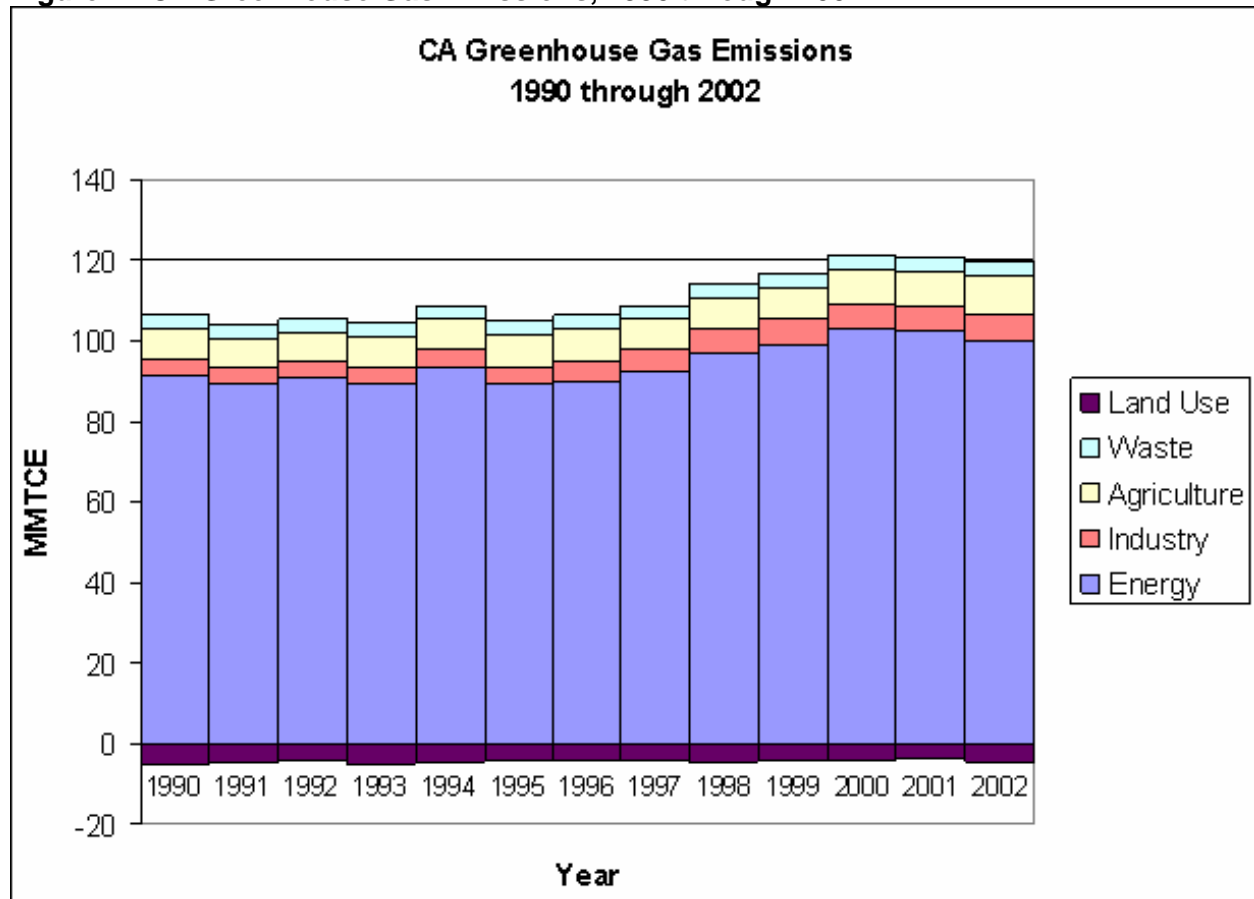


CALIFORNIA GREENHOUSE GAS EMISSIONS AND SINKS INVENTORY: SUMMARY

Figure 1. CA Greenhouse Gas Emissions, 1990 through 2002



The California Energy Commission report, *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2002 Update*, provides a detailed inventory of sources and sinks of greenhouse gases in California.¹ In 1990 California emitted greenhouse gases in the amount of 101.8 million metric tons of carbon equivalent (MMTCE). In 2002, emissions were 115.1 MMTCE, an overall increase of approximately 14 percent over 1990 emissions. Emissions from industrial processes and agriculture increased the most on a percentage basis (54 percent and 26 percent, respectively). Emissions from energy and waste also increased (9 percent and 3 percent, respectively). Forestry and land use change accounted for a small sink, which decreased in magnitude from -4.7 MMTCE in 1990 to -4.4 MMTCE in 2002.

