Appendix 6 – Policy Landscape

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1 Implications of Energy Policy for Integrated Resource Planning

Of the many forces impacting the evolving energy landscape, government actions are the one of the largest factors influencing both customer and utility related energy decisions. Virtually all sectors of the Canadian economy, and particularly the Canadian energy sector, are facing increasing regulation and legislation aimed at reducing greenhouse gas emissions (emissions). Government programs and tax structures complement policies and are another way governments influence change in energy use and reduction of emissions. While this general direction is expected to continue, the energy policy landscape is dynamic and can shift with changes in political leadership. This potential for change is reflected in the range of scenarios and sensitivities studied in the 2023 Integrated Resource Plan (IRP).

The overview of the energy policy landscape related to Manitoba Hydro herein is based on information available as of March 20, 2023. While newer information was not incorporated within the 2023 IRP, it will be considered within future Manitoba Hydro planning activities.

2 Overview of Energy and Environmental Policy in Manitoba

2.1 Manitoba Hydro's Mandate

As a provincially owned Crown corporation, Manitoba Hydro's mandate, as established in the Manitoba Hydro Act, is "to provide for the continuance of a supply of power adequate for the needs of the province, and to engage in and to promote economy and efficiency in the development, generation, transmission, distribution, supply and end-use of power…".[1] Manitoba Hydro's costs to provide electricity and natural gas are recovered through rates that are approved by the Manitoba Public Utilities Board. Several provincial acts and regulations guide Manitoba Hydro's planning and operations, including (but not limited to): The Crown Corporation Governance and Accountability Act, The Manitoba Hydro Act, The Public Utilities Board Act, The Energy Act, The Environment Act, The Gas Pipeline Act, The Greater Winnipeg Gas Distribution Act, and The Efficiency Manitoba Act. An outline of The Efficiency Manitoba Act, Climate and Green Plan Implementation Act and recent changes to building energy code regulations are provided below as they relate to potential changes in electricity and natural gas use. The Manitoba Government has committed to develop a new provincial energy strategy, but details were not available at the time of writing.

2.2 The Efficiency Manitoba Act

The Efficiency Manitoba Act, which came into force in 2018, created a new Crown corporation – Efficiency Manitoba. Efficiency Manitoba's legislated mandate is to cost-effectively develop and support energy efficiency initiatives that will reduce provincial consumption of electricity by 1.5% and natural gas by 0.75% annually, compared to what would have occurred in the absence of Efficiency Manitoba's programming. Per the Act, Manitoba Hydro provides Efficiency Manitoba with the funding necessary to implement its approved energy efficiency plans.

[1] The Manitoba Hydro Act https://web2.gov.mb.ca/laws/statutes/ccsm/h190e.php

2.3 The Climate and Green Plan Implementation Act

In 2018, Manitoba legislated climate accountability through the Climate and Green Plan Implementation Act (CGPIA). The Act established a Carbon Savings Account (CSA), which is a five-year cumulative emissions reduction goal for Manitoba. Prior to each five-year period, the province must establish an emissions reduction goal, considering the advice and recommendations of an Expert Advisory Council (EAC). The EAC is an independent group of experts with a mandate to provide recommendations to the Minister of Environment and Climate on the CSA target and strategies to achieve emission reductions. If Manitoba falls short of its cumulative emission reductions target at the end of a five-year period, that shortfall is added to the emission reductions target for the next five-year period. The EAC provides the illustration shown in Figure A6.1 to show how the 5-year CSA targets compared to business as usual (BAU) forecasts of emissions:

