

**California Carbon Dioxide 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**

<b>1 - Energy</b>	<b>396.8</b>	<b>411.9</b>	<b>408.8</b>	<b>408.3</b>	<b>416.5</b>	<b>407.9</b>	<b>403.4</b>	<b>408.4</b>	<b>405.2</b>	<b>378.4</b>	<b>369.8</b>	<b>361.9</b>	<b>367.9</b>	<b>364.0</b>	<b>358.1</b>	<b>356.4</b>	<b>343.7</b>	<b>338.2</b>	<b>338.2</b>	<b>332.6</b>
<b>1A - Fuel Combustion Activities</b>	<b>395.13</b>	<b>410.25</b>	<b>407.11</b>	<b>406.60</b>	<b>414.82</b>	<b>406.18</b>	<b>401.69</b>	<b>406.66</b>	<b>403.45</b>	<b>376.51</b>	<b>368.02</b>	<b>359.89</b>	<b>366.14</b>	<b>362.37</b>	<b>356.35</b>	<b>354.51</b>	<b>341.64</b>	<b>336.67</b>	<b>336.50</b>	<b>330.86</b>
<b>1A1 - Energy Industries</b>	<b>158.50</b>	<b>175.24</b>	<b>160.87</b>	<b>167.10</b>	<b>172.05</b>	<b>163.20</b>	<b>156.97</b>	<b>165.06</b>	<b>170.82</b>	<b>153.79</b>	<b>144.29</b>	<b>136.65</b>	<b>145.04</b>	<b>140.18</b>	<b>138.01</b>	<b>132.36</b>	<b>115.02</b>	<b>109.12</b>	<b>110.07</b>	<b>104.76</b>
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	98.02	106.30	99.55	96.29	91.79	75.42	69.35	70.77	65.86
1A1ai - Electricity Generation	84.42	103.05	86.08	92.40	97.60	90.74	88.44	97.79	104.16	83.87	75.53	72.32	82.09	74.67	72.41	69.37	54.55	49.45	50.73	47.38
1A1aii - Combined Heat and Power Generation (CHP)	31.43	28.67	32.48	29.26	29.31	28.10	26.91	25.99	24.96	29.11	26.74	25.70	24.21	24.88	23.88	22.42	20.87	19.91	20.04	18.48
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	23.10	23.11	23.06	23.24	22.36	23.50	23.73	23.62	23.42
1A1c - Manufacture of Solid Fuels and Other Energy Industries	18.10	18.42	17.10	19.53	19.95	18.55	16.18	16.34	17.54	16.33	15.60	15.53	15.63	17.56	18.48	18.21	16.09	16.05	15.68	15.48
1A1cii - Other Energy Industries	18.10	18.42	17.10	19.53	19.95	18.55	16.18	16.34	17.54	16.33	15.60	15.53	15.63	17.56	18.48	18.21	16.09	16.05	15.68	15.48
<b>1A2 - Manufacturing Industries and Construction</b>	<b>22.51</b>	<b>21.29</b>	<b>22.57</b>	<b>19.02</b>	<b>19.29</b>	<b>18.55</b>	<b>18.60</b>	<b>16.89</b>	<b>17.86</b>	<b>16.24</b>	<b>18.58</b>	<b>19.79</b>	<b>20.09</b>	<b>20.71</b>	<b>20.61</b>	<b>20.27</b>	<b>20.01</b>	<b>19.64</b>	<b>19.56</b>	<b>20.78</b>
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	6.24	5.88	6.39	6.13	6.31	7.53
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	0.45	0.39	0.38	0.38
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	3.28	3.22	3.26	3.28
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	3.21	3.49	3.48	3.65	3.53	3.68	3.64	3.71	3.64
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	0.28	0.29	0.29	0.21
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	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	0.15
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	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	0.47	0.47	0.63	1.26	0.70	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	0.30	0.23	0.24	0.23	0.22	0.22	0.21	0.20	0.20	0.23	0.20	0.19
1A2m - Non-specified Industry.	2.40	3.22	3.90	3.53	3.09	2.32	2.63	2.27	3.27	3.73	4.44	4.23	4.58	4.61	4.33	4.88	4.05	4.10	3.88	4.05
<b>1A3 - Transport</b>	<b>169.62</b>	<b>170.27</b>	<b>177.71</b>	<b>175.41</b>	<b>177.29</b>	<b>179.45</b>	<b>179.75</b>	<b>179.74</b>	<b>169.03</b>	<b>162.67</b>	<b>159.76</b>	<b>156.68</b>	<b>156.57</b>	<b>156.53</b>	<b>157.97</b>	<b>161.58</b>	<b>165.25</b>	<b>166.81</b>	<b>165.44</b>	<b>162.18</b>
1A3a - Civil Aviation	4.17	3.99	4.13	4.21	4.45	4.45	4.52	4.93	4.46	3.99	3.81	3.70	3.72	3.89	3.87	4.18	4.40	4.64	4.61	4.32
1A3aai - Domestic Aviation	3.91	3.74	3.86	3.94	4.21	4.24	4.32	4.71	4.28	3.85	3.68	3.60	3.57	3.75	3.70	3.99	4.31	4.55	4.60	4.30
1A3ab - Road Transportation	157.25	158.12	164.50	161.55	162.95	164.16	164.00	164.36	155.03	150.67	146.95	144.05	143.89	143.43	144.28	147.72	151.72	153.21	151.36	148.47
1A3abi - Cars	65.86	64.70	66.36	62.27	61.02	59.69	59.04	58.59	55.42	55.27	53.87	52.76	53.42	53.85	54.19	56.57	57.68	58.45	58.60	58.87
1A3abii - Light-duty Trucks	53.12	55.17	58.52	59.72	60.64	61.91	62.00	61.97	59.07	57.98	56.26	54.78	54.70	54.20	54.63	56.28	57.94	58.04	57.37	56.74
1A3abiii - Heavy-duty Trucks and Buses	37.93	37.82	39.15	39.05	40.74	41.66	42.01	42.75	39.44	36.27	35.66	35.30	34.55	34.19	34.21	33.43	34.61	34.88	33.55	30.93
1A3abiv - Motorcycles	0.21	0.28	0.32	0.33	0.34	0.37	0.42	0.44	0.46	0.45	0.43	0.42	0.42	0.42	0.42	0.45	0.45	0.46	0.47	0.48
1A3ac - 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	2.62	2.41	2.16	1.82	2.21	1.60
1A3ad - Water-borne Navigation	2.92	2.71	2.99	3.12	3.09	3.31	3.35	3.32	3.22	3.03	3.70	3.55	3.59	3.85	3.94	3.87	3.70	3.81	3.73	3.82
1A3adi - International Water-borne Navigation (International Bunkers)	0.84	0.88	0.93	0.97	1.02	1.07	1.13	1.09	1.07	0.94	1.37	1.34	1.30	1.46	1.52	1.51	1.55	1.61	1.66	1.71
1A3adii - Domestic Water-borne Navigation	2.08	1.83	2.06	2.15	2.07	2.23	2.22	2.23	2.15	2.09	2.33	2.21	2.29	2.39	2.42	2.37	2.15	2.20	2.07	2.11