¹ Emissions were estimated using methods from EPA's 2003 EIIP Document Series, *Volume VIII: Estimating Greenhouse Gas Emissions*.

Table 1. CA Greenhouse Gas Emissions by Gas and by Sector, 1990 through 2002

MMTCE	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
CO₂	81.8	80.2	81.9	80.2	85.1	81.0	82.1	85.1	89.3	92.0	95.6	95.8	92.7
Energy	85.0	83.3	84.8	83.4	87.7	83.5	84.4	87.2	91.9	94.3	97.8	97.6	95.2
Industrial Processes	1.4	1.3	1.2	1.4	1.6	1.6	1.7	1.7	1.6	1.7	1.8	1.7	1.9
Land Use	-4.7	-4.6	-4.1	-4.7	-4.2	-4.1	-4.0	-3.8	-4.2	-4.0	-3.9	-3.5	-4.4
Waste	*	*	*	*	*	*	*	*	*	*	*	*	*
CH₄	8.5	8.5	8.5	8.2	8.3	8.4	8.2	8.3	8.2	8.4	8.3	8.4	8.5
Energy	1.9	1.9	1.8	1.7	1.6	1.6	1.5	1.5	1.4	1.3	1.3	1.3	1.3
Agriculture	3.4	3.4	3.5	3.3	3.6	3.7	3.5	3.7	3.7	3.8	3.8	3.9	4.0
Land Use	*	*	*	*	*	*	*	*	*	*	*	*	*
Waste	3.2	3.2	3.1	3.2	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.3
N₂O	8.8	8.2	8.2	8.5	8.1	8.6	8.3	7.7	7.9	7.9	8.4	8.3	9.2
Energy	4.4	4.2	4.2	4.1	4.0	4.0	3.8	3.7	3.7	3.6	3.7	3.7	3.5
Industrial Processes	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Agriculture	4.1	3.7	3.7	4.0	3.8	4.3	4.2	3.8	3.9	4.0	4.4	4.3	5.3
Land Use	*	*	*	*	*	*	*	*	*	*	*	*	*
Waste	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2
HFCs, PFCs, and SF₆	2.7	2.8	2.8	2.9	2.9	3.0	3.6	3.9	4.6	4.5	4.7	4.4	4.7
Industrial Processes	2.7	2.8	2.8	2.9	2.9	3.0	3.6	3.9	4.6	4.5	4.7	4.4	4.7
Net Emissions	101.8	99.5	101.4	99.7	104.5	101.0	102.2	105.1	110.0	112.9	117.0	116.9	115.1

Note: Totals may differ from the sum of the sources due to independent rounding.

An asterisk (*) indicates emissions of the gas from this sector were zero, insignificant, or not reported.

All emissions are reported in million metric tons of carbon equivalent (MMTCE).

Carbon dioxide (CO₂) accounted for the majority of California's emissions. These emissions were primarily due to the burning of fossil fuels, especially in the transportation sector (about 52 percent of total CO₂ emissions). Nitrous oxide (N₂O) emissions fluctuated between 1990 and 2002, with the majority of these emissions from agricultural soils and mobile source combustion. Over the 13-year period, emissions from agricultural soils generally increased while emissions from mobile source combustion generally decreased. Methane (CH₄) was the third largest contributor to California's emissions in 1990 and in 2002, equal to 8.5 MMTCE in both years. Methane emissions were fairly constant over the time period and were mostly from landfills and enteric fermentation. Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆) each made up a small share of the total emissions. These emissions increased between 1990 and 2002, with 2002 emissions of these gases approximately 74% above 1990 levels. This increase in HFC/PFC/SF₆ emissions is largely due to the replacement of ozone-depleting substances (CFCs) with HFCs, which have high global warming potentials.

Per capita emissions were 3.8 MTCE in 1990 and 3.7 MTCE in 2002. In both years, California's per capita emissions were well below the national average, which was 6.5 MTCE per capita in 1990 and 6.4 MTCE per capita in 2002.