



May 19, 2021

Mayor Patrick Brown
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Independent Electricity System Operator

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Dear Mayor Brown,

We recognize that your Council, along with other municipal councils in Ontario, has recently passed a motion to phase out gas generation in the province as you consider efforts to tackle climate change. With this in mind, the Independent Electricity System Operator (IESO) is developing an assessment to inform discussions about the implications of phasing out this type of generation from Ontario's supply mix. The IESO is engaging with communities and stakeholders on the development of this assessment and I wanted to let you know that the first engagement meeting will be held on May 27 and that the study is expected to be completed before the end of this year.

The cost and reliability implications of eliminating and replacing natural gas-fired generation in Ontario could be significant if a transition is not planned and carried out in a careful and integrated manner. Therefore, it is intended that this assessment will outline the current role that gas generation plays in maintaining a reliable electricity supply across Ontario as well as provide an analysis of the reliability, cost, operability and timing issues that would need to be addressed should the phase out of natural gas be considered.

As we begin this work, I would like to take this opportunity to provide you with some information regarding the limited but critical role that natural gas plays in maintaining electricity reliability in Ontario.

The IESO plays a unique role in Ontario's power system. We are the provincial agency responsible for its minute-by-minute operation, matching supply and demand to provide a continuous reliable source of electricity. We are also responsible for planning for future needs, ensuring that tomorrow's system can be operated reliably at lowest cost to Ontarians.

Currently, gas generation comprises almost 30 per cent of our ability (or capacity) to generate power, yet it only accounts for seven per cent of actual electricity produced. As a result, our power system is 93 per cent free of carbon emissions and represents roughly three per cent of Ontario's greenhouse gas emissions. Ontario's electricity system is one of the cleanest power systems in North America and globally.

Gas generation is there when we need it, playing an important role in meeting the kind of demand peaks we experienced last summer, when temperatures reached seven-year highs and air conditioning use soared. Natural gas supplied close to 30 per cent of Ontario's electricity needs during the summer's demand peak.

Gas generation cannot be looked at in isolation. It can respond quickly to changes in demand and rapid changes in output from other resources. But its role is also deeply interconnected with all other aspects of the system and any considerations about phasing out gas generation must take into account these dependencies and the costs involved.

As the recent events in Texas demonstrated, complex and interdependent electricity systems must be managed as a whole. Decisions about one aspect of the system have direct impacts elsewhere. For example, gas generation in this province is sited close to city centres, reducing the amount of transmission infrastructure required to carry power to homes and businesses. Replacing these facilities would either require land nearby on which to build alternate generation or new transmission infrastructure to deliver supply from other regions.

Currently, Ontario is undertaking a refurbishment of the Darlington and Bruce nuclear stations which will allow them to continue to provide reliable and non-carbon emitting electricity for many years to come. This nuclear refurbishment program will take until 2033 to complete and during this time, natural gas generation is critical to providing system reliability. So while emissions from natural gas generation are projected to increase in the near term during this refurbishment period, this is a necessary component of a longer term strategy and objective that will contribute to a future clean electricity system.

Ontario's recent experience with phasing out coal-fired generation underscores the time and effort required to transform an electricity system. Replacing coal generation took more than a decade, requiring careful preparation and execution to replace a quarter of our generation capacity. At that time, there were clear options with proven capabilities to facilitate the transition, including gas facilities that have similar capabilities as coal generation. This is not the case today with respect to gas generation and so a phase out of gas is likely to be more challenging than the phase out of coal.

It is also important to recognize the costs associated with phasing out coal. The investment in replacement supply, transmission and distribution upgrades increased system costs by 27 per cent over a 10-year period.

With electricity demand forecast to increase over the next 20 years, and the Pickering nuclear plant retiring mid-decade, we are actively exploring how to meet these future needs. At this stage, and unlike the off-coal transition, there is no obvious supply option that could step up fast enough to replace gas generation as well as meet these growing needs. We need only look to jurisdictions like California that are aggressively transforming their generation mix to newer, developing technologies and suffering growing pains, like the recent August 2020 blackouts, to inform us of the challenges of taking similar aggressive actions.

Significant efforts are underway to integrate other options onto the grid. There are some exciting projects in Ontario that can set the stage for further transformation within the sector, including the development of electricity storage and other emerging technologies such as

hydrogen and renewable natural gas. Emission reduction technologies such as Carbon Capture Utilization and Storage are other promising initiatives in the transition to a cleaner energy sector. These technologies could reduce, mitigate or even eliminate emissions associated with our natural gas generation fleet. We are also evolving our energy-efficiency offerings so that they more effectively support system needs.

Electricity imports from our neighbours are an important part of this equation. Increasing imports into Ontario to replace natural gas, however, would also require a series of choices. It would necessitate significant expansion of transmission lines to bring supply from provincial borders to consumers across the province. This would have significant cost implications and move the province away from self-sufficiency, forcing us to rely on others to supply electricity when we need it the most.

If the goal is to reduce overall emissions in the province, the use of natural gas in the electricity system may better enable that. Today, Ontario's power grid represents roughly three per cent of our province's greenhouse gas emissions, a fraction of what sectors like transportation contribute.

As the world around us moves to more reliance on electricity as part of its climate change efforts, Ontario's clean electricity system is well placed to support electrification of sectors like transportation and heating which would have a much greater impact in reducing emissions. The carbon intensity of electricity remains far below that of other fuels, such as gasoline for automotive transportation or fuel oil for space heating. Switching from higher-emission fuels to low-carbon electricity could play a significant part in reducing overall province-wide emissions.

I encourage you, or your municipal staff, to join us in this important discussion to kick off the development of an assessment. More information including how to register for the webinar on May 27 can be found on the [Gas Phase Out Impact Assessment engagement webpage](#). Please feel free to reach out to me if you would like to discuss this further or email communityengagement@ieso.ca with any questions.

Regards,

A handwritten signature in black ink, appearing to read 'Terry Young', with a stylized flourish at the end.

Terry Young
Interim President and CEO
Independent Electricity System Operator

CC: David Barrick, CAO