Appendix 1

Updates since the 2023 Integrated Resource Plan

To request the document in French, email irp@hydro.mb.ca.
To request accessible formats visit hydro.mb.ca/accessibility.

Manitoba Hydro
energy for life

Table of Contents

1 The 2023 IRP Set the Stage

The 2023 Integrated Resource Plan (IRP), Manitoba Hydro's first, was the product of a two-year process to understand the key factors driving change in the Manitoba energy landscape. The 2023 IRP road map outlined the first steps that Manitoba Hydro needed to take to prepare for the energy transition. Planning assumptions in the 2023 IRP reflected feedback from extensive public engagement. The 2023 IRP explored the implications of scenarios to the year 2042 that ranged from slow growth in electrical demand to a scenario with aggressive decarbonization which would more than double winter peak demand.

The 2023 IRP report highlighted the importance of strategies to manage the electrification of space heating. The 2023 IRP results also indicated that with favorable capital costs and energy market prices wind generation could be a cost-effective source of electricity, energy efficiency measures that reduce peak demand are valuable, and that natural gas both for electricity generation and space heating would play an important role in meeting the energy demand over next two decades. Dual-fuel heating systems, which combines an electric heat pump with natural gas heating in the coldest weather conditions, was identified as a promising approach to reduce GHG emissions and limit increases in peak electrical demand. A learning from the 2023 IRP was that dispatchable capacity resources, such as thermal generation fueled by natural gas, are a low-cost way to manage the impacts of this increased need for electricity and ensure reliability. These resources can be run infrequently to support peak demand while complementing intermittent resources like wind; this approach still supports significant reductions in overall GHG emissions in the province.

The 2023 IRP identified near-term actions to be completed over the next five years that would help manage winter peak load, prepare for near-term resource options (like wind, energy efficiency, and natural gas combustion turbines), explore the future of natural gas, and improve and extend integrated resource planning efforts. In addition to near-term actions, the 2023 IRP identified indicators, labeled signposts, which track changes in the energy landscape that could have a material impact on Manitoba Hydro's ongoing integrated resource planning.

The 2023 IRP and Manitoba Hydro's regular ongoing planning set the stage for the 2025 IRP.

2 Updates on 2023 IRP Near-Term Actions and Signposts

Manitoba Hydro published updates on the 2023 IRP near-term actions (NTAs) and signposts that are available on Manitoba Hydro's website[1]. The following is a summary of the NTAs and signposts updates. Please refer to the published documents for more details and ongoing planning.

Work completed as part of the NTAs that directly influenced the development of the 2025 IRP includes, but is not limited to:

- Collaboration between Manitoba Hydro and Efficiency Manitoba on assumptions and methods for incorporating and evaluating energy efficiency.
- Long-term resource planning activities provided insights that informed the IRP development.
- Planning has been advanced on both wind and dispatchable resources, informing the resource options characteristics (i.e., cost, in-service dates) used in the 2025 IRP.
- Structured interviews with 2023 IRP interested parties' engagement participants to capture lessons learned, leading to the creation of a 2025 IRP technical advisory committee.
- Advanced preliminary work on an evaluation framework, supporting the further development of the metrics in the 2025 IRP.
- Initial work on assessing how utility and customer decisions affect total energy costs, incorporated through the energy wallet analysis.

The 2023 IRP signpost update provided on Manitoba Hydro's website reflects changes in government actions, customer decisions, electric vehicles, and technologies and markets which are indicators that inform the timing, pace, magnitude, or type of changes happening in Manitoba's energy landscape[2]. By monitoring these signposts, Manitoba Hydro can identify trends to anticipate and better understand when and how customers' needs are changing and how Manitoba Hydro can meet them. Most notably, in recent years these signposts have been leading drivers of demand for electricity or trends which are enabling further decarbonization. Signpost updates include international, national, and provincial government actions; international technology trends; and developments within U.S. energy markets, to which Manitoba Hydro is interconnected. Local updates include information about increases in solar installations, electric vehicle purchases in Manitoba, and large customer decarbonization projects.

[1] www.hydro.mb.ca/corporate/planning/

[2] www.hydro.mb.ca/docs/corporate/irp/2023-irp-signpost-update-en.pdf

3 Manitoba Hydro's Ongoing Planning Continued

Manitoba Hydro continued its planning for future electrical demand and potential resources between IRPs. Long-term resource planning performed in 2024 identified a range of resource development sequences to meet a range of future conditions. This analysis confirmed learnings of 2023 IRP and recommended advancing work on alternative fuels, wind generation, hydropower enhancements, battery storage, demand response, and other customer-side solutions in collaboration with Efficiency Manitoba, as well as exploring market options. This work also confirmed that new capacity supply could be needed as early as fiscal year 2029/30 and new dependable energy could be needed in 2031/32.

