

## California Greenhouse Gas Inventory (millions of metric tonnes of CO2 equivalent) — Summary by Economic Sector

Last Updated: Monday, November 19, 2007

1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004

## Categories Included in the Inventory.

(CO2 equivalence based upon IPCC Second Assessment Report's Global Warming Potentials)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
<b>► Electricity Generation (In State)</b>	<b>49.05</b>	<b>46.32</b>	<b>54.59</b>	<b>51.43</b>	<b>58.50</b>	<b>45.16</b>	<b>42.09</b>	<b>43.97</b>	<b>47.56</b>	<b>51.42</b>	<b>60.98</b>	<b>65.09</b>	<b>51.26</b>	<b>49.91</b>	<b>58.50</b>
<i>CHP: Commercial</i>	0.70	0.62	0.71	0.72	0.79	0.77	0.79	0.77	0.76	0.75	0.73	0.68	0.69	0.88	0.84
<i>CHP: Industrial</i>	14.54	15.21	16.97	17.48	17.87	17.76	18.58	18.07	18.74	18.57	18.61	16.86	20.27	17.83	22.71
<i>Merchant Owned</i>	2.33	2.83	3.00	3.27	3.01	2.83	2.85	2.72	11.61	23.23	33.73	39.59	24.56	25.00	28.49
<i>Transmission and Distribution</i>	1.56	1.41	1.42	1.69	1.51	1.15	1.21	1.05	0.87	0.82	0.84	0.81	0.69	0.70	0.68
<i>Utility Owned</i>	29.92	26.25	32.49	28.27	35.32	22.65	18.66	21.36	15.57	8.05	7.08	7.14	5.05	5.51	5.79
<b>► Electricity Generation (Imports)</b>	<b>61.58</b>	<b>57.25</b>	<b>49.90</b>	<b>55.66</b>	<b>55.77</b>	<b>54.29</b>	<b>49.75</b>	<b>55.98</b>	<b>58.49</b>	<b>55.68</b>	<b>40.57</b>	<b>51.19</b>	<b>51.31</b>	<b>57.89</b>	<b>61.25</b>
<i>Specified Imports</i>	29.61	28.50	31.17	29.90	30.25	27.47	26.86	28.65	30.31	30.06	30.73	32.84	31.35	31.98	33.18
<i>Transmission and Distribution</i>	1.02	0.90	0.67	0.79	0.71	0.58	0.65	0.61	0.46	0.44	0.30	0.33	0.36	0.34	0.34
<i>Unspecified Imports</i>	30.96	27.85	18.06	24.96	24.81	26.24	22.23	26.73	27.71	25.18	9.53	18.02	19.61	25.58	27.73
<b>► Transportation</b>	<b>150.67</b>	<b>146.58</b>	<b>152.82</b>	<b>148.68</b>	<b>151.07</b>	<b>154.66</b>	<b>156.19</b>	<b>158.51</b>	<b>161.75</b>	<b>166.16</b>	<b>169.99</b>	<b>173.73</b>	<b>179.86</b>	<b>175.70</b>	<b>182.37</b>
<i>Aviation</i>	5.13	4.69	4.09	3.67	3.88	4.01	4.21	3.92	3.89	3.75	3.51	4.18	3.42	3.05	3.06
<i>Not Specified Transportation</i>	3.01	2.68	2.43	1.25	2.16	2.15	1.76	1.00	1.10	0.90	1.14	1.33	1.27	1.13	1.25
<i>On Road</i>	137.99	134.48	141.76	139.44	140.47	143.57	145.06	148.37	151.31	155.88	159.34	162.28	168.99	165.47	171.51
<i>Rail</i>	2.33	2.46	2.24	1.97	2.13	2.43	2.59	2.57	2.70	2.80	3.07	2.90	3.04	2.78	3.19
