

MANITOBA HYDRO'S

GREENHOUSE GAS EMISSION FACTORS

The following information is provided to help Manitoba Hydro customers understand the greenhouse gas (GHG) implications associated with their use of electricity and natural gas.



GHG EMISSIONS ASSOCIATED WITH ELECTRICITY

Electricity use in Manitoba affects GHG emissions inside Manitoba (provincial perspective) as well as outside of Manitoba (global perspective). The provincial perspective considers only the direct GHG emissions from Manitoba Hydro's fossil fuel electric generation. The global perspective incorporates the indirect implications that changes in domestic energy production or use have on fossil fuel emissions in the broader interconnected region. Customers should consider which perspective best meets their needs.



Manitoba Hydro GHG Emission Factors at Generation

PROVINCIAL PERSPECTIVE

While nearly all of the grid connected electricity in Manitoba is generated at hydroelectric generating stations, Manitoba Hydro also operates two grid connected fossil fuel generating stations, located in Brandon and Selkirk. These stations generally function as back-up electricity sources for the system and normally operate at minimal levels. The following data table provides the annual emission intensity of Manitoba Hydro's grid connected electricity generation (in tonnes of carbon dioxide equivalent (CO₂e) per gigawatt-hour (GWh)):

Year	2019	2020	2021	2022	2023
GHG Emission Intensity Factor at Generation (tonnes CO ₂ e/GWh)	0.88	0.44	1.07	0.51	1.34

Provincial electricity intensity factors may be found in Annex 13 of Environment and Climate Change Canada's National Inventory Report (NIR) - Part 3: <https://unfccc.int/documents/630776> (NIR estimated intensity factors differ slightly from Manitoba Hydro's factors due to differing assumptions).

The NIR provides a source for provincial comparison and demonstrates that provinces dominated by hydropower, like Manitoba, have the lowest GHG emission intensities.





GHG Implications Considering the Interconnected Region

GLOBAL PERSPECTIVE



Another perspective looks not just at the GHG emission profile of electricity generation in Manitoba but also considers the implications within the broader regional electricity market, including the U.S. Midwest. When considering incremental changes to electricity consumption through energy efficiency, or fuel switching applications, Manitoba Hydro evaluates these decisions based on the global GHG consequences. Manitoba Hydro currently uses a factor of **750 tonnes CO₂e/GWh**, which reflects an estimate of the incremental GHG emission effects of consumption changes within the broader interconnected region. Additional information on the global perspective can be found in Section 3.3 of Manitoba Hydro's **Climate Change Report** at hydro.mb.ca/climatechange.

Interconnected Region
GHG Emission Factor
(tonnes CO₂e/GWh)

750



GHG EMISSIONS ASSOCIATED WITH NATURAL GAS COMBUSTION

Manitoba Hydro normally uses a GHG emission factor of **0.00191 tonnes CO₂e/m³** for the industrial, commercial, and residential combustion of natural gas. Natural gas composition and end-use combustion conditions can affect this value. This factor is based on data, provided by Environment and Climate Change Canada, that is used in the application of a GHG price on natural gas purchases in Manitoba.

Natural Gas Combustion
GHG Emission Factor
(tonnes CO₂e/m³)

0.00191

FOR MORE INFORMATION

This information will be updated on an annual basis. For a summary of Manitoba Hydro's corporate emissions, refer to the website: hydro.mb.ca/greenhousegas

If you have any questions or would like more information please contact:

ghg@hydro.mb.ca

Available in accessible formats upon request.
February 2024