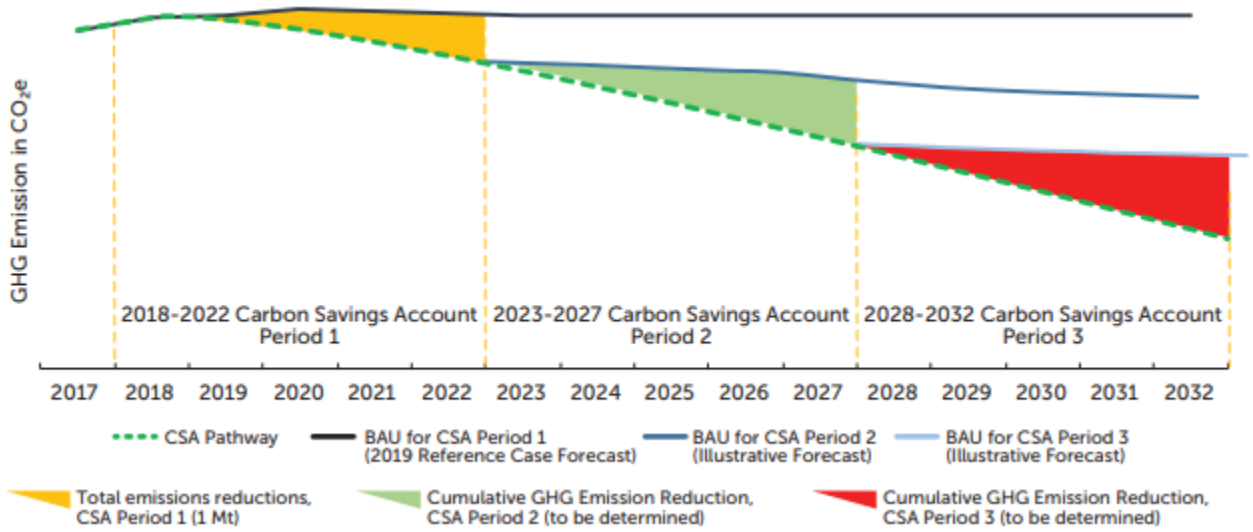

Figure A6.1 – 5-Year CSA Targets vs BAU[2,3]

The provincial emissions reduction goal for the first CSA period of January 1, 2018 to December 31, 2022 (CSA1) was 1 megatonne of carbon dioxide equivalent ($MtCO_2e$) and the goal for the second CSA period of January 1, 2023 to December 31, 2027 (CSA2), is 5.6 $MtCO_2e$, relative to a BAU forecast of emissions that would have occurred in that period. It will not be clear if Manitoba achieved its CSA1 target until 2024 when emissions data for 2022 becomes available. The EAC suggests that the largest near-term emission reductions in Manitoba can be achieved by improving energy efficiency and reducing fossil fuels used in transportation and buildings.[2] Stationary combustion and transportation are significant sources for emissions in Manitoba, Manitoba emissions by category are shown in Figure A1.4 in Appendix 1.

[2] https://www.gov.mb.ca/asset_library/en/eac/eac_carbon_savings_report2022.pdf
[3] Figure A7.1 shows the approach to establishing CSA targets. The CSA period 2 target has been established since this graphic was published.

Energy Codes for Buildings

Heating and cooling of buildings account for over one-quarter of all energy use and almost 20% of emissions in Manitoba.[4,5] Energy use in buildings is impacted by building codes. The adoption of building codes is legislated in Manitoba. Currently, Manitoba's building codes align with the 2012 National Energy Code for Buildings (NECB), though several updates to the NECB have been made that increase the energy efficiency of buildings. Manitoba is changing how building codes are adopted, amendments to the Buildings and Mobile Homes Amendment Act and will require the latest NECB be adopted within two years of its release. Unlike earlier versions, the 2020 NECB allows jurisdictions to adopt different tiers of energy efficiency for buildings, with the highest tier as a net-zero ready building. The tier of building code Manitoba chooses to adopt for new and significantly modified buildings, and the potential to create future energy codes for existing buildings, has the potential to improve energy intensity in buildings throughout their life.

Municipal Energy and Environmental Policy

Within Manitoba, municipal governments can also make decisions that influence energy use in municipal operations. Municipal government can also create policies, by-laws and programs to shape energy use and development within their community. Many municipalities have or are actively creating energy policy. Although municipalities in Manitoba vary in their plans and objectives, all express a desire to generate economic development. Some municipalities have goals to reduce emissions in their operations to attract investment, while others are asking for the natural gas system to be expanded to their communities so they can attract industries that rely on natural gas and provide more cost-effective space heating costs in their communities.

