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IESO Pathways to Decarbonization Study

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Overview

The Toronto Region Board of Trade supports the Ministry of Energy's efforts to work with its energy agencies and partners to lay the groundwork for an integrated energy plan that meets Ontario's energy needs, maintains reliability at low costs, and advances our clean energy advantage. It also supports the establishment of the Minister's Electrification and Energy Transition Panel to inform next steps toward a longer-term vision for an integrated energy system.

Significant work must be done to enable supply, transmission, and demand management and to move forward with solutions. On behalf of its members, the Board appreciates the opportunity to provide comments on the IESO's *Pathways to Decarbonization* "no regrets" recommendations.

The anticipated surge in demand for electricity from the coming wave of electrification, combined with reduced grid capacity from the shuttering of the Pickering Nuclear Station is likely to impact the price of power for manufacturers and other businesses. Ontario's resurgence as a manufacturing powerhouse – motivated by the Government of Ontario's recent strategic investments in EV production, battery gigafactories, green steel, a critical mineral strategy, alongside regulatory reform to lower the cost of doing business in the province – will require a competitively priced, growing supply of green energy.

Moving quickly to establish a competitive regulatory framework for new energy generating capacity, transmission, and distribution is imperative to improve predictability and attractiveness for investments – benefiting our economy with high-value jobs, increased GDP-per capita, and an increase in exports.

Detailed responses to the consultation questions are provided following this summary of overarching themes:

Clearing a Path

The path to decarbonization requires a clear vision from the Province on its priorities and objectives for long-term goals. Reaching these goals in a time-efficient manner needs an effective framework for planning, procurement, permitting, and buildout. This includes

streamlining processes, reducing regulations on siting, ensuring continuity of regulatory requirements, and establishing regulations that enable rapid response and decisions.

Collaboration

The energy ecosystem must be looked at holistically in the government's approach to decarbonization. Engagement with stakeholders, energy producers, utilities, innovators, the public and Indigenous communities should begin early in the siting process and be conducted in a timely and accountable manner. Working with the federal government will be a key component to streamlining processes, eliminating regulation duplication, and establishing an enabling regulatory framework.

Cost Effectiveness

For the electricity system to be cost-efficient, planning in the long-term is essential with projects calculated closely for their output, return on their costs over time, and their potential to secure investments. The Province must work collaboratively to ensure that a plan is put in place to address how these necessary investments will be funded.

Innovation

The province can benefit from fostering an ecosystem of technology development and adoption – both from new efficient generation and infrastructure technologies as well as the potential for returns from scaling Ontario-based companies. Innovative smart infrastructure, demand-side management, and energy storage options can improve grid capacity in the short- and long- term. It is important to note that consideration must be given toward the skilled workforce that will be required to enable Ontario's path to decarbonization, and to ensure that proper policies and strategies are in place to prepare the labour market.

Consultation Questions and Responses

1. The IESO's Pathways Study recommends streamlining regulatory, approval and permitting processes, citing that it can take five to 10 years to site new clean generation and transmission infrastructure.

What are your thoughts on the appropriate regulatory requirements to achieve accelerated infrastructure buildout? Do you have specific ideas on how to streamline these processes?

Response:

Clarity on Ontario's vision, priorities and objectives for long-term goals is foundational for a path to building large-scale generation and transmission infrastructure. Establishing a

coordinated plan enabled by a competitive regulatory framework is critical to improve predictability and attractiveness for investments. This includes streamlining processes, reducing regulations on siting, ensuring continuity of regulatory requirements, and establishing regulations that enable rapid response and decisions.

The Board encourages the Province to work with the federal government to ensure there is no duplication of processes and to designate a lead government ministry with responsibility to guide and expedite assessments through relevant regulatory processes.

Additionally, there is currently no direct mechanism to recover costs of siting, and consideration should be given to offering incentives to begin the siting process early and to recover costs associated with this years-long process. Progress on the Darlington Nuclear Generating Station benefits from site plan approvals established over a decade ago and such extensive approval timelines must be shortened to facilitate faster and more cost-effective buildout of projects.

2. The IESO's Pathways Study recommends beginning work on planning and siting for new resources like new long duration energy storage (e.g., pump storage hydropower), nuclear generation and waterpower facilities.

