

Gas Phase-Out Impact Assessment – May 27, 2021

Feedback Provided by:

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Date: June 17 2021

To promote transparency, feedback submitted will be posted on the Gas Phase-Out Impact Assessment webpage unless otherwise requested by the sender.

Please provide feedback by June 17, 2021 to engagement@ieso.ca. Please use subject:

Feedback - Gas Phase-Out Impact Assessment

To whom it may concern,

Canadians for Nuclear Energy commends the IESO on exploring the phaseout of gas from the Ontario grid. Ontario has one of the world's lowest carbon grids with annual emissions at around 31gCO/kWh. This is due in large part to our CANDU nuclear fleet which provides 60% of our electricity and provided 90% of the generation required to kick coal off the grid in the early 2000's. Bruce Nuclear Generating Station (BNGS) alone provided 70% of the required generation and the reactivation of two mothballed units at Pickering A provided the other 20%. Gas played almost no role in this accomplishment. Ironically the champions of the proposed gas phaseout, the Ontario Clean Air Alliance, campaigned for a replacement of coal with gas during this timeframe.

No discussion of a gas phase out can ignore the decision not to refurbish Pickering Nuclear Generating Station (PNGS). The decision not to refurbish will be a huge step backwards for clean air and climate. The PNGS 3100 MWe output will be largely replaced by gas. OPG has invested some

2.8 billion dollars in gas plants to meet the generation shortfall, and Ontario has around 10GW of gas in total sitting mostly idle on the grid that can be called upon to fill in this gap.

Let's be absolutely clear. The reason that we are having this conversation is that the closure of PNGS is going to drastically increase gas on Ontario's grid. We estimate that the gas output to replace PNGS is 21,000 GWh. This would result in emissions of around 10,290,000 tonnes per year. If a carbon tax is applied to these plants, it would result in a cost of \$514 million per year. This could significantly shift the economics in favour of a PNGS B side refurbishment which we estimate would cost around 9 billion dollars or the equivalent of 18 years of Carbon tax on its gas replacement. This is the quickest way to maintain our position as a climate leader on electricity and keep gas off the grid.

Refurbishment of the B side of PNGS is less economic than Darlington and Bruce due to the smaller unit size. However, the experience that we have gained with CANDU refurbishment, including a reactivated supply chain and workforce, makes this an attractive option if our goal is to keep gas off the grid and eventually phase it out.

While this may seem like a hefty price, our 95% made in Ontario CANDU supply chain means that every dollar spent on nuclear energy stays in Ontario and countless jobs are saved at PNGS and created throughout the province. The same cannot be said for gas which requires a tiny fraction of the workforce and depends on fracked gas from the USA. If OPG is unwilling to refurbish Pickering, Bruce Power should be given the opportunity.

The alternatives to replacing gas without nuclear energy are severely constrained. Ontario's hydro electric resources are largely tapped out. Wind and solar are ill equipped to put a significant dent in gas and actually lock it in as a necessary back up for their intermittent and erratic production, as documented by the Ontario Society of Professional Engineers. In addition, wind in particular produces out of sync with peak demand in Ontario leading to significant curtailment and negative pricing on Ontario's exports.

There is talk about using hydro from Quebec as a replacement for gas generation in Ontario. This would require prohibitively costly and politically unpopular transmission upgrades and make Ontario exceedingly vulnerable to political and extreme weather based interruptions in supply. Further, Quebec experiences electricity shortfalls and actually imports electricity from Ontario during its peak demand in winter due to use of electricity for heating.

The other irony of using Quebec electricity to replace PNGS output is that clean hydro from Quebec is currently exported to replace gas and coal generation in New Brunswick, New England and New York. If the rationale for eliminating gas from the Ontario grid is climate change, shifting Quebec hydro from replacing fossil to replacing nuclear makes no sense. Climate and air pollution do not respect national or provincial boundaries.

For these reasons, we recommend that the refurbishment of PNGS be included in any discussion of a possible gas phaseout for Ontario. We further recommend that as part of a gas phaseout Bruce Power be offered the option of undertaking the refurbishment and continued operation of PNGS.

Sincerely,

Chris Keefer MD CCFP-EM

President: Canadians for Nuclear Energy

Questions

| Topic | Feedback |
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| Are there additional considerations the IESO has not identified in defining the scope of the assessment to examine the reliability, operability, timing, cost and wholesale market implications of reduced emissions on the electricity system? | IESO has neglected to include the possibility of a refurbishment of Pickering Nuclear Generating Station in its analysis of the Ontario Gas Phaseout. |

General Comments/Feedback

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