



Invest Manitoba
Open for Business

Manitoba's Energy Roadmap

July 28, 2023

Manitoba 

Introduction

In February 2023, EDBS was tasked to coordinate Manitoba's energy strategy and policy framework focusing on economic development and low carbon emissions.

The EDBS formed the Energy Policy Task Force which included subject matter experts, energy and climate consultants, and business leaders to provide direction on Manitoba's Energy future.

The Secretariat, in consultation with Energy Policy Task Force, engaged Dunsky Energy + Climate Advisors to support the development of Manitoba's Energy Policy.

This document, Manitoba's Energy Roadmap, is the provincial strategy on energy. It speaks to the current Manitoban energy landscape today and provides clear direction on how to move forward.

Energy Vision for Manitoba

Manitoba leverages its clean energy advantage to position Manitoba for economic opportunities, while advancing climate goals, Indigenous participation, energy affordability, and electricity modernization



Goals

Manitoba's Energy Roadmap is necessary to provide guidance for the next ten years on the provincial energy, environmental, and climate policy, as well as support for crown corporations' mandate.

The primary goals are to:

1. Modernize energy governance and infrastructure to both support additional clean generation and free up existing power capacity by reducing/shifting energy use;
2. Attract investment and jobs from companies with Net Zero and/or Environmental, Social, and Governance goals;
3. Keep residential rates affordable and industrial rates competitive, recognizing Manitoba's clean power added value, and
4. Position Manitoba as a low-carbon leader and leverage federal transition funds.

The Global Energy Story

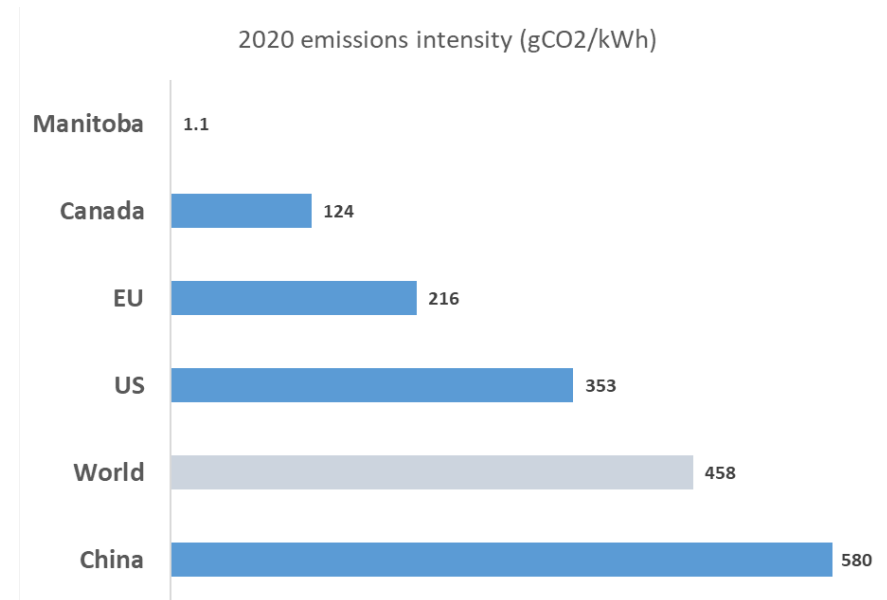
- Throughout human history energy has been the key determinant to the advancement of civilization and human development.
- Over the last four centuries Europe and North America have gone through two large scale energy transitions that have transformed and advanced the standard of living for their citizens:
 - Transition from wood to coal
 - Transition from coal to liquid and gas hydrocarbons
 - We are now in a third major energy transition.
 - This transition is focused on the development of energy sources that will displace petroleum and coal-based energy sources by attempting the rapid adoption of zero emission energy sources and technologies.
- Previous Energy transitions progressed slowly at first, with technological advancements, and then accelerate rapidly with broad societal adoption.
- The current transition is being driven by public policy decisions, with technological advancement following.
- While each of the first two energy transitions occurred over the course of a century, governments in Europe and North America are attempting to implement this third energy transition over the next three decades.
- In 2023, Global investment in clean energy is estimated at \$1.75T representing a 50% increase since 2018.

