

Manitoba Hydro's 2005 Greenhouse Gas Summary

Manitoba Hydro is a national leader in managing its greenhouse gas (GHG) emissions. While Manitoba Hydro's GHG emissions are small among most other Canadian utilities and already very low – accounting for less than 0.1% of Canada's total electrical emissions, Manitoba Hydro's GHG commitment and actions are very aggressive.

Manitoba Hydro's Voluntary Commitment

Manitoba Hydro simultaneously maintains two types of voluntary greenhouse emissions reduction commitments:

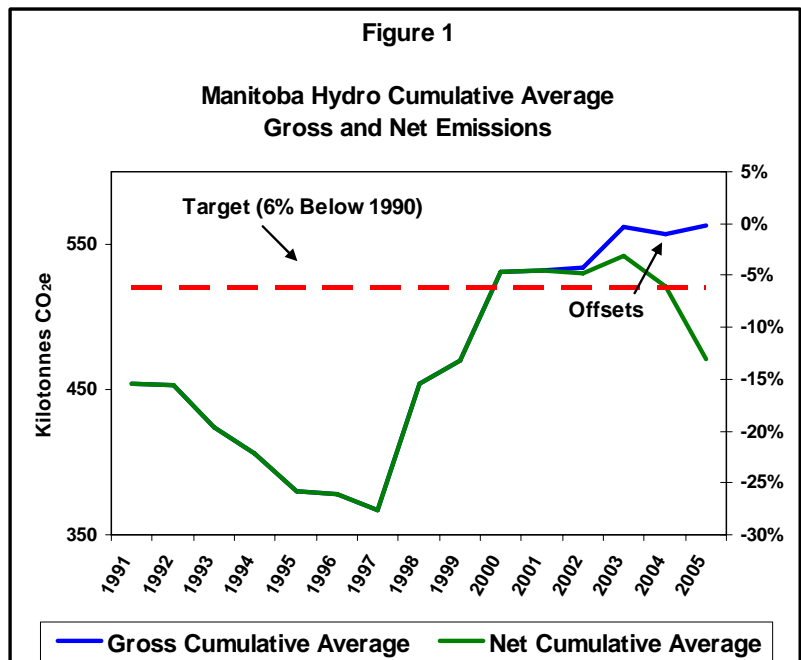
- Under the corporation's participation in the Chicago Climate Exchange (CCX), Manitoba Hydro committed to progressively step up its GHG emission reductions to 4% of our baseline emissions (defined as the average emissions over the 1998-2001 period) in 2006. Manitoba Hydro is in full compliance with the CCX target and, in fact, has a surplus of allowances.
- The "Voluntary Commitment" originally established under Canada's national Voluntary Challenge and Registry (VCR) program in 1998 commits Manitoba Hydro to reduce its average net GHG emissions from 1991-2007 to 6% below 1990 levels. This commitment and Manitoba Hydro's GHG reporting was recognized by The Pembina Institute as the best among Canadian utilities. The remainder of this document refers to the Voluntary Commitment.

Manitoba Hydro's Performance

At the end of 2005, Manitoba Hydro's average net GHG emissions were 15% below the 1990 levels as compared to the voluntary commitment of a 6% reduction (see Figure 1 below). On the basis of emission intensity, Manitoba Hydro emitted 16 tonnes of CO₂e per gigawatt hour in 2005 – a decrease of 38% relative to the 1990 level.

Since 1990 Manitoba Hydro has taken a number of actions that have increased its reliance on renewable generation and reduced its own GHG emissions. Actions since 1990 include:

- Shutdown of Brandon Generating Station coal-fired Units 1 to 4;
- Conversion of Selkirk Generating Station Units 1 and 2 from coal to natural gas (subsequently awarded Honourable Mention in the 2002 CCME P2 Awards – Greenhouse Gas Reduction Category);



- Development of the most aggressive demand-side management (DSM) program in North America;
- Development of the Limestone Generating Station supplying more than 1300 MW of new renewable hydropower;
- Development of an environmental dispatch premium policy; and
- Extension of power grid to eight remote northern communities, reducing to four from twelve the number of communities that are served by diesel generation; and
- The commitment to purchase the output from a 100 MW wind farm.

A key component of Manitoba Hydro’s aggressive greenhouse gas management strategy includes offsets measures, such as emission reductions associated with natural gas DSM programs, Chicago Climate Exchange (CCX) purchases, and export sales GHG offsets (for export contracts where ownership of emission reductions has been negotiated). At the end of 2005, the reductions associated with these export contracts totalled 1,300.6 kilotonnes CO₂e.

