (CHP)	*3.14*	*3.42*	*2.34*	*2.58*	*2.68*	*2.97*	*2.98*	*2.97*	*2.78*	*2.27*	*2.02*	*2.65*	*2.66*	*2.83*	*2.56*	*2.16*	*2.50*	*3.40*
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	0.00	0.00	0.00	0.00	0.00
1A2 - Manufacturing Industries and Construction	**3.78**	**4.26**	**2.64**	**2.60**	**2.65**	**2.91**	**2.66**	**2.71**	**2.42**	**2.24**	**2.35**	**2.52**	**2.55**	**2.48**	**2.22**	**2.08**	**2.57**	**3.08**
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	0.07	0.14	0.19	0.23	0.22	0.21	0.22
1A2k - Construction	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.03	0.03	0.04	0.08	0.05	0.02	0.01	0.01
1A2m - Non-specified Industry.	3.72	4.20	2.58	2.52	2.56	2.82	2.59	2.64	2.35	2.16	2.22	2.42	2.37	2.21	1.94	1.85	2.36	2.85
1A3 - Transport	**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**
1A3a - Civil Aviation	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
1A3b - Road Transportation	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
1A3bi - Cars	*0.16*	*0.21*	*0.26*	*1.44*	*2.16*	*2.25*	*2.22*	*2.20*	*2.32*	*2.35*	*3.64*	*3.90*	*3.64*	*3.86*	*4.18*	*4.14*	*4.13*	*4.17*
1A3bii - Light-duty Trucks	*0.13*	*0.18*	*0.23*	*1.38*	*2.15*	*2.34*	*2.34*	*2.33*	*2.48*	*2.47*	*3.81*	*4.05*	*3.73*	*3.88*	*4.22*	*4.12*	*4.15*	*4.15*
1A3biii - Heavy-duty Trucks and Buses	*0.05*	*0.06*	*0.08*	*0.29*	*0.44*	*0.47*	*0.63*	*0.60*	*0.57*	*0.50*	*0.72*	*0.86*	*0.88*	*2.43*	*2.22*	*3.12*	*5.20*	*6.15*
1A3biv - Motorcycles	*0.00*	*0.00*	*0.00*	*0.01*	*0.01*	*0.01*	*0.02*	*0.02*	*0.02*	*0.02*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*	*0.03*
1A3d - Water-borne Navigation	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
1A3dii - Domestic Water-borne Navigation	*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*
1A4 - Other Sectors	**4.05**	**3.92**	**3.99**	**4.20**	**4.28**	**2.84**	**2.54**	**2.78**	**3.08**	**4.00**	**3.56**	**3.63**	**3.38**	**4.54**	**4.55**	**3.60**	**2.98**	**3.12**
1A4a - Commercial/Institutional	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
1A4b - 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
1A4c - Agriculture/Forestry/Fishing/Fish Farms	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
3 - Agriculture, Forestry and Other Land Use	**1.4**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.3**	**1.4**	**1.4**	**1.4**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.6**	**1.6**
3C - Aggregate Sources and Non-CO2 Emissions Sources on Land	***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***
3C1 - Emissions from Biomass Burning	**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**
3C1b - Biomass Burning in Croplands	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
4 - Waste	**7.1**	**7.5**	**7.8**	**7.9**	**8.0**	**8.3**	**8.5**	**8.7**	**8.9**	**9.1**	**9.3**	**9.4**	**9.6**	**9.7**	**9.8**	**10.0**	**10.1**	**10.2**
4A - Solid Waste Disposal	***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***
4A1 - Managed Waste Disposal Sites	**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**
4B - Biological Treatment of Solid Waste	***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***

CALIFORNIA AIR RESOURCES BOARD

California Greenhouse Gas Inventory for 2000-2017 — by IPCC Category

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

CO2 from biogenic materials	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*
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**

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California Greenhouse Gas Inventory for 2000-2017 — by IPCC Category

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

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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