Manitoba's Clean Energy Advantage

Manitoba is well positioned to support economic prosperity

- 97% non-emitting electricity
- Large investments in green energy have already been made (\$32B system)
- Among the lowest electricity rates in North America
- With a 1.1 gCO₂/kWh, Manitoba has **one of the lowest emitting electricity systems** in the world.

Manitoba has one of the lowest-emitting electricity systems in the world



Manitoba Energy Landscape & GHG Emissions

With a 1.1 gCO₂/kWh, Manitoba has one of the lowest emitting electricity systems in the world.

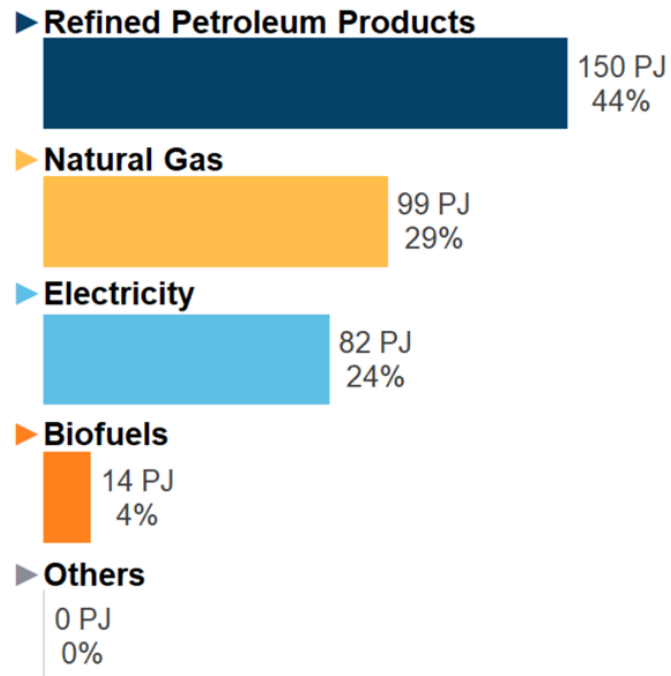
For perspective: MB's annual CO₂ output equals approximately 17 hours of China's CO₂ Output.

MB's annual CO₂ output is less than 1/3rd of Saskatchewan's annual output with similar population, geography and climate.

Provinces	GHG Emissions in megatonnes of carbon dioxide equivalent	Global GHG Emissions
CANADA	672.3	1.8%
Alberta	256.5	0.687%
Ontario	149.6	0.400%
Quebec	76.2	0.204%
Saskatchewan	65.9	0.176%
British Columbia	61.7	0.165%
Manitoba	21.7	0.058%

The Energy Transition is Occurring in Manitoba

Manitoba end use energy by source (2019)



Source: Canada Energy Regulator. <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-manitoba.html>

Evidence from Manitoba Hydro's Integrated Resource Plan has demonstrated that demand for low-carbon, clean energy is accelerating electricity demand growth