3 Overview of Canadian Energy and Environmental Policy

3.1 Canada's Emission Reduction Targets

The depth and pace of Canada's environmental legislative and regulatory agenda is shaped by its commitments under the United Nations Framework Convention on Climate Change Conference of the Parties (COP21) 2015 Paris Agreement. In the Agreement, Canada committed to reduce its emissions by at least 30% from 2005 levels by 2030 and achieve net-zero emissions by 2050. However, in April 2021, Canada further increased its near-term climate ambition, committing to reduce emissions by 40% to 45% from 2005 levels by 2030.

To formalize its commitments, Canada introduced the Canadian Net-Zero Emissions Accountability Act which received Royal Assent in June 2021.[6] The legislation requires national emission reduction targets to be set by the Minister of Environment & Climate Change for 2030, 2035, 2040 and 2045, with the goal of attaining net-zero emissions by 2050. The Act sets legal requirements for the federal government to create emission reduction plans, report progress, and course correct towards meeting net-zero emissions by or before 2050. In meeting the requirements of the Act, in March 2022, the Government of Canada

[4] https://www.gov.mb.ca/sd/pubs/energy/five_year_report.pdf
[5] https://www.gov.mb.ca/asset_library/en/eac/eac_carbon_savings_report2022.pdf
[6] https://laws-lois.justice.gc.ca/eng/acts/c-19.3/fulltext.html

released its first emission reduction plan (ERP) titled, *2030 Emission Reduction Plan: Clean Air, Strong Economy*.[7] The ERP outlined current and proposed policies, as well as $9.1B in new investments, designed to achieve the government's 2030 emission reduction target.

Of consequence to Manitoba Hydro, several proposed decarbonization policies could result in not only a significant increase in demand for electricity, but also a decrease in natural gas use. As noted in the ERP, "Multiple reports have estimated that, by 2050, Canada will require two to three times the current generating capacity."[7]

The subsequent sections highlight the major policies and programs that have been, or are being, developed to meet the federal government's emission reduction goals.

3.2 Greenhouse Gas Pollution Pricing Act

A key component of Canada's emission reduction strategy is a national benchmark price on emissions. The Greenhouse Gas Pollution Pricing Act (2018) established a federal emission pricing backstop through two mechanisms:[8] a fuel charge on fossil fuels corresponding to their carbon content; and an Output-Based Pricing System (OBPS) applicable to facilities in emissions-intensive trade-exposed (EITE) sectors to limit their emission pricing burden.

Carbon (Emission) Pricing

In March 2023, the fuel charge on fossil fuels was equivalent to $50 per tonne of carbon dioxide equivalent (CO_2e) emitted. The price on carbon (the price on emissions) is scheduled to increase annually by $15 per tonne per year until a maximum of $170 per tonne in 2030.[9] This benchmark price applies in Manitoba, as an equivalent provincial pricing system has not been established. The fuel charge applies to many different fossil fuels, most notably affecting the cost of transportation fuels like gasoline and diesel, as well as natural gas used for heat. An increasing carbon price is designed to influence Canadians' personal and business decisions when it comes to using different types of energy.

Year	2023	2024	2025	2026	2027	2028	2029	2030
Minimum Carbon Pollution Price ($ CAD/tonne CO_2e)	$65	$80	$95	$110	$125	$140	$155	$170

Figure A6.2 – Federal Carbon Pricing Schedule[9]

[7] https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/emissions-reduction-2030.html?utm_campaign=not-applicable&utm_medium=vanity-url&utm_source=canada-ca_emissions-reduction-plan

[8] https://laws-lois.justice.gc.ca/eng/acts/G-11.55/

[9] https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/carbon-pollution-pricing-federal-benchmark-information/federal-benchmark-2023-2030.html

Output-Based Pricing System (OBPS)

Rather than pay the fuel charge, facilities in EITE sectors are subject to the Output-Based Pricing System (OBPS) Regulations (or similar provincial systems deemed equivalent by Environment and Climate Change Canada (ECCC)). This regulatory pricing system for large emitters is designed to address competitiveness and leakage[10] risks while still providing a strong incentive for these facilities to reduce emissions. There are over forty facilities in Manitoba with emissions large enough to be registered in the OPBS. Under the OBPS, these facilities only pay for emissions above an established performance standard. If emissions are lower than the performance standard, they can earn credits to save for use in future years or to sell to other facilities participating in the OBPS. Output-based standards are set at 80% to 95% of the average emissions intensity for a sector (tonnes CO_2e/GWh) and reduce over time by 2% a year.[11]