<i>Water-borne</i>	2.21	2.26	2.30	2.35	2.43	2.49	2.56	2.65	2.74	2.84	2.94	3.04	3.15	3.26	3.37
<b>► Industrial</b>	<b>103.03</b>	<b>99.67</b>	<b>97.02</b>	<b>94.77</b>	<b>94.22</b>	<b>95.72</b>	<b>98.22</b>	<b>103.77</b>	<b>104.78</b>	<b>102.16</b>	<b>104.23</b>	<b>104.74</b>	<b>99.78</b>	<b>101.06</b>	<b>96.21</b>
<i>CHP: Industrial</i>	9.70	9.58	10.15	10.26	10.24	10.16	10.56	10.72	11.46	12.10	12.05	10.64	10.76	10.77	6.07
<i>Flaring</i>	0.15	0.07	0.08	0.04	0.03	0.04	0.07	0.07	0.09	0.10	0.07	0.12	0.09	0.15	0.11
<i>Landfills</i>	6.26	5.99	6.21	6.28	6.30	5.88	5.77	5.72	5.91	5.86	5.64	5.70	5.62	5.67	5.62
<i>Manufacturing</i>	31.98	29.49	27.44	26.80	28.27	28.01	27.14	27.77	29.42	30.09	31.42	31.35	28.17	26.20	27.44
<i>Mining</i>	0.03	0.03	0.04	0.04	0.04	0.31	0.34	0.32	0.32	0.32	0.33	0.31	0.30	0.33	0.10
<i>Not Specified Industrial</i>	2.63	2.29	2.35	2.34	2.20	2.16	1.98	1.98	2.23	2.52	2.15	2.09	2.31	2.07	1.93
<i>Oil &amp; Gas Extraction</i>	14.65	13.94	13.84	11.50	10.36	13.00	13.80	18.87	16.45	14.42	13.52	15.56	12.82	14.97	14.78
<i>Petroleum Marketing</i>	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
<i>Petroleum Refining</i>	32.82	33.41	32.05	32.66	31.91	31.31	33.62	33.43	34.04	31.82	34.04	33.82	34.52	35.69	34.88
<i>Pipelines</i>	1.63	1.64	1.58	1.52	1.49	1.47	1.51	1.41	1.35	1.32	1.33	1.42	1.44	1.43	1.47
<i>Waste Water Treatment</i>	3.17	3.22	3.26	3.31	3.38	3.37	3.41	3.47	3.49	3.60	3.66	3.72	3.74	3.79	3.82
<b>► Commercial</b>	<b>14.43</b>	<b>13.95</b>	<b>11.88</b>	<b>11.53</b>	<b>12.19</b>	<b>11.64</b>	<b>11.79</b>	<b>12.44</b>	<b>13.22</b>	<b>13.87</b>	<b>13.88</b>	<b>12.56</b>	<b>12.44</b>	<b>12.09</b>	<b>12.81</b>
<i>CHP: Commercial</i>	0.40	0.34	0.41	0.42	0.48	0.45	0.62	1.15	0.93	0.91	1.09	1.05	1.02	0.19	0.48
<i>Communication</i>	0.07	0.07	0.06	0.04	0.06	0.06	0.06	0.08	0.06	0.07	0.06	0.05	0.11	0.09	0.09
<i>Domestic Utilities</i>	0.34	0.34	0.36	0.27	0.29	0.31	0.42	0.39	0.42	0.44	0.44	0.36	0.32	0.55	0.62
<i>Education</i>	1.42	1.28	1.09	1.13	1.27	0.98	0.95	1.04	1.22	1.37	1.30	0.99	1.06	1.00	1.06
<i>Food Services</i>	1.89	1.89	1.86	1.88	1.90	1.89	1.96	2.03	2.19	2.26	2.33	2.19	2.31	2.44	2.58
<i>Health Care</i>	1.32	1.33	1.13	1.06	1.22	1.14	1.15	1.16	1.21	1.28	1.27	1.20	1.17	1.24	1.27
<i>Hotels</i>	0.67	0.65	0.62	0.60	0.62	0.60	0.60	0.62	0.65	0.67	0.67	0.63	0.64	0.64	0.65
<i>National Security</i>	0.56	0.64	0.55	0.54	0.51	0.40	0.36	0.46	0.35	0.29	0.24	0.32	0.18	0.18	0.19

