P.O. Box 756
Toronto, ON
M5C 2K1

APPrO
ASSOCIATION OF POWER PRODUCERS OF ONTARIO

Ministry of Energy and Electrification
77 Grenville Street
Toronto, ON
M7A 2C1
Canada
Nik.Spohr@ontario.ca

January 15, 2024

Via email

RE: (ERO 019-9501) Consultation to support the important role for natural gas in Ontario's energy system and economy

This submission is made by the Association of Power Producers of Ontario (APPrO) in response to a request for comments posted on the Environmental Registry of Ontario website on December 17, 2024, in relation to the above-referenced topic.

APPrO appreciates the opportunity to provide such feedback.

Best Regards,

Colin Anderson
President and CEO, APPrO

(ERO 019-9501) Consultation to support the important role for natural gas in Ontario's energy system and economy

Submission of the Association of Power Producers of Ontario (APPrO)

INTRODUCTION

APPrO represents generators operating in the province of Ontario, and a variety of organizations and individuals concerned with generation. APPrO members include developers, suppliers and consultants to power enterprises, both public and private, with an emphasis on implementing responsible and sustainable energy systems in Canada and around the world.

The Ministry of Energy and Electrification is seeking input and perspectives from the public, stakeholders and Indigenous communities to inform the role of natural gas in Ontario's energy system and economy. The comments received will help to shape a *Natural Gas Policy Statement* for inclusion in the province's integrated energy plan to provide clear direction on the role this fuel source plays in Ontario's long-term energy future. This submission is in response to that request for public comments, as posted on the Environmental Registry of Ontario website.

APPrO's members are committed to a reliable, affordable and sustainable energy supply in the province of Ontario, which is why APPrO has an interest in this matter.

APPrO appreciates the opportunity to provide feedback.

SPECIFIC QUESTIONS

Given APPrO's position in the energy sector, it will only respond to those issues that are of direct relevance to its Membership. Accordingly, APPrO will provide comments on only the following questions listed in ERO 019-9501. Although only these questions are directly relevant to APPrO's Membership, it should be understood that policy in other areas will have an indirect impact from the perspective of supply/demand balance (price and availability of the commodity) and physical asset utilization (costs for existing and new infrastructure).

1. What role should natural gas play in supporting power system security and resiliency?
2. What role should natural gas play in offsetting higher GHG-emitting fuel sources?

1. What role should natural gas play in supporting power system security and resiliency?

The short answer to this question is that it should continue to play the role that it is currently playing until there is a similarly reliable suite of alternatives, at a price that is acceptable to consumers.

Ontario currently employs a portfolio of generating assets to meet provincial electricity demand and maintain grid reliability. This portfolio is comprised of assets that use different fuels and technologies to generate electricity including nuclear, hydroelectric, wind, solar, natural gas, biomass, etc. Each generating technology has different attributes that contribute to the overall effectiveness of the electricity system. As is usually the case, a portfolio approach in such a situation is generally prudent since it mitigates the risk associated with an upset occurring to any one of the constituents' technologies or supply chains.