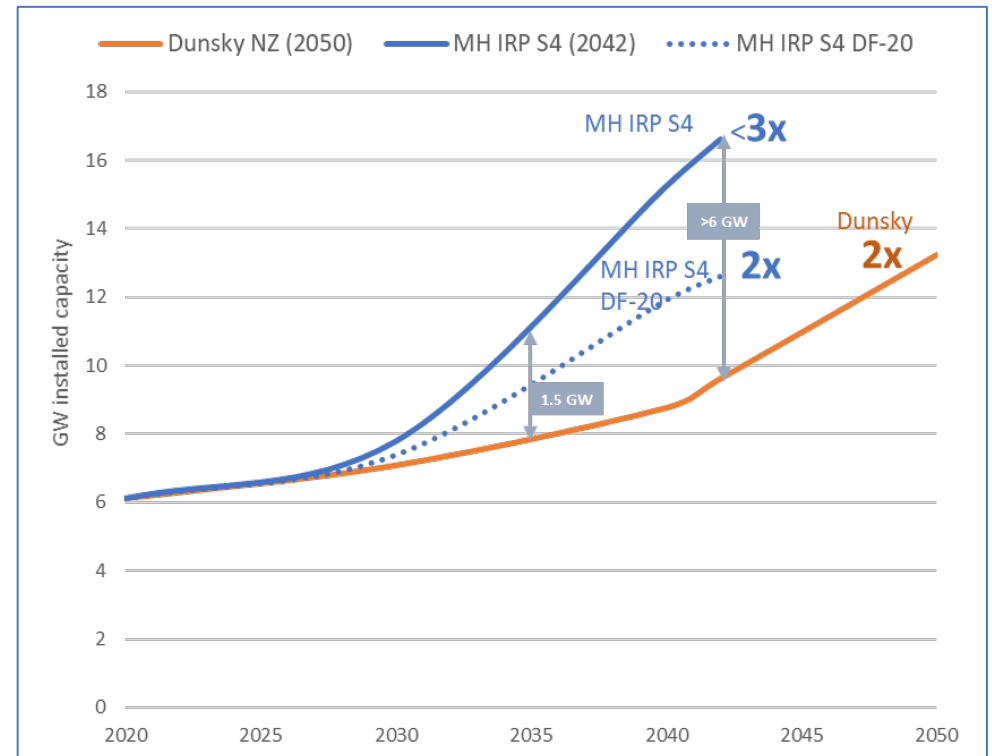
- Industry (investor/market-driven)
- Vehicles (EV tech + policy)
- Building heat (Heat Pump tech + policy)

The pace of energy transition in Manitoba will be influenced by geopolitical factors, climate objectives, federal and provincial policies occurring around the world.

Manitoba: Today's Energy Landscape

- Manitoba currently has an installed generating capacity of 6,600MW after more than 100 years and \$32 billion of dollars of investment.
- Significant new resources are required in the next decade which we need to plan for now.
- By the early 2040's growing demand for electricity in MB could require 10,000MW to 16,000MW of generating capacity.
- For example EDBS currently has 4,400 MW in new requests from 18 energy-intensive industrial projects.
- Manitoba is well positioned to supply global industry with what they need.

All scenarios see substantial power system growth



Electricity Modernization

- A more complex future will require a more complex energy system.
- Role for independent power producers to provide new energy supply to the grid
- Invest in transmission & distribution to support microgrids, distributed generation/resources, customer self-supply
- Smart meters to enable new ways to achieve energy efficiency opportunities
- Regulatory framework evolved to support a more complex energy system

Climate Goals- Low Carbon

- Manitoba's electricity system is already 97% non-emitting
- The cost to eliminate all GHG emissions in Manitoba is disproportionately expensive relative to the nominal GHG reductions
- All provinces other than British Columbia see a defined, limited role for natural gas
- Integrated use of electricity and natural gas systems enables strategies that can reduce Manitoba's GHG emissions while mitigating cost impacts
- Pursuing net zero must be done assiduously to avoid significantly impacting affordability and Manitoba's competitiveness

Indigenous Participation

Considerable opportunities for Indigenous communities in the future of energy and the Pathway to Prosperity, including:

- Participation in Manitoba's evolving energy landscape
- Economic benefits from the expansion of new and alternative energy technologies
- Opportunities to access government funding for the development and implementation of clean energy projects that meet broader provincial and federal policy objectives

Future energy projects undertaken in Manitoba will continue to emphasize the importance of:

- Crown consultation with potentially affected Indigenous communities to ensure s.35 Constitution Act rights are addressed as part of new energy projects
- Strong regulatory oversight to provide for environmental protection
- An emphasis on training, employment and business opportunities for Indigenous peoples in Manitoba

Key Action Areas

The Energy Roadmap identifies three key areas where actions must be taken to accomplish these goals:

Governance and mandates - **MODERNIZE**

There is a need to align governance with updated goals. This will provide clarity and enable greater coordination in support of provincial GROW+SAVE goals.