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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	2.62	2.72	2.82	2.92
1A3eii - Off-road	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	2.62	2.72	2.82	2.92
<b>1A4 - Other Sectors</b>	<b>44.51</b>	<b>43.45</b>	<b>45.95</b>	<b>45.07</b>	<b>46.19</b>	<b>44.99</b>	<b>46.36</b>	<b>44.97</b>	<b>45.75</b>	<b>43.80</b>	<b>45.39</b>	<b>46.77</b>	<b>44.44</b>	<b>44.95</b>	<b>39.77</b>	<b>40.30</b>	<b>41.36</b>	<b>41.10</b>	<b>41.42</b>	<b>43.14</b>
1A4a - Commercial/Institutional	11.44	11.28	13.08	12.80	12.66	12.52	12.81	12.80	12.96	12.86	13.54	13.66	13.37	13.26	12.46	12.66	13.11	12.97	13.43	13.64
1A4b - Residential	29.27	28.36	28.51	28.03	29.05	27.88	28.27	28.40	28.71	28.35	29.08	29.47	27.21	27.99	22.81	23.26	24.29	25.03	24.77	26.97
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	4.50	4.38	3.96	3.10	3.22	2.53
<b>1B - Fugitive Emissions from Fuels</b>	<b>1.67</b>	<b>1.67</b>	<b>1.67</b>	<b>1.67</b>	<b>1.69</b>	<b>1.71</b>	<b>1.70</b>	<b>1.71</b>	<b>1.70</b>	<b>1.90</b>	<b>1.77</b>	<b>1.98</b>	<b>1.74</b>	<b>1.66</b>	<b>1.76</b>	<b>1.94</b>	<b>2.09</b>	<b>1.53</b>	<b>1.71</b>	<b>1.73</b>
<b>1B2 - Oil and Natural Gas</b>	<b>0.53</b>	<b>0.54</b>	<b>0.54</b>	<b>0.55</b>	<b>0.55</b>	<b>0.56</b>	<b>0.58</b>	<b>0.58</b>	<b>0.59</b>	<b>0.57</b>	<b>0.65</b>	<b>0.91</b>	<b>0.95</b>	<b>0.89</b>	<b>0.98</b>	<b>0.91</b>	<b>0.77</b>	<b>0.73</b>	<b>0.96</b>	<b>1.00</b>
1B2a - Oil	0.39	0.39	0.40	0.41	0.39	0.41	0.42	0.41	0.41	0.38	0.45	0.67	0.67	0.56	0.59	0.49	0.46	0.42	0.44	0.42
1B2ai - Venting	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.27	0.27	0.19	0.21	0.15	0.15	0.15	0.21	0.16
1B2aii - Flaring	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.12	0.12	0.09	0.08	0.08	0.07	0.05	0.04	0.09
1B2aiii - All Other	0.29	0.30	0.30	0.31	0.30	0.31	0.32	0.31	0.31	0.29	0.36	0.29	0.28	0.28	0.30	0.27	0.24	0.22	0.19	0.17
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	0.00	0.00	0.00	0.00
<b>1B3 - Geothermal Energy Production</b>	<b>1.13</b>	<b>1.11</b>	<b>1.11</b>	<b>1.10</b>	<b>1.12</b>	<b>1.12</b>	<b>1.10</b>	<b>1.11</b>	<b>1.09</b>	<b>1.31</b>	<b>1.10</b>	<b>1.04</b>	<b>0.77</b>	<b>0.76</b>	<b>0.77</b>	<b>1.02</b>	<b>1.32</b>	<b>0.75</b>	<b>0.75</b>	<b>0.72</b>
<b>1B4 - Pollution control devices</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.04</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.04</b>	<b>0.00</b>	<b>0.00</b>
