PEMBINA Institute

SUBMISSION

Ontario's Clean Energy Journey

Pembina Institute's comments and recommendations for the IERP

Submitted to the Ministry of Energy and Electrification

Regarding: Ontario's Integrated Energy Resource Plan

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Context

Ontario has established itself as a clean energy powerhouse, with an 87% emissions-free grid powered by robust hydroelectric and nuclear infrastructure. The province's strategic conservation efforts have reduced electricity demand by 15% compared to projections, attracting investments and creating economic opportunities across various emerging industries.

The Integrated Energy Resources Plan (IERP) is an opportunity to map out the province’s path to clean, affordable energy. The Electrification and Energy Transition Panel (EETP) recognized that an economy fueled by clean energy production, enhanced energy efficiency, and lower greenhouse gas emissions creates jobs, generates business, and invites more investments to the province.

With the Independent Electricity System Operator (IESO) anticipating a 75% increase in electricity demand by 2050, setting ambitious targets for wind, solar, and energy storage would help Ontario diversify its clean energy portfolio, enhance grid resilience, and attract investments in these growing sectors.

A key challenge is addressing forecasted gas generation, which is anticipated to increase and could account for nearly a quarter of the province's electricity supply by 2030. This trend threatens to undermine Ontario's clean energy achievements and add unnecessary

greenhouse gas emissions. The government must develop a clear strategy to reduce gas generation over time.

The IERP will be an important document that identifies and plans for key opportunities while aligning all provincial electricity system actors towards a shared vision.

Discussion Questions

The Pembina Institute is supportive of Ontario's commitment to a clean energy vision and developing the IERP. Our recommendations are summarized below:

What policy options and actions should the government consider in the integrated energy resource plan to achieve Ontario's vision for meeting growing energy needs, keeping energy affordable and reliable, ensuring customer choice and positioning us to be an energy superpower?

To achieve Ontario's vision, the government should consider:

- Planning transmission infrastructure
- Adopting a grid planning framework
- Expanding demand response and time variable rates
- Incentivizing building retrofits

As Ontario's demand grows, more transmission capacity will be needed to transfer electricity from where it is generated to the load centres that consume it. Upgrading transmission capacity also creates new opportunities for clean energy growth, increasing the amount of new generation that can connect to the grid. However, transmission infrastructure typically needs to be planned 5-7 years ahead of new load and generation assets. The government should plan such enabling infrastructure early, taking inspiration from successful models like the Competitive Renewable Energy Zones (CREZ) implemented in Texas. Collaboration with neighbouring jurisdictions to coordinate transmission development can also enhance grid reliability, help balance wind and solar

resources and reduce electricity system costs. Planning early and in collaboration will help Ontario build out the infrastructure it needs to supply electricity to industries and residences across the province and export excess power to its neighbours.

Furthermore, Ontario could benefit from adopting a planning framework like the UK's upcoming Strategic Spatial Energy Plan (SSEP) and Centralized Strategic Network Plan (CSNP), which are expected to be published in 2026. The SSEP will be a high-level blueprint that provides clarity on future energy system and infrastructure needs by identifying optimal locations, quantities, and types of energy generation required to meet future demand. The CSNP, informed by the needs outlined in the SSEP, would focus specifically on transmission network planning. Ontario can take a similarly comprehensive approach and incorporate economic, environmental, and technical design inputs, as well as engagement with the public, experts, and policymakers, to plan future generation and transmission siting and development.

The electricity grid is only one component of the IERP. Buildings are the second highest source of carbon emissions in Ontario and contribute up to 24% of total overall emissions. In many large municipalities, emissions from buildings can be much higher. Buildings are important assets to consider as resources within the Ontario Integrated Energy Resource Plan, given 80% of buildings that will exist in 2050 are already built.

Expanding on recommendations from the EETP, we recommend the expansion and promotion of demand response, time variable rates and building retrofits in the IERP. These measures stimulate load shifting and help shave costly demand peaks, generating cost savings for both building owners and utilities while reducing the amount of generation assets Ontario will need. The IERP should also prepare for a shift to all-electric power by incentivizing building decarbonization through targeted incentives for upgrades such as high-efficiency electric space heating and cooling, domestic hot water systems, and the integration of EV infrastructure, solar photovoltaics, and storage.

These incentives can be complemented by government-backed finance mechanisms, such as through low-interest capital lending, to stimulate deep retrofits and leverage private capital for building decarbonization. Further, identifying opportunities to improve climate resilience, especially for aging buildings through building codes, performance standards,

and high equipment efficiency standards, will help reduce electricity demand in the future. These incentives should prioritize retrofitting and fuel-switching households living with low incomes and energy poverty to help improve the lives of vulnerable Ontarians as well as multi-unit residential and commercial buildings to maximize energy and carbon reduction outcomes.