For the purposes of the Voluntary Commitment, Manitoba Hydro considers only exports where the rights to emission reductions have been negotiated. However, Manitoba Hydro’s contribution to global emission reductions is much greater when all of Manitoba Hydro’s exports are considered.

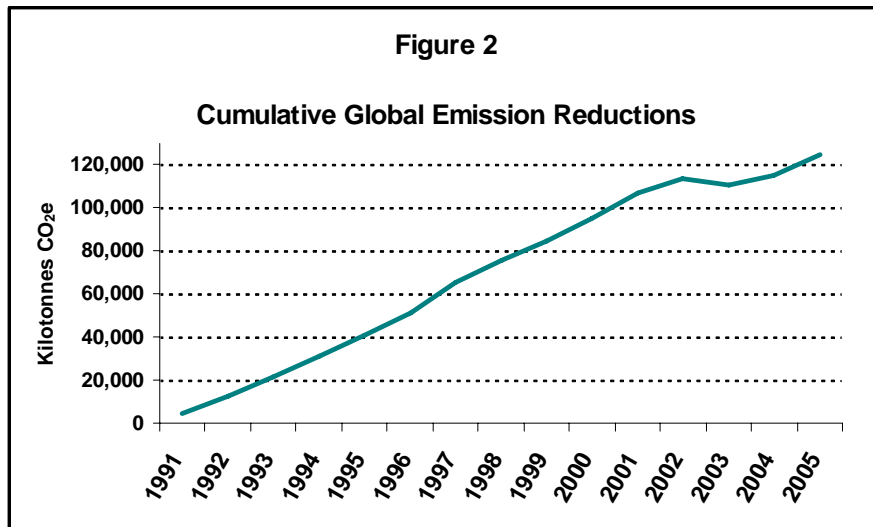


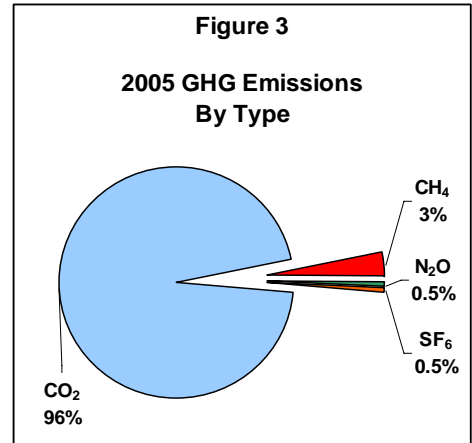
Figure 2 presents Manitoba Hydro’s estimate of the net cumulative impact of Manitoba Hydro facilities, as well as the implications of all net exports (i.e., exports minus imports). Since 1991, Manitoba Hydro has displaced the equivalent of more than 124,000 kilotonnes of CO₂.

Manitoba Hydro’s Source and Type of Greenhouse Gas Emissions

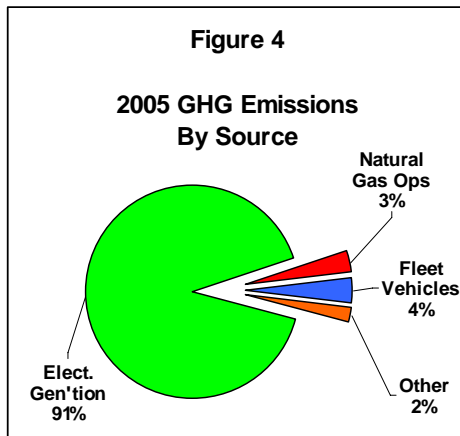
In 2005, Manitoba Hydro’s total gross greenhouse gas emissions were 648.3 kilotonnes of carbon dioxide equivalent (CO₂e). In 1990, Manitoba Hydro produced the equivalent of 553 kilotonnes of carbon dioxide.

Type of Greenhouse Gas

On a CO₂e basis, carbon dioxide is the primary greenhouse gas emission from Manitoba Hydro's operations, accounting for about 96% of the total in 2005. This is followed by methane (CH₄) at 3%, sulphur hexafluoride (SF₆) at 0.5%, and nitrous oxide (N₂O) at 0.5%.



Source of Greenhouse Gas Emissions



Most of Manitoba Hydro's emissions are produced when coal and natural gas are burned to generate electricity, accounting for 91% of Manitoba Hydro's total greenhouse gas emissions in 2005. This is followed by emissions from fleet vehicles (4%), natural gas operations (3%), and other (2%).