<b>2 - Industrial Processes and Product Use</b>	<b>12.5</b>	<b>12.0</b>	<b>12.6</b>	<b>12.4</b>	<b>12.6</b>	<b>12.6</b>	<b>12.7</b>	<b>12.7</b>	<b>12.1</b>	<b>9.8</b>	<b>10.1</b>	<b>12.8</b>	<b>13.0</b>	<b>13.1</b>	<b>13.7</b>	<b>13.3</b>	<b>13.4</b>	<b>13.6</b>	<b>13.7</b>	<b>12.5</b>
<b>2A - Mineral Industry</b>	<b>5.60</b>	<b>5.35</b>	<b>5.88</b>	<b>5.93</b>	<b>6.11</b>	<b>6.04</b>	<b>5.88</b>	<b>5.71</b>	<b>5.33</b>	<b>3.63</b>	<b>3.49</b>	<b>3.74</b>	<b>4.26</b>	<b>4.51</b>	<b>4.83</b>	<b>4.75</b>	<b>4.73</b>	<b>4.93</b>	<b>5.02</b>	<b>4.98</b>
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
<b>2C - Metal Industry</b>	<b>0.07</b>	<b>0.07</b>	<b>0.07</b>	<b>0.07</b>	<b>0.07</b>	<b>0.07</b>	<b>0.07</b>	<b>0.07</b>	<b>0.07</b>	<b>0.06</b>	<b>0.07</b>	<b>0.07</b>	<b>0.06</b>	<b>0.07</b>	<b>0.06</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
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
<b>2D - Non-Energy Products from Fuels and Solvent Use</b>	<b>2.52</b>	<b>2.32</b>	<b>2.25</b>	<b>2.11</b>	<b>2.11</b>	<b>2.12</b>	<b>2.08</b>	<b>2.13</b>	<b>2.00</b>	<b>1.81</b>	<b>2.22</b>	<b>2.04</b>	<b>1.90</b>	<b>1.98</b>	<b>2.00</b>	<b>2.17</b>	<b>2.09</b>	<b>1.97</b>	<b>1.92</b>	<b>1.73</b>
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
<b>2G - Other Product Manufacture and Use</b>	<b>1.01</b>	<b>0.93</b>	<b>1.00</b>	<b>0.96</b>	<b>0.99</b>	<b>1.00</b>	<b>1.06</b>	<b>1.10</b>	<b>1.08</b>	<b>1.01</b>	<b>0.96</b>	<b>0.91</b>	<b>0.88</b>	<b>0.95</b>	<b>1.03</b>	<b>1.05</b>	<b>1.01</b>	<b>0.99</b>	<b>0.94</b>	<b>1.01</b>
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
<b>2H - Other</b>	<b>3.31</b>	<b>3.35</b>	<b>3.39</b>	<b>3.33</b>	<b>3.31</b>	<b>3.34</b>	<b>3.58</b>	<b>3.67</b>	<b>3.67</b>	<b>3.27</b>	<b>3.36</b>	<b>6.05</b>	<b>5.85</b>	<b>5.62</b>	<b>5.76</b>	<b>5.32</b>	<b>5.62</b>	<b>5.70</b>	<b>5.83</b>	<b>4.77</b>
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

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<b>3 - Agriculture, Forestry and Other Land Use</b>	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	0.1	0.1	0.1	0.1
<b>3C - Aggregate Sources and Non-CO2 Emissions Sources on Land</b>	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
<b>3C2 - Liming</b>	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

**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 CO2 Emissions 409.6 424.1 421.6 420.9 429.3 420.8 416.5 421.3 417.5 388.4 380.1 374.8 381.1 377.4 372.0 369.9 357.3 351.9 352.0 345.2**