Building on the recommendations of the EETP's final report, what actions should be prioritized to enhance planning across natural gas, electricity, and other fuels?

The provincial government must develop and communicate a clear commitment and associated policy principles for achieving a clean energy economy by 2050, as outlined in EETP's first recommendation. This long-term commitment with a defined timeline will provide a clear signal for energy developers and investors looking to partake in Ontario's clean economy. The long-term plan should provide a comprehensive framework for existing planning functions, such as those of the IESO, ensuring alignment across different energy sources.

In addition, the government should strengthen regulatory frameworks to facilitate collaboration between the IESO and the Ontario Energy Board (OEB). Empowering the OEB to conduct regular reviews of IESO-led planning activities will ensure that procurement and planning align with government policy objectives.

To leverage distributed energy resources (DER) effectively, the government could consider implementing a compensation framework like the New York Value Stack, which considers local needs for electricity and congestion when determining value. This approach could help direct DER growth to areas that need it most and enhance both local and province-wide grids to support energy system needs reliably and at the lowest cost.

The government's priority is to ensure Ontario has the energy resources it needs to support growth. Are there opportunities to enhance the province's approach to procuring electricity generation supply to better serve this priority?

Ontario can enhance its approach to procuring electricity generation supply to better serve growth priorities through several key strategies. The IESO's procurement process can be improved by establishing designated "growth zones" near areas with planned or

existing transmission capacity and close to constrained demand centers. This aligns with the government's focus on accelerating the development of new transmission lines to support various demands, including auto-manufacturing and municipal growth. To ensure fair competition and cost-effectiveness, the procurement process should adopt a truly technology-agnostic approach. While the IESO currently runs technology-agnostic procurements, it is crucial to remain unbiased towards any specific technologies and create a level playing field that prioritizes the lowest-cost options while still allowing for a diverse supply mix.

What actions should government consider to promote greater access to electricity and accelerate grid-connections that will support economic growth, connecting new homes, and electrifying transportation and heating?

1. **Support EV Charging Infrastructure Investments:** Provide incentives, Investment Tax Credits (ITCs) and other financing options for integration of EV charging infrastructure, particularly in Multi-unit Residential Buildings (MURBs), commercial facilities and publicly owned buildings. Mandate EV-ready parking spaces in new buildings to accelerate EV adoption.

2. **Integrate EVs with building demand response:** buildings with EV charging infrastructure could participate in conservation and demand programs to optimize charging times through Time-of-Use rates or managed charging mechanisms, enabling buildings to reduce grid stress while supporting flexibility for building operators.

3. **Streamline utility connection and permitting for EV infrastructure:** government should work with IESO and building owners/managers to simplify permitting and installation standards for buildings to support faster implementation of EV infrastructure in public and private buildings. This can enable Vehicle to Grid (V2G) capability and reduce the impacts of residential EV charging on local distribution companies.

What policy guidance should the government provide to the Ontario Energy Board (OEB) with respect to the long-term role of natural gas in Ontario's economy and opportunities for low-carbon alternatives in the gas system?

The government should re-evaluate the role of natural gas in the long-term and acknowledge that a continued reliance on it does not align with global trends towards decarbonization and would hinder Ontario's competitiveness in a transitioning energy landscape. The government should update the OEB's mandate to include decarbonization as a regulatory objective and enhance collaboration with the OEB to ensure decision making is aligned with provincial clean energy and emissions reductions goals.

How can the government best support Indigenous leadership and participation in energy planning and projects?

Recent advancements in Indigenous equity partnerships, projects, and agreements within the province (e.g. the Wataynikaneyap Transmission Project, the Oneida Energy Storage Project, and the Fort Severn solar farm) are positive reinforcements of the role clean energy plays in advancing economic reconciliation within the province. Though these are positive steps in the right direction, there remain significant opportunities for the provincial government to build on this momentum and widen the pathway for more Indigenous-led and -owned clean energy. The EETP recommends that the provincial government should establish early, ongoing and meaningful engagement with Indigenous communities in energy planning and clean energy project development. This process should prioritize trust-building through regular communication and respect for individual Nations' laws, policies and regulations, as building meaningful relations are fundamental in Indigenous cultures.

The EETP also recommends enhancing and expanding capacity-building options. Currently, the government provides support primarily through the IESO's Indigenous Energy Support Program (IESP), which recently increased its budget from $10 million to $15 million. Broadening IESP's scope would enhance capacity-building and enable deeper engagement and foster Indigenous leadership in clean energy projects. Additionally, improving the provincial government's internal understanding of Indigenous cultures,

governance structures, and community engagement protocols will further enhance collaboration.