What are your expectations for early engagement and public or Indigenous consultations regarding the planning and siting of new generation and storage facilities?

Response:

The Board proposes that the Province sends out an initial call for expressions of interest to identify potentially viable sites for new projects. Once validated at a basic level, proponents should be encouraged to begin consulting and engaging with public and Indigenous communities.

Public and Indigenous engagement should begin early in the siting process and be conducted in a timely and accountable manner. Additionally, setting up an early framework for partnerships with Indigenous communities can facilitate faster and more cost-effective buildout of projects.

3. The IESO's Pathways Study shows that natural gas-fired generation will need to continue to play an important role in the system for reliability in the short to medium term. The IESO's assessment shows that most of the projected Ontario demand in 2035 can be met with the build out of non-emitting sources, but some natural gas will still be required to address local needs and provide the services necessary to operate the system reliably.

Do you believe additional investment in clean energy resources should be made in the short term to reduce the energy production of natural gas plants, even if this will increase costs to the electricity system and ratepayers? What are your expectations for the total cost of energy to customers (i.e., electricity and other fuels) as a result of electrification and fuel switching?

Response:

Investment in clean energy resources in the near term to reduce the need for energy production from natural gas plants must be carefully evaluated, taking into consideration energy system reliability, cost impacts, and affordability for ratepayers and business operators.

Significant increases in the cost of electricity would deter and slow down the growth of electrification, and likely have a net-negative impact on the province's overall emissions. Therefore, any decision that would increase costs for ratepayers must take that risk into account.

Business customers value reliability and affordability; any investments in new generation should be assessed for their long-term value and should not be made solely with the purpose of reducing emissions in the short-term.

4. The IESO's Pathways Study highlights emerging investment needs in new electricity infrastructure due to increasing electricity demand over the outlook of the study. The IESO pathway assessment illustrates a system designed to meet projected demand peaks almost three times the size of today by 2050, at an estimated capital cost of \$375 billion to \$425 billion, in addition to the current system and committed procurements. Please see supporting materials for illustrative charts on capacity factor and cost by resource type.

Are you concerned with potential cost impacts associated with the investments needed? Do you have any specific ideas on how to reduce costs of new clean electricity infrastructure?

Response:

The Board is concerned with potential cost impacts associated with the needed investments in new electricity infrastructure due to increasing energy demand identified in the study. The Province must work together with the federal government, utilities, businesses, and others to mitigate the costs of expected investments and ensure that a plan is in place to address how these necessary investments will be funded.

Competitive procurement processes can help drive competition among the most cost-effective projects and reduce overall infrastructure costs. Consideration should be given to getting as much value from existing assets before new investments are made – such as asset optimization and re-contracting of other energy sources. Non-wires alternatives and distributed energy resources must also be considered for their potential role, and all available funding tools including the federal cleantech investment tax credits must be explored. Deployment of new clean energy technologies, such as energy storage and smart grid solutions, can also reduce costs over time.

Additionally, to reduce energy costs, there is a need for collaborative testing platforms that enable firms, utilities, and leading-edge researchers to test new, made-in-Ontario technologies that can be developed and adopted into the grid. These tests should accelerate the integration of new technologies into the grid and support utilities in their planning and allocation of assets and supply- demand scenarios.

5. The IESO's Pathways Study recommends that for a zero-emissions grid by 2050, investment and innovation in hydrogen (or other low-carbon fuels) capacity could be required to replace the flexibility that natural gas currently provides the electricity system.

Do you have any comments or concerns regarding the development and adoption of hydrogen or other low-carbon fuels for use in electricity generation?

What are your thoughts on balancing the need for investments in these emerging technologies and potential cost increases for electricity consumers?

Response:

With uncertainty remaining about how much low-carbon hydrogen can be economically produced in Ontario, the decision about how and where to use this fuel must be carefully considered. For example, hydrogen may have a larger positive impact by being used as a transportation fuel instead of in electricity generation.

The Board supports a growing role for hydrogen in our economy and encourages the cost-effective build-out of infrastructure as technology develops, including support for additional hydrogen hubs to be built across the province – including in the GTA. A suggested way to proceed is to work on applications where there is promise in demonstration projects.