The "Manitoba Hydro Exploratory Study Report – New Wind Generation" report explored how the Manitoba Hydro transmission system could accommodate new wind generation. Manitoba Hydro's electrical distribution has investigated the consequences of long-term load growth, but most distribution planning resources are dedicated to meeting the near-term demands of growing communities.[3]

The load forecast methodology was improved by developing hourly load profiles and geographical zonal forecasts. The 2024 electric load forecast foresaw demand being reduced by forecast program-based demand response and energy efficiency such that about half of the increased firm electrical energy and peak demand by 2033/34 would be met by customer-side demand response and energy efficiency. Manitoba Hydro engaged consultants DNV Energy Insights in Spring 2023 to objectively review and assess the load research functions including the methodology and results of the development of the hourly load shapes. DNV's analysis of the hourly load shapes indicate that the results are in line with those achieved by their own best-in-class load research approach. The full 2024 electric load forecast report is available on Manitoba Hydro's website.[4]

Manitoba Hydro also continued with natural gas forecast scenario planning to provide general long-term direction of future natural gas requirements of Manitoba. This gas volume forecast leverages the energy efficiency plan prepared by Efficiency Manitoba, which projects achieving legislated targets, but discrete distribution systems may not uniformly have the same reduction of natural gas. Despite the anticipated annual growth in Manitoba's population leading to an increase in the total customer base, projections for total sales volume growth, net of DSM activities, are projected to remain flat at the provincial level.

Manitoba Hydro's annual planning references the electric load forecast and the corresponding natural gas volume forecast for all of its annual planning and preparation for regulatory reviews including rate applications and major facility cost estimates.

[3] www.oasis.oati.com/woa/docs/MHEB/MHEBdocs/ExploratoryStudyResultsFinal.pdf

[4] www.hydro.mb.ca/docs/regulatory_affairs/pdf/electric/gra_2026_2028/04-1_appendix_4-1_2024_electric_load_forecast.pdf

4 Deciding to do the 2025 IRP

Since the 2023 IRP Manitoba Hydro has already seen changes in the energy landscape, through its ongoing energy planning. Updated analysis showed that new capacity supply could be needed as early as fiscal year 2029/30 and new dependable energy could be needed in 2031/32. It takes time to implement supply solutions and the pathway to approving and implementing those solutions is through an approved development plan. Therefore, the 2025 IRP was required to develop a recommended development plan.

5 Preparation and Submission of Manitoba Hydro's Regulatory Filings

On October 7, 2024, Centra Gas Manitoba Inc. ("Centra"), Manitoba Hydro's natural gas subsidiary, filed its Fiscal 2025 General Rate Application with the Public Utilities Board of Manitoba ("PUB") based on the 2024 gas volume forecast. The application discusses the investments and activities required for Centra to run the natural gas system and perform maintenance as needed to continue to provide reliable, safe and effective service to customers. Centra notes that investment in capacity upgrades may be needed even when overall annual volumes are flat or declining. This is because distributions systems are discrete, designed to deliver peak hourly demand on a design day, which may not necessarily align to province-wide annual volume forecasts.

On February 25, 2025, Manitoba Hydro filed with the PUB for its review and recommendation, a preliminary estimate for a 500 MW dispatchable capacity resource with an assumed in-service date of 2030, as such a project would be considered a major new facility under The Manitoba Hydro Act. While Manitoba Hydro had not determined the actual type of resource to be constructed, this resource had been identified in Manitoba Hydro's ongoing planning described in Section 2. On March 28, 2025, the PUB accepted Manitoba Hydro's preliminary estimate and provided recommendations to ensure Manitoba Hydro proceeded prudently and explored alternative resource options.

On March 28, 2025, Manitoba Hydro filed its Fiscal 2026 to 2028 General Rate Application (GRA) with the PUB. The long-term financial forecast in the application is based on the 2024 electric load forecast and a set of placeholder new resources, designated the "2024 Proxy Development Plan" (Proxy plan), representing a low-cost approach to meet future supply needs while aligning with government policies and a net-zero grid mandate. The proxy plan was a placeholder for future development until the 2025 IRP provided a recommended development plan. The proxy plan is comprised of 496 MW of accredited new fuel-fired generation capacity and 111 MW of accredited new wind generation capacity (or 600 MW of new wind nameplate capacity) by 2033/34 with customer side solutions playing a substantial role in meeting new resource needs. About half of the increase in firm energy and over half of the increase in electric peak demand by 2033/34 would be met by Efficiency Manitoba's Efficiency Plan Projection and by new and existing demand response programming which includes the existing Manitoba Hydro curtailable rate program.