To promote Indigenous leadership in energy planning and projects, Ontario should focus on economic reconciliation through partnerships and governance participation. While some funding exists for Indigenous recipients, expanding financing programs and introducing flexible models will improve access to support for clean energy initiatives. Including an Indigenous representative on the boards of the IESO and OEB would ensure that Indigenous perspectives are integrated into decision-making processes.

Finally, aligning provincial legislation with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) would signal a commitment to co-developing clean energy policies with Indigenous communities. Progress on Bill 76, introduced in 2019 to harmonize Ontario laws with UNDRIP, should be revived to demonstrate genuine support for self-determined priorities. Increasing provincial support for Indigenous participation in the clean energy transition requires ongoing reassessment and improvement of strategies to ensure meaningful involvement.

What cooperation opportunities exist across other jurisdictions to support energy trade, construction of transmission infrastructure (ex. pipelines and interties), and transportation electrification?

The Northeast Grid Planning Forum (NGPF), a new initiative led by Nergica and the Acadia Center, is aiming to dismantle barriers to regional grid coordination in the Northeastern Unites States and the Eastern Canadian provinces. Initiatives like these that facilitate interjurisdictional grid planning enhance grid reliability, help balance wind and solar resources and reduce electricity system costs. The Great Lakes and Saint Laurence Cities Initiative is a coordinating group of 240 Canadian and American mayors, and their energy transition working group offers an opportunity for them to collaborate on transmission, energy trade and transmission electrification as well.

What actions should government consider that would empower customers to install innovative technologies to generate or store energy on-site to reduce costs and improve resiliency?

Innovative technologies require innovative incentive mechanisms to empower customer implementation. For example, New York has implemented their Value of Distributed Energy Resources (VDER) mechanism, also known as the Value Stack, which rewards customers for GHG emission reduction, customer and utility cost savings, and avoidance of new capital investments. A DER's value under each of these categories is calculated by the utility each month and is credited toward the electricity bill of the owner(s), capturing a range of benefits in a single process that streamlines the compensation process for DER participants. A similar program could be used in Ontario to promote rooftop solar installation in constrained areas like the GTA.

What specific actions could position the integrated energy resource plan to best leverage distributed energy resources (DER) that enhance local and province wide grids to support energy system needs reliably and at the lowest cost?

1. **Incentivize on-site renewable energy and storage**: provide financial incentives to encourage utility investment in DSM programs to support the installation of rooftop solar panels, battery energy storage systems (BESS) and other DER technologies in buildings. Developing policies that support grid modernization technologies to ensure grid interoperability would also support local energy generation and local distribution company (LDC) system integration.

2. **Enable Utility-led DER**: Enable LDC's to provide DSM programs including demand response focused on buildings and sustainable deep retrofit solutions. Programs could incorporate energy efficiency, peak-shaving and load-shifting strategies through energy management system technologies.

3. **Encourage Virtual Power Plants**: Creating new market structures that enable building owners to sell surplus energy and participate in Virtual Power Plants would help integrate DERs into the grid and create a more flexible and efficient system for distributed energy management.

4. **Clarify and streamline DER interconnection standards**: Ontario should establish standardized interconnection procedures for small-scale DERs, reducing administrative burden, interconnection time frames and enabling more seamless approvals for installations in the building sector.

What policy or regulatory changes should government consider to address financial risks and support adoption of DER in the long-term?

Under current regulatory frameworks, capital investments in new infrastructure to meet forecasted grid and customer needs are utilities' most important expenses as they are permitted to earn a return on these investments. If approved by the regulator, capital investments are added to the utility's rate base, which is the value of all the utility's useful capital assets.

This revenue model, called the cost-of-service model, does not support the adoption of DERs because of its bias towards large infrastructure and lack of return for operational expenses, as well as its inherent incentive to maximize electricity consumption. Alternative revenue models, such as performance-based regulation, could help shift utility incentives to align with the need for energy efficiency, DERs, and other initiatives that require operational funding rather than capital investment.

Conclusion

The IERP is a critical opportunity for Ontario to build on its clean energy leadership while meeting future energy demands. By implementing the recommended strategies, Ontario can create a comprehensive roadmap that balances economic growth with decarbonization. This plan should prioritize innovation, stakeholder collaboration, and meaningful Indigenous engagement. Ultimately, the IERP can position Ontario as a pioneer in developing a clean, modern, and resilient energy system that benefits all residents and serves as a model for other jurisdictions