

## California Carbon Dioxide Inventory for 2000-2020 — by Category as Defined in the 2008 Scoping Plan

# Carbon Dioxide

*million tonnes of CO<sub>2</sub> equivalent - (based upon IPCC Fourth Assessment Report's 100-yr Global Warming Potentials)*

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Transportation</b>	168.2	168.6	176.0	173.4	175.1	177.0	177.2	177.4	166.9	161.0	158.4	155.1	152.8	153.0	153.9	157.7	161.4	163.0	161.8	159.1	132.9
<b>On Road</b>	157.2	158.1	164.5	161.4	162.7	163.9	163.8	164.2	154.8	150.4	146.6	143.7	141.5	141.5	142.4	146.3	150.3	151.8	150.2	148.1	123.6
Passenger Vehicles	119.0	120.0	125.0	122.0	121.7	122.0	121.5	121.1	115.2	114.1	110.8	108.3	107.0	107.0	107.8	112.2	114.9	115.5	114.8	114.5	92.8
Heavy Duty Vehicles	38.3	38.1	39.5	39.4	41.1	42.0	42.4	43.0	39.6	36.4	35.8	35.4	34.6	34.5	34.6	34.1	35.4	36.3	35.4	33.5	30.8
<b>Ships &amp; Commercial Boats</b>	2.9	2.7	3.0	3.1	3.1	3.3	3.3	3.3	3.2	3.0	3.7	3.6	3.6	3.8	3.9	3.7	3.6	3.7	3.6	3.7	3.8
<b>Aviation</b>	4.2	4.0	4.1	4.2	4.4	4.5	4.5	4.9	4.5	4.0	3.8	3.7	3.7	3.9	3.9	4.1	4.4	4.6	4.6	4.3	2.9
<b>Rail</b>	1.9	1.9	2.5	2.9	2.9	3.3	3.5	3.1	2.4	1.9	2.3	2.6	2.4	2.3	1.9	1.7	1.5	1.3	1.9	1.4	1.3
<b>Unspecified</b>	2.0	1.9	1.9	1.8	1.9	2.0	2.0	1.8	2.1	1.6	2.0	1.6	1.5	1.5	1.7	1.9	1.6	1.5	1.5	1.7	1.4
<b>Industrial</b>	85.7	85.0	85.9	84.5	87.8	85.3	84.8	82.3	80.2	77.7	79.9	77.8	72.9	75.0	77.3	75.3	73.7	73.7	73.9	72.5	65.5
<b>Off Road [1]</b>	2.6	2.8	2.8	2.8	3.0	3.2	3.3	3.2	2.8	2.2	2.0	2.1	2.1	2.2	1.8	1.8	1.8	1.9	2.4	2.5	1.8
<b>Refineries and Hydrogen Production</b>	27.9	28.5	28.8	29.3	28.4	29.1	29.1	28.7	27.8	28.1	30.2	30.0	29.7	29.3	29.7	28.3	29.7	30.0	30.0	28.6	25.6
<b>General Fuel Use</b>	14.9	15.3	14.8	13.4	14.8	12.7	12.9	11.9	12.3	11.8	13.0	12.9	12.0	12.6	13.1	12.7	12.7	12.5	12.4	13.6	12.3
Diesel	0.4	0.5	0.4	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.7	0.8	0.8	0.8	0.5	0.6	0.4	0.5	0.5	0.4	0.4
Natural Gas	11.7	11.1	10.0	9.0	10.7	9.5	9.4	8.7	8.9	8.1	8.5	8.6	7.6	7.4	8.7	8.6	9.1	8.9	9.4	10.6	9.2
Other Fuels	2.8	3.7	4.4	3.8	3.5	2.7	2.9	2.5	2.9	3.1	3.8	3.5	3.6	4.3	3.9	3.6	3.1	3.2	2.5	2.6	2.7