The OBPS applies to some fossil-fuel fired electrical generating units, with different standards for existing and new units. Manitoba Hydro's only current natural gas-fired generating station (the Brandon generating station) participates in the OBPS. As an existing natural gas-fired unit, Manitoba Hydro must pay for emissions from the Brandon station above a performance standard of 370 tonnes CO_2e/GWh. For natural gas-fired units built after 2020, the performance standard declines over time from 370 tonnes CO_2e/GWh to 0 tonnes CO_2e/GWh in 2030, resulting in these units paying the full $170 per tonne price for all emissions. The federal government is considering changing the output-based standard for post-2030 emissions from existing generating units (units built before 2021).[12]

3.3 Coal-Fired and Natural Gas-Fired Generation Regulations

In addition to the Greenhouse Gas Pollution Pricing Act, Canada has two regulations that directly limit emissions in the electricity sector. *The Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity* regulations will phase out coal-fired electricity generation by January 1, 2030, with the exception of coal-fired generation that captures emissions through carbon capture and storage.[13]

In addition to the coal-fired generation regulations, Canada also set performance standards for new and modified natural gas-fired generation.[14] The only relevant aspect for Manitoba Hydro's resource options is that the standards prohibit new single cycle gas turbines greater than 150 MW if they have a capacity factor greater than 33%. However, it is expected that the proposed Clean Electricity Regulations (see below) will supersede this existing regulation.

[10] Leakage refers to the risk of an industrial facility moving from one jurisdiction to another to avoid paying a price on carbon pollution and/or being subject to more stringent climate policies.
[11] https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/output-based-pricing-system/2022-review-consultation.html
[12] https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/publications/proposed-frame-clean-electricity-regulations.html
[13] https://laws-lois.justice.gc.ca/eng/regulations/sor-2012-167/index.html
[14] https://laws-lois.justice.gc.ca/eng/regulations/SOR-2018-261/page-2.html#h-857535

3.4 Proposed Clean Electricity Regulations

The Government of Canada has been engaging with stakeholders, including Manitoba Hydro, on the development of Clean Electricity Regulations (CER) that aim to achieve a net-zero electricity grid by 2035. It is anticipated that a draft CER will be published in Canada Gazette I prior to summer 2023. Though emissions from Manitoba's current electrical system are minimal, the CER may restrict how Manitoba Hydro can operate its existing and any potential future natural gas generating stations. These restrictions could have significant implications for Manitoba Hydro as natural gas combustion turbines provide least-cost, low risk, reliable capacity to support the integration of variable renewable resources such as wind and solar and to meet Manitoba's energy needs in drought conditions.

3.5 Canadian Government Actions Driving Transportation Electrification

As part of its Action Plan for Clean On-Road Transportation,[15] Canada is taking a multi-pronged approach to transition transportation in Canada to cleaner modes, including through regulations and financial incentives (see Table A6.1). The intent of this plan is two-fold: to achieve emission reductions, and to stimulate economic growth associated with zero emission vehicles from mining to mobility. A transition to cleaner transportation is expected to increase demand for electricity in Manitoba, the timing and pace of which will be influenced in part by these government actions. Transportation sector emissions account for about 40% of Manitoba's total emissions and 25% of Canada's total emissions.

Regulating Zero-Emission Vehicle Sales

The federal government published its first draft of its *Regulations Amending the Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* on December 31, 2022.[16] The proposed amendments would require all manufacturers and importers of new light-duty vehicles to sell an increasing percentage of Zero-Emission Vehicles (ZEVs) in Canada, beginning with 20% of new light-duty vehicles offered for sale and increasing annually to 60% by 2030 and 100% by 2035. Under the proposed amendments, hybrid vehicles would receive partial credit based on their electric-only range. As per Canada's news release, "given the average age of a vehicle is 15 years, putting in place a 100 percent ZEV sales target by 2035 will help end the use of these polluting vehicles by 2050."[17] These amendments are consistent with Canada's commitment to align with the most stringent performance standard in North America – those of the Government of California.[16]