Collaboration between government, industry, and other key stakeholders is essential to reach innovative solutions. Objective-based policy should be used in place of technology mandates for technology that contributes to net zero goals. Incentives for research and development of new technology along with supportive policies for technology deployment are needed to ensure the production of low-cost fuels can be scaled up sustainably and efficiently. Complementary provincial incentives to the federal government's 30% refundable investment tax credit on investments for clean technology manufacturing and processing, and critical mineral extraction and processing are encouraged.

6. The IESO's Pathways Study recommends greater investment in new non-emitting supply, including energy efficiency programs.

Following the end of the current 2021-2024 energy efficiency framework how could energy efficiency programs be enhanced to help meet electricity system needs and how should this programming be targeted to better address changing system needs as Ontario's demand forecast and electrification levels grow?

Response:

To improve the effectiveness of energy efficiency programs, approaches should be tailored to the specific needs of different sectors to adopt practices and technologies that align with their unique requirements. Demand-side management programs, such as Ontario's new Ultra-Low Overnight price plan could be expanded and tailored to specific sectors.

Smart infrastructure that enables efficiency as well as demand management is critical. New technologies that enable better energy storage, efficiency and distribution should be included in building codes and retrofit programs. Regional or province-wide building standards, in addition to municipal-level regulations, would ensure greater energy efficiency. To enable an ecosystem of local technology adoption, incentives could be offered for

technology development and adoption – which could provide spinoff economic benefits from scaling of Ontario-based cleantech firms.

Consideration must be given to the applicability of certain building codes or pre-requisites to ensure that energy efficiency products or infrastructure are cost-effective in the medium- or long-term and do not create barriers. Additionally, as the price and technology landscape has changed significantly since the IESO completed its *Achievable Pathways Study* in 2019, the IESO and province should consider updating this research to better inform cost-effective options for conservation and demand management.

7. The IESO’s Pathways Study includes a scenario for over 650 MW of new large hydroelectric capacity to meet system needs in 2050. A recently released assessment estimates that there may be potential to develop 3,000 to 4,000 megawatts of new hydroelectric generation capacity in northern Ontario and 1,000 megawatts in southern Ontario.

What are your thoughts on the potential for development of new hydroelectric generation in Ontario by private-, Indigenous- and government-owned developers?

While the capital costs for hydroelectric generation may be higher than nuclear, wind, solar, and natural gas, do you support investing in large scale hydroelectric assets that may operate for over a hundred years?

Response:

Large-scale hydroelectric assets that may operate for over a hundred years can meet long-term electricity system needs, create jobs, and establish revenue streams for the province while contributing to its energy mix and reduction of greenhouse gas emissions. However, every site has individual characteristics to consider toward its potential for power generation as well as the costs and timing to develop. The potential for hydroelectric generation from these sites must also be compared to other generation options – such as hydrogen, home energy storage, or SMRs - before large investments are made.

The *Pathways to Decarbonization* report identified a potential six-fold increase needed in the province’s existing workforce to build projects. Ontario must ensure that its workforce is skilled and trained for this labour market by bolstering and targeting workforce development priorities in the relevant sectors.

8. The IESO's Pathways Study suggest that significant transmission capacity will be needed to help balance intermittent sources of electricity (e.g., wind and solar) and to ensure cost-effective supply can be delivered to meet growing demands from electrification and economic growth. Transmission will also be required to balance intermittent supply with dispatchable supply (such as natural gas and energy storage) and meet demand in regions with retiring assets.

What steps should be taken to ensure that transmission corridors can be preserved and lines can be built as quickly and cost effectively as possible?

Response:

Coordinating transmission planning with generation planning, energy storage planning, electrification planning, and other infrastructure planning efforts will ensure that transmission capacity is developed more efficiently. Transmission infrastructure corridors can and should also be protected alongside other linear infrastructure as it is planned and developed - such as the road to the Ring of Fire and Highway 413.

Processes must be streamlined by ensuring that regulatory requirements are clear, consistent, and efficient, and ensuring that permitting and approval processes are coordinated among different levels of government and stakeholders to reduce duplication. Additionally, critical infrastructure should be streamlined in an expedited way.