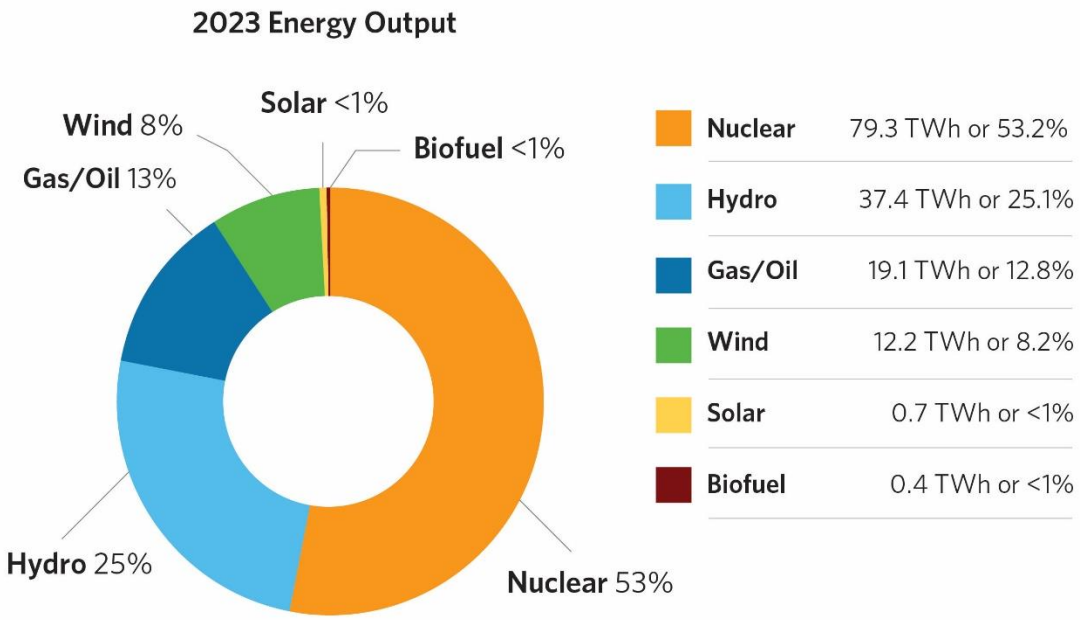
Also, different technologies possess different advantages and so, not all technologies are completely interchangeable. For example, wind or solar generation are limited by the amount of wind or sunlight that exists at any given time. For this reason, they generally need other technologies (including storage) to provide back-up energy for those times that they cannot produce. Similarly, nuclear generation is an excellent source of baseload power (i.e. constant output) but is generally less effective at following load (i.e. changing output in the short term to match demand) than some other technologies. To optimize existing and anticipated new nuclear output, the addition of proven long-duration technologies like pumped hydro storage as a balancing resource to the asset mix will also be useful. These are examples of how a portfolio approach provides value.

Natural gas generation currently plays a key role in supporting grid reliability, with the ability to respond to changing system needs in ways other forms of generation supply simply cannot. Its ability to come online and ramp up output quickly is valuable to the system operator since it provides a reliable means for matching generation and demand. In high load situations (such as very hot summer days) it ensures the province does not need to be reliant on emergency actions such as conservation appeals or rotating blackouts to stabilize the grid. Further, gas fired generation is able to provide ancillary services, such as operating reserve and reactive power support, that not all technologies can offer.

Natural gas is also ideally suited in Ontario as a replacement for nuclear energy during times of outage or refurbishment of the nuclear assets. With such refurbishments currently underway at Darlington and Bruce (and planned for Pickering), there is no other reliable source of baseload electricity generation that can pick up the slack in the province. But for the presence of gas-fired generation in Ontario's portfolio, the province would be unable to refurbish its

nuclear fleet without significant reliance on other jurisdictions, a material energy security issue.

The chart below indicates the 2023 energy output of the various technologies that make up Ontario's portfolio of assets. The contribution from gas-fired generation is slightly higher than it was in previous years, for the reason just set out above. Backfilling for nuclear generators that require significant outages to effect refurbishment activities will increase the amount of energy coming from gas-fired resources. Consequently, this will also increase GHG emissions over the same period. The critical point to understand here, is that this is a *temporary* phenomenon. When refurbishments have concluded and the nuclear assets are returned to service, those emissions will decrease significantly, as gas returns to its "insurance policy" role.



Source: IESO website (https://www.ieso.ca/en/Corporate-IESO/Media/Year-End-Data)

In short, natural gas generation is a critical component in Ontario's portfolio of generating assets.

There is currently no like-for-like replacement for natural gas. Elimination of natural gas generation too early would have significant negative impacts on grid reliability and affordability, as well as negative impacts on the province's ability to electrify - including the knock-on effects associated with GHG emissions and reduced economic benefits. This means natural gas will be needed until reliable replacements have been identified, built, commissioned, and demonstrated their capability[1]. In APPrO's view, it is not necessary (or advisable) to establish a moratorium on natural gas generation on a certain date. The ability of other technologies to reliably and affordably replace natural gas will be the driver of this evolution, not the calendar.