Although regulations have yet to be drafted, Canada's 2030 Emission Reduction Plan indicated the federal government would launch an integrated strategy for medium and heavy-duty vehicles so nearly all vehicles sold by 2040 "where feasible" would be zero-emission, with an interim goal to achieve 35% medium- and heavy-duty ZEV sales by 2030.[18]

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[15] https://tc.canada.ca/en/road-transportation/publications/canada-s-action-plan-clean-road-transportation
[16] https://canadagazette.gc.ca/rp-pr/p1/2022/2022-12-31/html/reg1-eng.html
[17] https://www.canada.ca/en/environment-climate-change/news/2022/12/proposed-regulated-sales-targets-for-zero-emission-vehicles.html
[18] 2030 emissions reduction plan : Canada's next steps to clean air and a strong economy.: En4-460/2022E-PDF - Government of Canada Publications - Canada.ca

Clean Fuel Regulations

ECCC published the final Clean Fuel Regulations (CFR) in Canada Gazette Part II on July 6, 2022, with regulations coming into force on July 1, 2023.[19] The CFR will require companies that produce or import liquid fossil fuels like gasoline or diesel (known as regulated parties), to gradually reduce the total lifecycle carbon intensity of the fuels they supply in Canada. Regulated parties (mainly refineries) must create or buy credits to comply with the regulations. Annual carbon intensity reduction requirements can be met via three main credit-creating actions: reducing the carbon intensity of the fossil fuel throughout its lifecycle; supplying low-carbon fuels (e.g., ethanol, biodiesel); and, specified end-use fuel switching (e.g., charging EVs, supplying renewable natural gas). Entities that create credits by operating an EV charging network are required to reinvest all revenue from the sale of the credit into activities that increase access to electric mobility, such as expanding charging networks, the supporting infrastructure, or offering rebates to purchase an EV. The combined effect of the CFR, in addition to the fuel charge, is intended to make the operation of internal combustion engine vehicles more costly than ZEVs.

3.6 Increasing Production and Use of Cleaner Fuels

The federal government recognizes that electrification is not the only means of reducing emissions in buildings, transportation, and industry. Switching to cleaner fuels like renewable natural gas and hydrogen are also options. To complement the Clean Fuel Regulations, Canada launched a Clean Fuels Fund to: de-risk capital investment in new or expanded clean fuel production facilities, such as for renewable natural gas and hydrogen; support the establishment of biomass supply chains used to produce clean fuels; and address changes in codes, standards and regulations.[20] The Energy Innovation Program provides funding for industrial fuel switching, as well as production of clean fuels for use in sectors where it is most difficult to reduce emissions. The Canada Infrastructure Bank also offers special financing to support increased production of clean fuels.

Building on strategies announced by the provinces of British Columbia, Alberta, Ontario, and Quebec, Canada released a national hydrogen strategy in late 2020.[21] It acknowledged that hydrogen costs five times more than natural gas and that there would need to be ambitious investments in research and development, and supportive policies and regulations aimed at lowering emissions through a long-term transition to hydrogen in industries that are particularly challenging to electrify. Since that time, the federal government has introduced several programs to increase demand for and supply of hydrogen, including funding through its Net Zero Accelerator initiative and Clean Fuels Fund (see Table A6.1). The 2022 Budget also announced that a new clean technology investment tax credit of up to 30% would be developed soon and applicable to investments in hydrogen production.[22]

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[19] https://www.gazette.gc.ca/rp-pr/p2/2022/2022-07-06/html/sor-dors140-eng.html
[20] https://natural-resources.canada.ca/climate-change/canadas-green-future/clean-fuels-fund/23734
[21] https://natural-resources.canada.ca/sites/nrcan/files/environment/hydrogen/NRCan_Hydrogen%20Strategy%20for%20Canada%20Dec%2015%202200%20clean_low_accessible.pdf
[22] https://www.budget.canada.ca/2022/pdf/budget-2022-en.pdf

3.7 Proposed Canada Green Buildings Strategy

The Canada Green Buildings Strategy discussion paper was published in summer 2022 to receive input on how to meet Canada's Emission Reduction Plan target of reducing residential, commercial, and institutional building emissions by 37% from 2005 levels by 2030 and achieving net-zero emissions by 2050.[23] The discussion paper proposes three main pillars for the strategy: require all new buildings to be net-zero carbon-ready (as early as 2027 and no later than 2032); increase the rate of deep retrofits to existing buildings (reach 3% to 5% of existing buildings annually by 2025); and, electrify space and water heating, "allowing for flexibilities such as hybrids where full electrification is not feasible". The Federal government committed to releasing a draft Canada Green Building Strategy by spring 2023.