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<i>Not Specified Commercial</i>	5.58	5.33	3.89	3.61	3.74	3.88	3.76	3.60	4.03	4.15	4.24	4.07	3.19	3.27	3.32
<i>Offices</i>	1.46	1.40	1.27	1.32	1.40	1.31	1.37	1.35	1.54	1.74	1.59	1.41	1.80	1.84	1.91
<i>Retail &amp; Wholesale</i>	0.68	0.63	0.62	0.62	0.65	0.59	0.49	0.55	0.57	0.62	0.60	0.23	0.60	0.61	0.59
<i>Transportation Services</i>	0.03	0.04	0.03	0.04	0.04	0.03	0.04	0.03	0.05	0.06	0.06	0.04	0.05	0.05	0.05
<b>► Residential</b>	<b>29.66</b>	<b>30.23</b>	<b>28.56</b>	<b>29.07</b>	<b>29.79</b>	<b>27.19</b>	<b>27.30</b>	<b>26.72</b>	<b>31.42</b>	<b>32.21</b>	<b>30.61</b>	<b>28.59</b>	<b>28.52</b>	<b>27.92</b>	<b>29.10</b>
<i>Household Use</i>	29.66	30.23	28.56	29.07	29.79	27.19	27.30	26.72	31.42	32.21	30.61	28.59	28.52	27.92	29.10
<b>► Agriculture &amp; Forestry</b>	<b>16.93</b>	<b>15.63</b>	<b>16.63</b>	<b>16.64</b>	<b>17.66</b>	<b>18.23</b>	<b>17.84</b>	<b>18.66</b>	<b>18.48</b>	<b>20.21</b>	<b>21.38</b>	<b>21.34</b>	<b>23.38</b>	<b>22.85</b>	<b>23.47</b>
<i>Ag Energy Use</i>	4.50	3.86	4.33	4.20	4.48	3.73	4.13	4.96	4.73	5.45	5.55	5.35	4.91	4.12	4.86
<i>Ag Residue Burning</i>	0.12	0.11	0.11	0.11	0.11	0.11	0.10	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08
<i>Ag Soil Management</i>	6.54	5.90	6.00	6.34	6.21	6.98	6.80	6.22	6.25	6.43	7.04	6.64	8.48	8.40	8.33
<i>Enteric Fermentation</i>	6.67	6.47	6.57	6.22	6.49	6.58	6.15	6.30	6.29	6.60	6.68	6.80	6.99	7.08	7.01
<i>Forest and Range Management</i>	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
<i>Histosol Cultivation</i>	0.18	0.18	0.18	0.17	0.17	0.17	0.16	0.16	0.16	0.15	0.15	0.15	0.14	0.14	0.14
<i>Manure Management</i>	5.00	5.09	5.18	4.99	5.31	5.56	5.22	5.59	5.49	5.96	6.12	6.49	6.74	6.98	6.91
<i>Net CO2 Flux</i>	-6.69	-6.54	-6.33	-6.03	-5.79	-5.56	-5.42	-5.37	-5.19	-5.18	-5.02	-4.83	-4.69	-4.67	-4.66
<i>Rice Cultivation</i>	0.41	0.36	0.41	0.45	0.50	0.48	0.52	0.54	0.47	0.52	0.57	0.49	0.55	0.53	0.61
<b>► Not Specified</b>	<b>1.27</b>	<b>0.78</b>	<b>0.98</b>	<b>1.61</b>	<b>2.61</b>	<b>4.52</b>	<b>6.00</b>	<b>7.45</b>	<b>8.17</b>	<b>9.60</b>	<b>10.64</b>	<b>11.43</b>	<b>17.29</b>	<b>15.32</b>	<b>16.02</b>
<i>Not Specified Not Specified</i>	1.27	0.78	0.98	1.61	2.61	4.52	6.00	7.45	8.17	9.60	10.64	11.43	17.29	15.32	16.02

