



Meeting Date: March 15, 2023

Submitted by: Michael Di Lullo, CAO

Report No: CAO-7-2023

Subject: IESO Pathways to Decarbonization Study

Recommendation:

THAT Report CAO-7-2023, re: IESO Pathways to Decarbonization Study be received for information.

Purpose:

The purpose of this report is to advise that the Independent Electricity System Operator (IESO) released the “Pathways to Decarbonization” (P2D) study. The Ministry of Energy is seeking feedback on the findings of the P2D study in this consultation and in particular, the IESO’s “no-regret” recommendations. The intake is open until May 14, 2023.

Background:

Ontario benefits from one of the cleanest electricity systems in the world, with over 90% of the electricity generated from emissions-free sources in 2021. While fossil fuels still make up a small amount of Ontario’s total supply mix, the majority is a diverse mix of clean resources like nuclear, waterpower, wind, bioenergy and solar.

On October 7, 2021, in response to the Independent Electricity System Operator’s (IESO) “Gas Phase-Out Impact Assessment” study which concluded that the decarbonization of the electricity system by 2030 was not technically or economically feasible, the Minister of Energy asked the IESO to evaluate a moratorium on the procurement of new natural gas-fired generation and develop an achievable pathway to zero emissions in the electricity sector. The IESO has called this report back to the Minister “[Pathways to Decarbonization Study](#)”.

Analysis:

In the study, the IESO indicates that a moratorium on new natural gas generation is feasible following the completion of its current long-term procurements, which includes up to 1,500 megawatts (MW) of new natural gas capacity to meet supply needs in the mid-2020s. The moratorium 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 post-2035 to address local needs and provide the services necessary to operate the system reliably.

The IESO also considered the pathway to a zero-emissions electricity system under a scenario with a high demand forecast and emitting generation constraints informed by the proposed federal Clean Electricity Regulation. The pathway assessment illustrates a system designed to meet projected demand peaks almost three times the size of today by 2050. To achieve this, the pathways assessment includes 69,000 megawatts of non-emitting supply and 5,000 megawatts of conservation efforts, at an estimated capital cost of \$375 billion to \$425 billion, in addition to the current system and committed procurements.

While the moratorium and pathways assessments are not power system plans, the assessments provide insights into potential opportunities and challenges that Ontario faces in addressing future electricity system planning.

The Ministry of Energy is working strategically with its energy agencies, municipal stakeholders and partners to ensure the building blocks are in place for an integrated energy plan that meets Ontario's energy needs and while maintaining reliability and our clean energy advantage, at the lowest cost to families and businesses. Critical initiatives, such as the IESO's Pathways to Decarbonization Study and the Minister's Electrification and Energy Transition Panel (the Panel), will help to inform the government's next steps towards its longer-term vision for an integrated energy system.

The Panel has been tasked with advising government on the highest value short-, medium- and long-term opportunities for the energy sector to help Ontario's economy prepare for electrification and the energy transition. The Panel is developing advice on how Ontario's energy policy and planning apparatus can foster efficient co-ordination across the energy sector. This advice will inform government as it looks to develop a future integrated energy plan. This future integrated energy plan will incorporate input from Ontario families and businesses, stakeholder groups and Indigenous communities.

The IESO's Report Recommendations

The IESO's report provides "no-regret" recommendations that reflect the scope and magnitude of the effort needed to support an orderly energy transition while maintaining a reliable and affordable electricity system for Ontarians.

These recommendations from the IESO include:

- The acceleration of current efforts to acquire new non-emitting supply, including the implementation of recent conservation and demand management directives.
- Beginning the planning and siting work for new nuclear, long-duration storage and waterpower facilities, as well as transmission infrastructure, to allow for faster implementation.
- Innovation and investment in low carbon fuels, such as clean hydrogen, as they are untested at scale. Further work and investment are needed to determine if they can replace some of the flexibility that natural gas currently provides the system.
- Galvanizing collaboration amongst stakeholders, including Indigenous communities.
- Ensuring that regulatory, approval and permitting processes are ready to manage future investment at scale.
- Establishing an open, transparent and traceable process to measure progress and demonstrate the results of decisions and actions taken along the way.

How does this affect the Municipal Sector?

While municipalities work with our energy counterparts – it is important to acknowledge this important resource and provide more input as the landscape changes. As demand ramps up in the future, municipalities will need to be mindful as future developments take shape to ensure that proper planning is in place to account and supply the energy needs of residents.

Financial Implications:

N/A

Strategic Plan:

This matter aligns with following strategic priorities:

- Sustainable Infrastructure and Services

The Province faces new challenges as it relates to energy demand and with increased growth pressures, municipalities need be involved and ensure that they provide input to help as all energy supply options are explored. The Environmental Registry is open until May 14, 2023.

Attachments:

N/A