3.8 Reducing Methane Emissions from Oil and Gas Sector

The federal government is proposing to amend existing federal regulations for methane emissions from the oil and gas sector, in order to cap the growth of emissions and achieve a 75% or greater reduction in methane by 2030 relative to 2012.[24] The federal government committed to publishing draft regulations in 2023.

Table A6.1 – Government of Canada Funding Programs in Support of Clean Growth and Emissions Reductions
(With information provided by National Resources Canada as of February 6, 2023)

Program	Description	Amount
Critical Minerals Strategy	Support the development of domestic critical mineral value chains, including green and digital technologies such as electric vehicles and semiconductors	$3.8B over 8 years
Clean Fuels Fund	De-risk capital investment in new or expanded clean fuel production facilities; support the establishment of biomass supply chains used to produce clean fuels; and address changes in codes, standards and regulations.	$1.5B over 5 years
Green Municipal Fund	Endowment funding for the Federation of Canadian Municipalities' Green Municipal Fund, which supports local projects that help municipalities adopt climate solutions, including in the areas of affordable housing, building retrofits and community energy financing, and Low Carbon Cities Canada network.	$1B
Canada Greener Homes Grant	Provide up to $5,000 to homeowners to improve home energy efficiency, as validated by pre- and post-renovation EnerGuide audits. Funding can also be applied towards the installation of heat pumps and solar energy.	$2.6B over 7 years

[23] https://natural-resources.canada.ca/sites/nrcan/files/engagements/green-building-strategy/CGBS%20Discussion%20Paper%20-%20EN.pdf
[24] Federal regulations to reduce methane emissions in the oil and gas sector - Canada.ca

Program	Description	Amount
Oil to Heat Pump Affordability Grant	Provide up to $5,000 to homeowners to move to electric heat pumps instead of home heating oil.	$250M over 5 years
Code Accelerator Fund	Funding for provinces and territories, municipal authorities, Indigenous governments and supporting organizations for activities that promote adoption of higher tiers of building codes.	$119M over 5 years
Deep Retrofit Accelerator Initiative	Fund services that structure projects, assemble owners/investors, inject technical expertise, and prepare business cases for large-scale deep retrofits to buildings, including for low-income households.	$200M over 5 years
Towards Net-Zero Homes and Communities	Fund residential sector initiatives that address barriers to technology adoption, build capacity for adoption of net-zero codes, and facilitate home energy labelling.	$14M over 4 years
Smart Renewables and Electrification Pathways Program	Support renewable electricity and grid modernization projects, along with support for capacity building.	$1.56B over 8 years
Electricity Predevelopment Program	Support predevelopment activities required to advance strategic electricity de-carbonization projects of national significance.	$250M over 5 years
Clean Energy for Rural and Remote Communities Program	Fund projects that reduce the reliance on diesel fuel, support the use of renewables, increase energy efficiency, and build capacity in rural and remote communities.	$520M over 8 years
Green Industrial Facilities and Manufacturing Program	Provide capacity-building and cost-sharing to industry, as well as advisory services to embed energy management in federal industrial investments.	$198M over 5 years, $44.8M ongoing
Energy Innovation Program – Carbon Capture Use and Storage Stream	Support research, development and deployment that would improve the commercial viability of carbon capture, use and storage technologies.	$319M over 7 years
Emissions Reduction Fund	Help oil and gas sector companies adopt greener technologies.	$750M