**Summary of Categories Included in the Inventory.***(using IPCC Second Assessment Report's GWPs)*

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
<b>Gross California Emissions</b>	<b>433.29</b>	<b>416.94</b>	<b>418.71</b>	<b>415.42</b>	<b>427.61</b>	<b>416.97</b>	<b>414.58</b>	<b>432.89</b>	<b>449.05</b>	<b>456.50</b>	<b>457.29</b>	<b>473.49</b>	<b>468.54</b>	<b>467.42</b>	<b>484.40</b>
<b>Sinks from Forests and Rangelands</b>	<b>-6.69</b>	<b>-6.54</b>	<b>-6.33</b>	<b>-6.03</b>	<b>-5.79</b>	<b>-5.56</b>	<b>-5.42</b>	<b>-5.37</b>	<b>-5.19</b>	<b>-5.18</b>	<b>-5.02</b>	<b>-4.83</b>	<b>-4.69</b>	<b>-4.67</b>	<b>-4.66</b>
<b>Net California Emissions</b>	<b>426.60</b>	<b>410.40</b>	<b>412.38</b>	<b>409.39</b>	<b>421.81</b>	<b>411.41</b>	<b>409.17</b>	<b>427.51</b>	<b>443.86</b>	<b>451.32</b>	<b>452.27</b>	<b>468.66</b>	<b>463.84</b>	<b>462.75</b>	<b>479.74</b>

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**Categories Excluded from the Inventory.***(CO2 equivalence based upon IPCC Second Assessment Report's Global Warming Potentials)***Carbon from fossil fuels —**

► <b>Transportation</b>	<b>59.02</b>	<b>53.00</b>	<b>45.38</b>	<b>46.22</b>	<b>52.91</b>	<b>55.13</b>	<b>56.51</b>	<b>48.61</b>	<b>48.37</b>	<b>50.47</b>	<b>55.52</b>	<b>51.08</b>	<b>53.06</b>	<b>40.80</b>	<b>44.16</b>
<i>Aviation</i>	33.95	32.42	31.60	32.95	36.57	34.99	38.21	38.28	39.12	36.63	38.58	35.54	38.43	30.84	32.92
<i>Water-borne</i>	25.06	20.58	13.79	13.27	16.34	20.13	18.30	10.33	9.25	13.85	16.94	15.54	14.63	9.95	11.24

