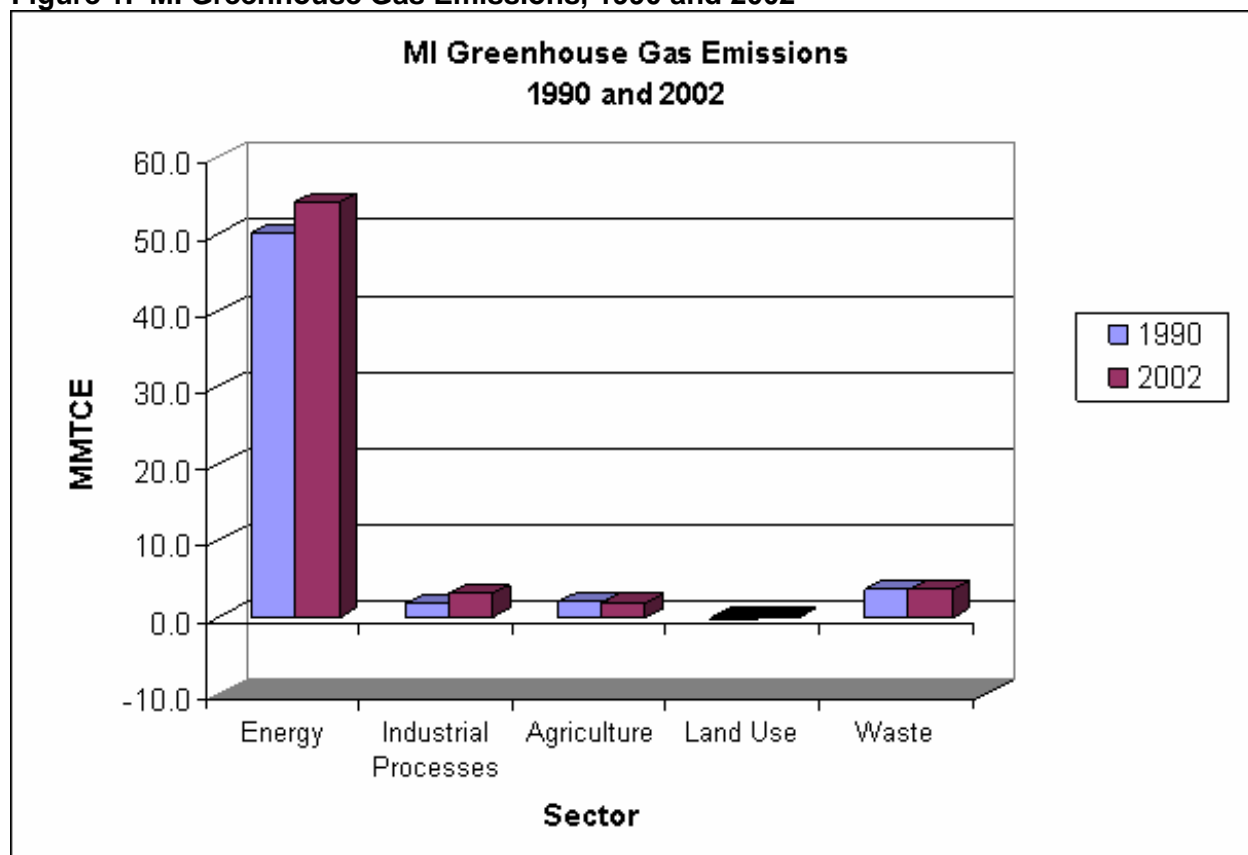


MICHIGAN GREENHOUSE GAS EMISSIONS AND SINKS INVENTORY: SUMMARY

Figure 1. MI Greenhouse Gas Emissions, 1990 and 2002



The *Michigan Greenhouse Gas Inventory 1990 and 2002*¹ provides a detailed inventory of sources and sinks of greenhouse gases in Michigan.² In 1990 Michigan emitted greenhouse gases in the amount of 57.1 million metric tons of carbon equivalent (MMTCE). In 2002, emissions were 62.5 MMTCE, an overall increase of approximately 10 percent. Emissions from energy use increased slightly (8 percent), and emissions from agriculture and waste both decreased slightly (3 percent and less than 1 percent respectively). Emissions from industrial processes increased 72 percent. Land use (comprising landfilled yard trimmings) accounted for a small sink, which decreased in magnitude from -0.4 MMTCE in 1990 to -0.1 MMTCE in 2002.³

¹ The *Michigan Greenhouse Gas Inventory 1990-2002* was developed by the Center for Sustainable Systems at the University of Michigan for the Michigan Department of Environmental Quality (DEQ).

² Emissions were estimated using the 2004 version of the EPA State Inventory Tool (SIT), developed as part of the U.S. EPA's Emission Inventory Improvement Program (EIIP). Emissions from iron and steel production were calculated using DEQ's own methodology, as this sector was not included in the SIT.

³ Michigan chose not to estimate carbon sequestration from forestry activities due to large uncertainties. Michigan provides further explanation of this decision in an appendix to the *Michigan Greenhouse Gas Inventory 1990-2002*.

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

1990	CO ₂ (MMTCE)	CH ₄ (MMTCE)	N ₂ O (MMTCE)	HFCs, PFCs, and SF ₆ (MMTCE)	Total (MMTCE)
Energy	48.3	1.2	0.6	*	50.1
Industrial Processes	1.5	0.0	*	0.3	1.8
Agriculture	*	0.6	1.3	*	1.9
Land Use	-0.4	*	*	*	-0.4
Waste	0.0	3.4	0.1	*	3.6
Net Emissions	49.6	5.2	2.1	0.3	57.1

2002	CO ₂ (MMTCE)	CH ₄ (MMTCE)	N ₂ O (MMTCE)	HFCs, PFCs, and SF ₆ (MMTCE)	Total (MMTCE)
Energy	52.1	1.4	0.6	*	54.1
Industrial Processes	1.9	0.0	*	1.1	3.0
Agriculture	*	0.5	1.4	*	1.9
Land Use	-0.1	*	*	*	-0.1
Waste	0.2	3.2	0.2	*	3.6
Net Emissions	54.2	5.2	2.1	1.1	62.5

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 vast majority of Michigan's emissions. These emissions were due in large part to the burning of fossil fuels, primarily for transportation and the production of electricity. Methane (CH₄) was the next largest contributor, mostly from the anaerobic decay of solid waste in landfills. Nitrous oxide (N₂O), the third largest contributor, came chiefly from agricultural soil management and mobile source combustion.

Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆) each made up a small share of the total emissions as well. The increase in HFC/PFC/SF₆ emissions in 2002 was largely a result of the replacement of ozone-depleting substances (CFCs) with HFCs, which have high global warming potentials.

Per capita emissions were 6.2 MTCE in both 1990 and 2002. In both years Michigan's per capita emissions were below the national average, which was 6.5 MTCE per capita in 1990 and 6.4 MTCE per capita in 2002.