Program	Description	Amount
Zero Emission Vehicle Infrastructure Program	Support the deployment of EV charging and hydrogen refueling stations where Canadians live, work and play, focusing on underserved areas (complemented by the Canada Infrastructure Bank's $500M commitment to support large-scale charging and refueling infrastructure).	$680M over 7 years
iZEV Program	Incentives of up to $5,000 for consumers who buy or lease an eligible battery electric, hydrogen fuel cell, or longer-range plug-in hybrid vehicle.	
iMHZEV Program	Purchase and lease incentives for Canadian businesses and organizations purchasing or leasing eligible zero-emission vehicles.	
ZEV Tax Write-Offs	In place of purchase incentives, businesses can instead choose an accelerated capital cost allowance of 100% for light, medium, and heavy-duty ZEVs including electric battery, plug-in hybrid (with a battery capacity of at least 7 kWh), or hydrogen fuel cell vehicles in use before 2028.[25]	
Green Freight Program	Retrofit large trucks currently on the road, with emissions reducing technologies, or enabling switching to cleaner fuels.	$199.6M over 6 years
Greening Government Fleets	Lead by example to decarbonize the federal fleet of vehicles.	$2.2M over 6 years
Energy Innovation Program	Target system-side energy transformation and decarbonization through investments in energy-related research, development, and deployment.	$24M over 1 year
Net Zero Accelerator	Supports large-scale investments to help heavy industry like steel, aluminum, cement, mining, and chemical production as well as the oil and gas sector significantly reduce emissions, including through electrification and switching to use cleaner fuels[26]	$8B

[25] https://www.canada.ca/en/revenue-agency/services/tax/individuals/topics/about-your-tax-return/tax-return/completing-a-tax-return/deductions-credits-expenses/line-22900-other-employment-expenses/capital-cost-allowance/classes-depreciable-properties/zero-emission-vehicles.html

[26] https://ised-isde.canada.ca/site/strategic-innovation-fund/en/net-zero-accelerator-initiative

4 Overview of U.S. Federal Energy and Climate Policy

Like Canada, the Biden Administration has increased its international commitments and is prioritizing emission reductions across the U.S. economy. The Biden Administration has committed to reducing U.S. emissions by 50% to 52% from 2005 levels by 2030 (higher than Canada's Nationally Determined Contribution to the Paris Agreement), achieving a 100% emissions-free electricity sector by 2035, and achieving a net-zero economy by 2050. While the U.S. has similar targets to Canada, they are focusing more on using financial incentives rather than policy to drive desired changes in emissions reductions and energy.

4.1 Bipartisan Infrastructure Law

President Biden signed the Bipartisan Infrastructure Law (BIL) (formerly known as the Infrastructure Investment and Jobs Act) into law on November 15, 2021.[27] BIL allocates $1.2 trillion over 10 years, of which $550 billion is new spending. Measures include: various programs to enhance and build out electrical grids including transmission; accelerate mining of critical minerals needed for battery production and battery recycling; increase adoption of carbon capture and storage for power plants and industry; support hydrogen and advanced nuclear research and development; and investments in EV infrastructure, buses, and transit. Funding related to clean energy includes: $65B to support new transmission lines to facilitate the expansion of renewables and clean energy; $3.5B to create carbon capture and sequestration hubs with $4.6B to build pipelines to reach the hubs; $7.5B to build out a national network of 500,000 EV chargers; $5.0B to acquire electric school buses; and, $5.3B to purchase ZEV transit buses. The bill also creates a new $6.0B program to support struggling existing nuclear reactors and $0.75B for enhancement, efficiency improvements, and production incentives at hydroelectric facilities.

4.2 Inflation Reduction Act

In addition to the BIL, on August 16, 2022, President Biden signed the Inflation Reduction Act of 2022 (IRA) into law.[28] The IRA includes tax, healthcare, and prescription drug reforms, in addition to making the single largest investment in clean energy that is projected to reduce U.S. economy-wide emissions 40% by 2030. The IRA provides an assortment of tax credits for nuclear, solar, wind, carbon capture utilization and storage, direct air capture, hydrogen, and energy storage. The items most likely to have impacts on the build out of renewables in the Midcontinent Independent System Operator (MISO) region are the production tax credits (PTC) and investment tax credits (ITC). Manitoba Hydro is a coordinating member of MISO and is an active participant buying and selling energy in the MISO wholesale electricity market. Credits are set to phase out the later of 2032 or when electric power sector emission targets of 75% less carbon than 2022 levels are achieved.