**Carbon from biogenic sources —**

► <b>Electricity Generation (In State)</b>	<b>9.34</b>	<b>8.61</b>	<b>9.57</b>	<b>8.99</b>	<b>9.25</b>	<b>7.29</b>	<b>7.06</b>	<b>7.35</b>	<b>7.13</b>	<b>7.77</b>	<b>8.22</b>	<b>8.37</b>	<b>8.66</b>	<b>8.77</b>	<b>7.94</b>
<i>CHP: Commercial</i>	0.00	0.00	0.00	0.04	0.10	0.26	0.25	0.25	0.24	0.26	0.27	0.10	0.24	0.31	0.31
<i>CHP: Industrial</i>	2.82	2.36	2.48	2.08	1.74	1.40	1.21	1.45	1.16	1.28	1.76	2.40	1.80	1.60	0.99
<i>Merchant Owned</i>	6.51	6.23	7.09	6.87	7.41	5.63	5.55	5.53	5.60	6.09	6.06	5.65	6.38	6.53	6.37
<i>Utility Owned</i>	0.00	0.01	0.00	0.00	0.00	0.00	0.05	0.12	0.11	0.14	0.13	0.21	0.24	0.33	0.27
► <b>Industrial</b>	<b>9.86</b>	<b>9.33</b>	<b>9.26</b>	<b>7.79</b>	<b>7.82</b>	<b>7.71</b>	<b>7.40</b>	<b>8.24</b>	<b>7.62</b>	<b>7.95</b>	<b>8.42</b>	<b>8.84</b>	<b>8.34</b>	<b>8.48</b>	<b>9.06</b>
<i>CHP: Industrial</i>	1.96	1.87	1.75	1.05	1.16	1.03	0.85	1.09	1.03	1.16	1.36	1.09	0.62	0.68	1.39
<i>Landfills</i>	1.76	1.96	2.13	2.33	2.42	2.68	3.05	3.02	3.18	3.11	3.06	3.27	3.77	3.84	3.72
<i>Manufacturing</i>	0.01	0.02	0.02	0.03	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05
<i>Not Specified Industrial</i>	6.13	5.49	5.36	4.38	4.19	3.95	3.46	4.09	3.37	3.64	3.97	4.45	3.90	3.90	3.90
► <b>Commercial</b>	<b>0.38</b>	<b>0.40</b>	<b>0.43</b>	<b>0.45</b>	<b>0.48</b>	<b>0.50</b>	<b>0.54</b>	<b>0.44</b>	<b>0.44</b>	<b>0.51</b>	<b>0.48</b>	<b>0.46</b>	<b>0.45</b>	<b>0.46</b>	<b>0.49</b>
<i>CHP: Commercial</i>	0.00	0.00	0.00	0.00	0.02	0.05	0.05	0.05	0.05	0.04	0.04	0.02	0.01	0.02	0.04
<i>Not Specified Commercial</i>	0.38	0.40	0.43	0.45	0.46	0.46	0.50	0.39	0.39	0.47	0.44	0.44	0.44	0.44	0.44
► <b>Residential</b>	<b>5.96</b>	<b>6.28</b>	<b>6.60</b>	<b>5.60</b>	<b>5.49</b>	<b>6.09</b>	<b>6.08</b>	<b>3.54</b>	<b>3.20</b>	<b>3.41</b>	<b>3.58</b>	<b>3.06</b>	<b>3.36</b>	<b>3.36</b>	<b>3.36</b>
<i>Household Use</i>	5.96	6.28	6.60	5.60	5.49	6.09	6.08	3.54	3.20	3.41	3.58	3.06	3.36	3.36	3.36
► <b>Agriculture &amp; Forestry</b>	<b>2.05</b>	<b>1.87</b>	<b>1.77</b>	<b>1.89</b>	<b>1.86</b>	<b>1.80</b>	<b>1.73</b>	<b>1.53</b>	<b>1.59</b>	<b>1.59</b>	<b>1.67</b>	<b>1.42</b>	<b>1.45</b>	<b>1.50</b>	<b>1.53</b>
<i>Ag Residue Burning</i>	2.05	1.87	1.77	1.89	1.86	1.80	1.73	1.53	1.59	1.59	1.67	1.42	1.45	1.50	1.53

**Summary of Categories Excluded from the Inventory.***(using IPCC Second Assessment Report's GWPs)*

1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004

**Carbon from fossil fuels —**

<b>Gross California Emissions</b>	<b>59.02</b>	<b>53.00</b>	<b>45.38</b>	<b>46.22</b>	<b>52.91</b>	<b>55.13</b>	<b>56.51</b>	<b>48.61</b>	<b>48.37</b>	<b>50.47</b>	<b>55.52</b>	<b>51.08</b>	<b>53.06</b>	<b>40.80</b>	<b>44.16</b>
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**Carbon from biogenic sources —**

<b>Gross California Emissions</b>	<b>27.58</b>	<b>26.49</b>	<b>27.64</b>	<b>24.71</b>	<b>24.90</b>	<b>23.39</b>	<b>22.81</b>	<b>21.09</b>	<b>19.98</b>	<b>21.22</b>	<b>22.36</b>	<b>22.15</b>	<b>22.26</b>	<b>22.56</b>	<b>22.37</b>
<b>Net California Emissions</b>	<b>86.60</b>	<b>79.49</b>	<b>73.03</b>	<b>70.93</b>	<b>77.81</b>	<b>78.51</b>	<b>79.32</b>	<b>69.70</b>	<b>68.34</b>	<b>71.70</b>	<b>77.89</b>	<b>73.23</b>	<b>75.33</b>	<b>63.36</b>	<b>66.53</b>