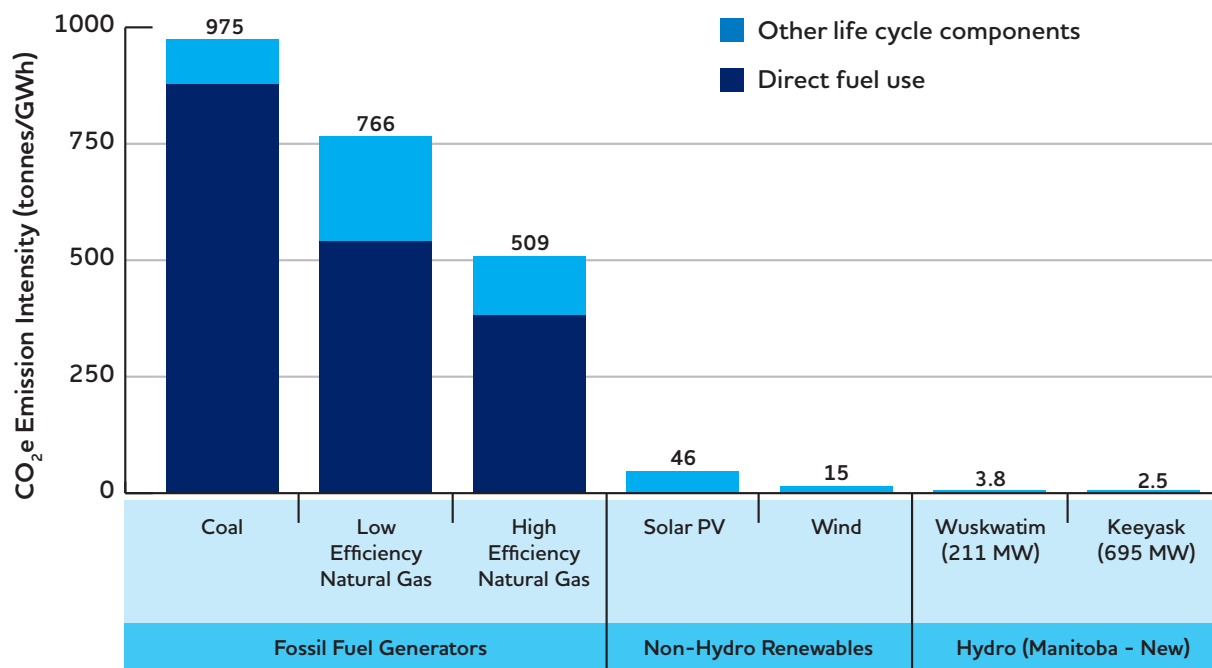


# Greenhouse Gas Emissions and Manitoba's Hydropower

## Points to consider:

- Over 96% of the electricity we produce is reliable, renewable power generated at 15 hydroelectric generating stations in Manitoba.
- The majority of these hydroelectric stations have relatively small and/or mature reservoirs. Monitoring at these sites has shown that GHG emissions are similar to natural fluxes, indicating that the reservoir effect has subsided.
- The 695 MW Keeyask Generating Station is currently under construction and Manitoba Hydro is monitoring its pre- and post-flood reservoir emissions.
- As part of the environmental approval process for Keeyask, Manitoba Hydro engaged the Pembina Institute to conduct a lifecycle assessment of this facility compared to other types of generation.<sup>1</sup>
- Lifecycle assessment considers the GHG emissions that result from the construction, land use change, operation, and decommissioning of each type of generation over its life.
- While the generation of electricity from renewable sources like wind, solar and hydropower can be considered “carbon-free”, every form of generation has associated lifecycle emissions.
- On a lifecycle basis, the US National Academy of Sciences and the Intergovernmental Panel on Climate Change have found that GHG emissions of hydropower are comparable to other renewables, including wind and solar.<sup>2</sup>

## Comparison of life cycle GHG emissions (tonnes of CO<sub>2</sub>e per GWh)



<sup>1</sup><http://www.cecmanitoba.ca/resource/hearings/39/KHLP-084%20Life%20Cycle%20Analysis%20of%20Keeyask.pdf>

<sup>2</sup>National Academy of Sciences, 2010 and [https://www.ipcc.ch/site/assets/uploads/2018/03/SRREN\\_Full\\_Report-1.pdf](https://www.ipcc.ch/site/assets/uploads/2018/03/SRREN_Full_Report-1.pdf)

<sup>3</sup>Coal, natural gas, wind and Keeyask emissions from: <http://www.cecmanitoba.ca/resource/hearings/39/KHLP-084%20Life%20Cycle%20Analysis%20of%20Keeyask.pdf>

Wuskwatim emissions from: <http://www.cecmanitoba.ca/resource/hearings/39/KHLP-083%20Life%20Cycle%20Evaluation%20of%20GHG%20and%20Land%20Change%202003%20Pembina%20Institute.pdf>

Solar emissions from: IPCC's Special Report on Renewable Energy Sources, page 982