<b>Oil &amp; Gas: Production &amp; Processing [2]</b>	17.6	17.3	17.7	17.0	17.3	16.5	16.1	16.7	16.8	15.9	15.2	15.4	13.8	15.5	16.6	16.7	14.1	14.2	13.2	12.6	10.8
Fuel Use	17.4	17.2	17.6	16.9	17.1	16.3	16.0	16.6	16.6	15.7	15.0	15.2	13.5	15.2	16.2	16.3	13.8	13.9	12.7	12.0	10.2
Fugitive Emissions	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.5	0.6	0.6
<b>Cement Plants</b>	9.5	9.2	9.8	9.9	10.0	10.0	9.7	9.2	8.6	5.7	5.5	6.1	6.9	7.2	7.6	7.4	7.6	7.6	7.8	7.7	7.5
Clinker Production	5.5	5.3	5.8	5.9	6.0	6.0	5.8	5.7	5.3	3.6	3.5	3.7	4.2	4.5	4.8	4.7	4.7	4.9	5.0	4.9	4.7
Fuel Use	3.9	4.0	4.0	4.0	4.0	4.0	3.9	3.5	3.3	2.1	2.1	2.4	2.7	2.7	2.8	2.7	2.9	2.8	2.9	2.8	2.8
<b>Cogeneration Heat Output</b>	11.6	10.4	10.6	10.5	12.9	12.3	12.1	11.1	10.3	12.5	12.5	9.9	7.1	6.9	7.2	6.8	6.4	6.0	6.7	6.0	6.1
<b>Other Fugitive and Process Emissions</b>	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.4	1.4	1.3	1.3	1.3	1.4	1.5	1.4	1.4	1.4	1.4	1.4
Natural Gas Transmission & Distribution	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manufacturing	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Other	1.4	1.3	1.4	1.3	1.3	1.4	1.4	1.5	1.4	1.3	1.3	1.2	1.2	1.2	1.3	1.4	1.3	1.3	1.3	1.4	1.4
<b>Electric Power</b>	104.3	121.4	108.0	112.0	114.6	107.2	104.0	113.3	119.5	100.9	89.9	88.7	98.4	92.9	89.2	85.5	70.0	63.8	64.6	59.8	59.1
<b>In-State Generation</b>	58.6	62.6	49.3	47.7	48.8	44.7	49.5	53.8	54.0	53.0	46.5	42.3	54.2	53.1	52.6	51.7	43.8	40.0	40.1	38.3	40.6
Diesel	0.4	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	50.9	55.4	42.1	40.9	42.4	38.1	43.0	47.1	48.0	46.0	40.5	37.1	50.7	50.1	48.6	47.8	39.9	36.6	36.8	35.1	38.1
Other Fuels	6.3	5.6	6.1	5.7	5.3	5.5	5.4	5.6	4.9	5.7	4.8	4.1	2.6	2.3	3.3	2.9	2.5	2.5	2.5	2.5	1.8
Fugitive and Process Emissions	1.1	1.1	1.0	1.1	1.1	1.1	1.0	1.1	1.1	1.3	1.1	1.0	0.8	0.8	0.8	1.0	1.3	0.8	0.7	0.7	0.7
<b>Imported Electricity</b>	45.7	58.7	58.7	64.2	65.7	62.5	54.4	59.5	65.5	47.9	43.4	46.4	44.3	39.8	36.6	33.8	26.2	23.8	24.5	21.6	18.5
Unspecified Imports	14.2	25.3	26.8	31.9	32.8	29.9	27.8	32.6	37.7	15.0	13.4	15.2	17.4	11.8	13.4	11.2	9.7	8.8	11.6	9.9	8.8
Specified Imports	31.5	33.4	31.9	32.3	33.0	32.6	26.6	26.9	27.8	32.9	30.0	31.2	26.9	27.9	23.2	22.6	16.6	15.0	12.9	11.7	9.7

