



## Manitoba's electricity supply

**Manitoba Hydro operates one of the cleanest and most reliable electricity systems in the world with a power supply that is predominantly renewable, efficient, cost effective and environmentally responsible.**

### Renewable

Ninety-seven per cent of the electricity generated in Manitoba is from renewable hydropower. Hydropower converts the energy from flowing water into electricity, without depleting water in the process. That means hydropower will be able to keep providing energy for generations to come.

### Clean

Hydropower is virtually emission-free. It combusts no fuel and produces no air pollutants or waste like those associated with fossil fuel or nuclear power. As well, it produces close to zero greenhouse gases. In fact, greenhouse gas emissions from the construction and operation of a hydropower facility are as low or lower than wind power, and many times less than natural gas. [U.S. National Academy of Sciences.]

### Reliable

Manitoba Hydro uses decades of historical flow records and plans for the lowest water flow conditions when generating hydropower to make sure there is always enough electricity to meet the demands of our province. Hydropower generation can also be turned on or off faster than any other energy source. This guarantees a rapid response to changes in demand or in times of crisis management.

### Efficient

Hydropower is the most efficient source of electrical energy. It converts up to 95 per cent of available energy into electricity while the best fossil fuel power plants only operate at approximately 60 per cent efficiency.

Once constructed, hydroelectric power plants have a long lifespan and are relatively low maintenance. Some facilities in Manitoba are over 100 years old.

### Cost-effective/cost competitive

While hydropower generating stations have large up-front costs, once built they provide cost competitive electricity. And because hydropower is renewable, it offers price certainty. In comparison, fossil fuels, due to the nature of their production, storage, and transmission, are subject to and have a long history of price volatility.

The Canadian provinces with predominately hydropower generation (British Columbia, Manitoba, Quebec, Newfoundland) have some of the lowest electricity prices in North America.





### Environmentally responsible

New Canadian hydropower projects face some of the most stringent environmental regulation and protection of any electricity generation source. Each stage of a project is assessed to avoid, minimize, mitigate or compensate for adverse impacts and to spur positive outcomes.

Across the country, non-emitting hydropower is combating climate change more than any other renewable resource.

### Hydropower makes other renewable energies possible

Hydropower also allows for the storage of energy, making it the perfect partner to bring intermittent renewable resources, like wind and solar, to the electricity grid. Because wind is intermittent and non-dispatchable, it cannot be relied upon to produce electricity when needed. However, adding wind and solar energy to the grid is possible with the use of flexible energy like hydropower that can adapt quickly to the ever-changing, moment-to-moment availability of wind generation.

### Details about Manitoba Hydro's hydropower system

#### What's our capacity to generate?

With the addition in 2012 of the new 200-megawatt (MW) Wuskwatim Generating Station, developed through a partnership with Nisichawayasihk Cree Nation, installed hydropower capacity now surpasses 5,200 MWs.

#### What about down the road?

Manitoba's hydropower system has room to grow. Even after the completion of Keeyask Generating Station (currently under construction), there is still another 5,000 MW of additional capacity available for development in Manitoba.

### Natural gas: an important part of Manitoba's energy supply

Sixty per cent of homes in Manitoba use natural gas as their main heating source. Natural gas is the cleanest fossil fuel and a highly efficient form of energy. It is also an important energy source for business and industry in the province. Natural gas is the cleanest burning fossil fuel. It produces 45 per cent less carbon dioxide than coal.

Our province has one of the most variable and weather-sensitive natural gas demands in North America. This is because our province's climate fluctuates so much from day-to-day and season-to-season—and we use natural gas mainly for space heating. Natural gas use on a warm summer day in Manitoba is only about 5 per cent of natural gas used on a very cold day in the winter.