[27] https://www.energy.gov/gdo/bipartisan-infrastructure-law
[28] https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf

The IRA and BIL will have significant impacts on the development and cost of clean technologies, the build out of renewable generation and transmission within U.S. markets in which Manitoba Hydro participates, and influence investment decisions of clean technology and EV manufacturers and supporting supply chains. In the time since both Acts have become law, some US utilities have already begun altering their development plans to have even greater emphasis on renewables based on these new tax credits.

5 Overview of U.S. State-Level Energy Policy

As in Canada, sub-national governments in the U.S. are influencing the energy transition through their actions. States are responsible for: the approval of intrastate electrical transmission lines; retail electricity and natural gas sales; approval of new electrical generating facilities (other than hydropower and nuclear facilities); and can mandate electric utilities to undertake energy efficiency programming or supply electricity from certain types of resources.

At the state level the most impactful change influencing the MISO electricity mix has been legislation aimed at reducing emissions in the electricity sector. This has been achieved through renewable energy standards or renewable portfolio standards (RPS) which require retail electricity providers to supply a specified minimum percentage of customer demand with eligible sources of renewable electricity. Electrical distribution companies can generate renewable electricity themselves or purchase it from other suppliers like Manitoba Hydro. In recognition that additional resources will be needed to complement renewable electricity generation and achieve net-zero electricity supply, states have been shifting to use carbon-free or 'clean' electricity standards. Carbon-free electricity standards are typically more ambitious than a RPS but expand eligible resources to include options like nuclear, energy storage, and fossil fuel generating facilities with carbon capture and storage. For example, the State of Minnesota recently passed a legislation to increase its RPS to 55% by 2035 and introduced a requirement for 80% of retail electricity sales in 2030 to come from carbon-free sources, increasing every 5 years to reach 100% by 2040.[29]

6 Influence of Policy in the MISO Electricity Market

Within MISO's diverse regional footprint, utility members are making plans, committing to near and long-term retirements and investments, and announcing increasingly advanced decarbonization goals. Although MISO's role is to remain policy- and resource-agnostic, there is a clear energy mix transition underway, driven in part by state and U.S. federal government policies and funding.

[29] https://mn.gov/commerce/news/?id=17-563384#:~:text=View%20entire%20list-,Governor%20Walz%20Signs%20Bill%20Moving%20Minnesota%20to%20100%20Percent%20Clean,Minnesota%20carbon%2Dfree%20electricity%20standard.

Previously, MISO was heavily reliant on coal to produce electricity; however, in recent years there has been significant build-out of natural gas, wind, and solar generation replacing aging coal plants. The push for decarbonization within the MISO footprint is driven in significant part by state and utility decarbonization goals,[30] as well as federal renewable incentives previously discussed. One impact of low variable cost renewables displacing higher variable cost fuel-based resources is anticipation that it will result in lower average market prices for electricity. Pricing changes impact the price Manitoba Hydro pays to buy electricity from the market or receives to sell its surplus electricity to the market.

A recent MISO report suggests the MISO system could approach 30% of annual electricity generation from variable renewables (wind and solar) within five years, with renewable penetration levels potentially increasing by about 10% every five years thereafter.[31] As evidence the MISO market is rapidly changing, it received a record 956 interconnection requests in 2022 representing roughly 171 GW of new generation, with about 96% being renewable or storage resources. In 2021, there were 487 applications representing 77 GW of new proposed generation. [32]

Research from MISO predicts that government actions to electrify building heating systems and transportation, along with customers' adoption of behind-the-meter solar generation, will cause some summer peaking utilities to become winter peaking. With large amounts of solar being added to the generation mix, the summer season, which historically had higher prices due to air conditioning load in MISO, may become a period of lower prices. As some neighbouring utilities in MISO anticipate the shift to become winter peaking, there may be less interest in future seasonal diversity arrangements, or summer capacity purchases from Manitoba Hydro.

END OF APPENDIX

[30] https://cdn.misoenergy.org/MISO%20Futures%20Report538224.pdf
[31] https://cdn.misoenergy.org/2022%20Regional%20Resource%20Assessment%20Report627163.pdf
[32] https://dailyenergyinsider.com/news/36921-miso-seeing-record-number-of-requests-for-interconnectionsin-2022/