It should also be noted that in addition to large gas-fired generating units (either simple or combined cycle), small natural gas fuelled Combined Heat and Power (CHP) facilities can also make material contributions to the provincial demand. Such facilities can operate at efficiencies of up to 75-85% and can help displace heat (and the resulting GHG emissions) from conventional boilers. In addition, CHP projects exhibit significant flexibility, particularly in relation to greenhouse sector loads, which are increasing dramatically in the province. This flexibility can take many forms:

- Heat recovered, if it cannot be utilized at the time of production, can be stored in large buffer tanks already in place at most greenhouse facilities
- Exhaust can be injected into the greenhouse for plants to absorb the CO_2 and thereby increase the greenhouse production
- When not used to deliver power into the Ontario grid, the CHP plant can be used to power the grow lights in the greenhouse (September through April)

[1] https://www.ieso.ca/en/Learn/The-Evolving-Grid/Pathways-to-Decarbonization IESO Pathways to Decarbonization, pp1

- Projects operate at a system efficiency greater than 90%, significantly reducing the gas consumption and thereby reducing GHG emissions when compared to the separate production of power and heat

2. What role should natural gas play in offsetting higher GHG-emitting fuel sources?

In Ontario's power generation sector, this offsetting has already taken place.

In 2014, Ontario Power Generation (OPG) ceased burning coal at its last coal-fired generating station (Thunder Bay GS). Prior to that time, it had done the same thing at its four other coal-fired stations, Lakeview, Atikokan, Lambton and Nanticoke. At their peak, those five generating stations represented almost 9,000 MW of capacity on the Ontario grid.

Removing those stations from service created system reliability and cost issues, but the advantage of removing them from service, from an environmental and health perspective, was viewed as significantly higher than the reliability and cost impacts. The reliability and cost issues could be solved by an increase in other generation sources that could provide not only the energy and capacity, but also the ancillary services and load-following capability of coal-fired generators. One of the key sources used was gas-fired generation.

The many attributes of gas have (at least partially) already been articulated in the previous question. Gas was a necessary alternative in Ontario's off-coal strategy in the power generation sector. In general, emissions from burning natural gas are lower than those that are created by the similar combustion of coal. For this reason alone, gas should play a significant role in removing dirtier sources of fuel from Ontario.

This has already taken place in the power generation sector, but it has not yet taken place elsewhere to a significant extent. Obviously, there are sectors that have started to make such shifts, like the steel industry where blast furnace and basic oxygen furnace technologies are starting to be replaced by electric arc furnaces[2], which use significantly more electricity and natural gas than other previous technologies, but no coal/coke.

In the same way that the replacement of coal-fired generating stations with other, cleaner technologies – including natural gas – led to material incremental benefits for the environment and for human health, that same replacement approach could be employed in other sectors, where there is currently no other alternative to coal but natural gas. Natural gas should absolutely be used to improve situations that currently utilize much higher emitting fuels. As suggested in the Ministry's energy vision paper (*Ontario's Affordable Energy Future: The Pressing Case for More Power*)[3], electrification is the path to reducing province-wide emissions, even if it results in a slight increase in emissions within the electricity sector itself. This economy-wide impact will only be achieved if the electricity system remains reliable and affordable.

Furthermore, using natural gas to offset higher GHG-emitting fuel sources has the additional benefit of advancing the electrification mandate in the province. As indicated in the response to the previous question, this substitution can help to reduce GHG emissions at a faster pace than would otherwise be possible and help to realize the economic benefits associated with sector and full economy decarbonization.

[2] Algoma Steel and Arcelor Mittal Dofasco in Ontario.
[3] https://www.ontario.ca/page/ontarios-affordable-energy-future-pressing-case-more-power, pp14