The mandates and legislations of Hydro, PUB and Efficiency Manitoba and other government permitting authorities must be aligned to meet energy demand and climate goals.

Energy savings and capacity - **SAVE**

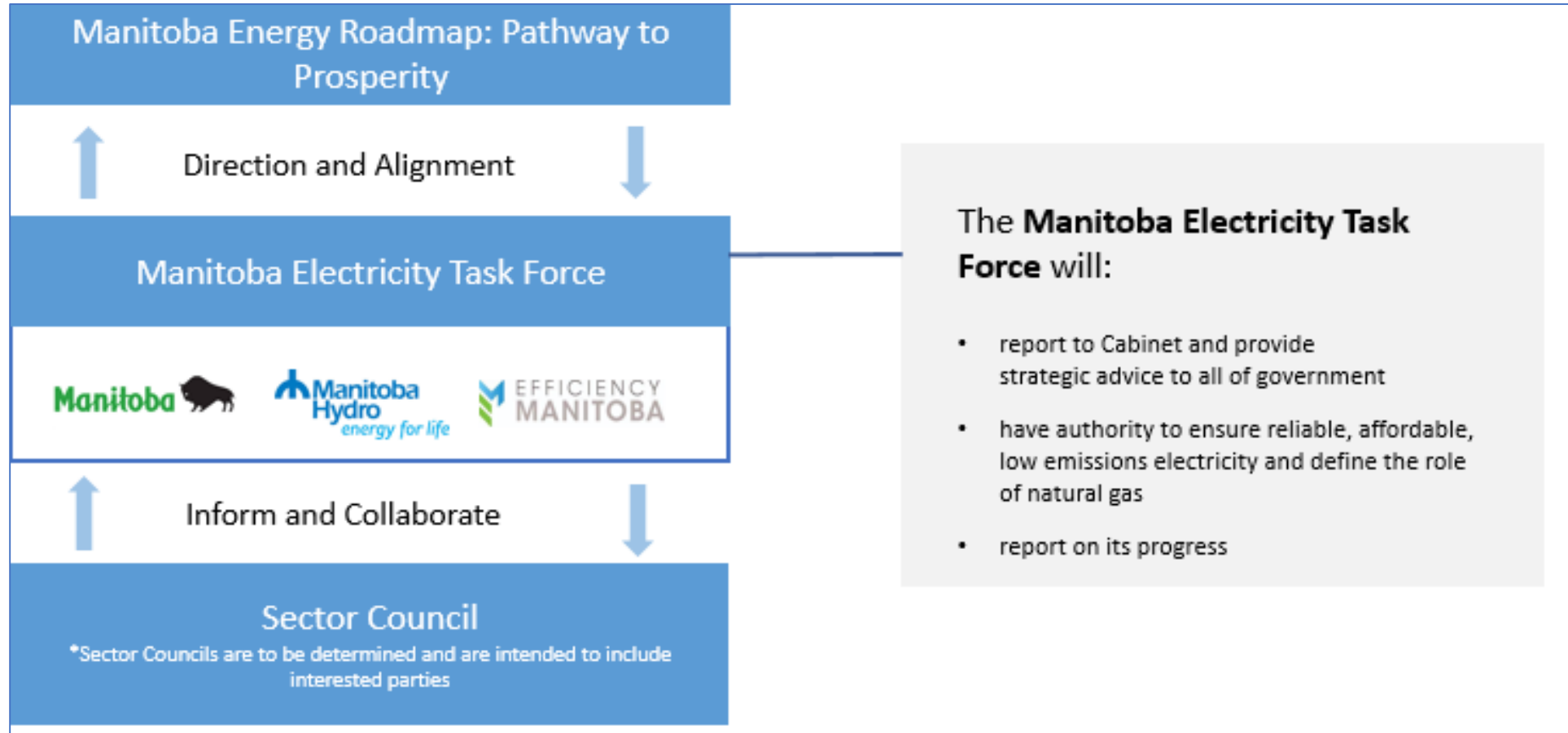
Supply will be challenged to keep up with demand growth. There is a need to reduce and shift electricity demand to match generating capacity.