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Commercial and Residential</b>	<b>42.0</b>	<b>40.5</b>	<b>41.4</b>	<b>40.5</b>	<b>43.1</b>	<b>41.2</b>	<b>41.3</b>	<b>41.7</b>	<b>42.1</b>	<b>42.2</b>	<b>43.6</b>	<b>43.6</b>	<b>36.8</b>	<b>36.7</b>	<b>33.2</b>	<b>33.9</b>	<b>34.8</b>	<b>35.2</b>	<b>35.0</b>	<b>38.0</b>	<b>36.3</b>
<b>Residential Fuel Use</b>	<b>29.1</b>	<b>28.1</b>	<b>28.6</b>	<b>27.8</b>	<b>29.3</b>	<b>27.9</b>	<b>28.3</b>	<b>28.4</b>	<b>28.7</b>	<b>28.4</b>	<b>29.1</b>	<b>29.5</b>	<b>24.2</b>	<b>24.4</b>	<b>21.3</b>	<b>21.9</b>	<b>22.5</b>	<b>23.0</b>	<b>22.4</b>	<b>24.9</b>	<b>24.3</b>
Diesel	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	27.8	27.1	27.5	26.4	27.5	25.9	26.5	26.7	26.6	26.3	27.0	27.5	22.7	22.9	20.1	20.5	21.0	21.6	20.9	23.2	22.7
Other Fuels	1.3	0.9	1.0	1.4	1.7	1.9	1.7	1.7	2.1	2.0	2.1	1.9	1.5	1.5	1.2	1.3	1.5	1.4	1.5	1.7	1.5
Fugitive Emissions																					
<b>Commercial Fuel Use</b>	<b>11.9</b>	<b>11.3</b>	<b>11.8</b>	<b>12.4</b>	<b>13.2</b>	<b>12.8</b>	<b>12.6</b>	<b>12.8</b>	<b>13.0</b>	<b>12.9</b>	<b>13.6</b>	<b>13.7</b>	<b>12.1</b>	<b>11.7</b>	<b>11.4</b>	<b>11.6</b>	<b>11.8</b>	<b>11.7</b>	<b>12.1</b>	<b>12.7</b>	<b>11.6</b>
Diesel	0.9	0.8	0.8	0.8	0.7	0.9	0.7	0.7	1.1	1.3	1.7	1.7	1.4	1.3	1.0	1.1	1.0	0.8	1.0	0.8	0.7
Natural Gas	10.5	10.1	10.6	10.9	11.7	11.2	11.4	11.4	11.2	11.0	11.2	11.4	10.0	9.8	9.7	9.9	10.1	10.1	10.0	10.5	9.3
Other Fuels	0.5	0.4	0.4	0.6	0.9	0.7	0.5	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.7	0.8	1.1	1.4	1.6
<b>Commercial Cogeneration Heat Output</b>	<b>1.1</b>	<b>1.1</b>	<b>1.1</b>	<b>0.3</b>	<b>0.6</b>	<b>0.4</b>	<b>0.4</b>	<b>0.5</b>	<b>0.4</b>	<b>0.9</b>	<b>0.9</b>	<b>0.5</b>	<b>0.5</b>	<b>0.6</b>	<b>0.4</b>	<b>0.4</b>	<b>0.4</b>	<b>0.5</b>	<b>0.5</b>	<b>0.4</b>	<b>0.4</b>
<b>Agriculture</b>	<b>3.9</b>	<b>3.9</b>	<b>4.4</b>	<b>4.5</b>	<b>4.8</b>	<b>4.9</b>	<b>5.6</b>	<b>4.0</b>	<b>4.2</b>	<b>2.7</b>	<b>2.8</b>	<b>3.7</b>	<b>3.8</b>	<b>3.6</b>	<b>3.7</b>	<b>3.4</b>	<b>2.9</b>	<b>2.3</b>	<b>2.8</b>	<b>2.2</b>	<b>2.4</b>
<b>Crop Growing &amp; Harvesting</b>	<b>0.3</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>
Soil Preparation and Disturbances	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	0.1
<b>General Fuel Use</b>	<b>3.7</b>	<b>3.8</b>	<b>4.2</b>	<b>4.3</b>	<b>4.6</b>	<b>4.6</b>	<b>5.1</b>	<b>3.7</b>	<b>4.0</b>	<b>2.5</b>	<b>2.7</b>	<b>3.5</b>	<b>3.6</b>	<b>3.4</b>	<b>3.5</b>	<b>3.2</b>	<b>2.8</b>	<b>2.3</b>	<b>2.7</b>	<b>2.1</b>	<b>2.3</b>
Diesel	2.5	2.7	3.0	3.0	3.2	3.4	3.8	2.7	3.2	1.7	1.9	2.5	2.4	2.4	2.4	2.6	2.2	1.7	2.1	1.6	1.7
Natural Gas	0.8	0.7	0.8	0.9	0.9	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.5	0.6
Gasoline	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.3	0.2	0.2	0.2	0.5	0.7	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0
Other Fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total CO2 Emissions</b>	<b>404.1</b>	<b>419.4</b>	<b>415.8</b>	<b>414.9</b>	<b>425.3</b>	<b>415.6</b>	<b>412.8</b>	<b>418.7</b>	<b>412.9</b>	<b>384.6</b>	<b>374.7</b>	<b>369.1</b>	<b>364.8</b>	<b>361.3</b>	<b>357.3</b>	<b>355.8</b>	<b>342.8</b>	<b>338.0</b>	<b>338.0</b>	<b>331.7</b>	<b>296.2</b>

[1] Includes equipment used in construction, mining, oil drilling, industrial and airport ground operations. [2] Reflects emissions from combustion of natural gas, diesel, and lease fuel plus fugitive emissions. [3] These categories are listed in the Industrial sector of ARB's GHG Emission Inventory sectors. [4] This category is listed in the Electric Power sector of ARB's GHG Emission Inventory sectors