Growth of clean power generation - **GROW**

Manitoba will require significant more power generation to meet anticipated demand.



Modernize Governance



MODERNIZE: Governance

Issues for the Manitoba Energy Council to consider

Framework for new industrial loads

- Move beyond “first come, first served”; choose projects based on value and apply stringent energy performance conditions*
- Ensure hydrogen production is used to substitute imported fossil fuels; export high value knowledge and green products produced with hydrogen (e.g. green steel) rather than raw hydrogen**

Prepare for economic growth

- Support pre-building infrastructure and provide guidance on who should pay (a critical consideration raised in ERBK and other reviews).
- Manitoba Hydro would need a mechanism to recover costs and guidance on how to allocate costs from new customer(s), existing customers, and/or other parties like governments (if related to their priorities).

Expand Efficiency Manitoba mandate – evolve to update mandates

- Efficiency measures that reduce seasonal peaks in electric demand have high value and can reduce costs for customers

Regulatory Reform

- Support joint electric and natural gas applications to the Public Utilities Board allowing for determination of customer rates considering the interrelated impact of the energy transition on the supply and demand of electricity and natural gas in the province- optimize across electric/gas systems
- Update Public Utilities Board mandate to manage performance instead of cost

* Quebec recent decision to serve larger loads at discretion of government, with input from Hydro Quebec

** Quebec’s Hydrogen and Bioenergy Strategy

SAVE: Reduce and Shift Energy Demand

Efficiency measures are needed to defer investment

- Reduce / defer investment needed for new supply or transmission & distribution
- Free up power for high-value use cases: new industry; customer carbon reductions

New supply will be challenged to keep up with demand growth

- Constraints to rapid built-out of new generation and capacity (regulatory, licensing, capex, supply chain, land use, community, etc.)

In the near term, reducing and shifting energy demand will free up potential supply to support economic development.



GROW: Diversify Future Energy Sources

Plan for substantial growth in clean power supplies

- Proactively make IPPs aware that there is future role to play
- Streamline energy project approvals (generation, transmission, distribution)
- Invest in automated metering infrastructure (AMI, or smart meters SMs) to enable growth of clean, variable supply – compliment similar bullet in SAVE section
- Invest in growing capacity at existing generation stations

Explore the role and potential for emerging technologies to meet future flexibility needs

- Initiate low-risk programs or pilot projects to manage peak demand; for example: new space heating technologies: heat pumps, dual electric/gas, storage
- Assess new resources, storage and fuel options, market evolution and transitions in piped gaseous fuels (natural gas, hydrogen, Renewable Natural Gas)

The Road Ahead

The Roadmap is grounded on the following five (5) objectives:

1. Protect the affordability to residential energy users and the financial capacity of the Government of Manitoba and Manitoba Hydro
2. Align governance to ensure entities are mandated and empowered to perform.
3. Procure new clean energy supplies in partnership with IPPs and Indigenous communities at competitive pricing for commercial and industrial customers.
4. Strengthen energy efficiency and peak savings through programs, market strategies and stronger regulation.
5. Explore emerging options to improve flexibility and meet future capacity needs.

Economic Development Board Secretariat

www.manitoba.ca

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