



**Bowman Centre for Sustainable Energy
Comments on Hydrogen Ready Power Plant**

July 13, 2022

REGARDING:

Impact Assessment Agency of Canada – registry reference number 83696 (details below):

- **Location:** Courtright (Ontario)
- **Nature of Activity:** Other, not otherwise specified
- **Assessment Status:** In progress
- **Start Date:** 2022-06-13
- **Proponent:** Eastern Power Inc.
- **Authorities:** Impact Assessment Agency of Canada
- **Assessment Type:** Planning Phase for Impact Assessment
- **Reference Number:** 83696

The **Bowman Centre for Sustainable Energy** offers these comments on the cited project.

Commitment to use hydrogen:

Eastern Power Inc. is proposing a natural-gas electricity generating facility that will also be able to use a combination of natural gas and hydrogen. The Initial Project Description provides no explanation of the source of hydrogen to be used in the facility. The Initial Project Description provides no commitment by the proponent to use hydrogen in the facility. The proponent offers an expectation that providers of natural gas will eventually provide a blend of hydrogen and natural gas.

If the project proceeds towards further review and approval, will a condition for further review be that after a given date the fuel consumed in the facility must be blended hydrogen and natural gas?

Impact on the carbon intensity of Ontario's electricity grid:

Eastern Power Inc. is proposing a natural-gas electricity generating facility that will be designed to include hydrogen as a fuel. The product of the facility, electricity, will be delivered to the Ontario electricity grid.

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Ontario is currently attractive to companies seeking low-carbon-intensity grid electricity because the provincial electrical grid is supplied by sources of low-carbon electricity generation. The carbon intensity of the grid is important as Scope 2 GHG emissions are calculated.

The carbon intensity of the source of hydrogen for the proposed project must be included in the calculation of Scope 2 GHG emissions by companies drawing electricity from Ontario's grid. A report by the Bowman Centre for Sustainable Energy shows that hydrogen from hydrocarbon sources and hydrogen production via electrolysis while the production electricity is from a hydrocarbon source will not reduce the carbon intensity of the fuel proposed for this project. We suggest that the project will have the effect of increasing the carbon intensity of the Ontario electricity grid. This will have the effect of impairing the attractiveness of Ontario for investment.

See report: **How Green is Blue and Green Hydrogen?**

Link to PDF: https://www.bowmancentre.com/files/ugd/372347_25c28e34308142ca8fb0d4536a0c3579.pdf

Eastern Power Inc. states: "In the long term, GHG emissions would be zero. i.e., with full replacement of natural gas by hydrogen." This statement does not consider Scope 2 emissions. This statement assumes that their third-party fuel suppliers will be able to eventually provide sufficient hydrogen on-demand to satisfy expectations. There is no certainty that this will happen.

Levelized Cost of Electricity:

Eastern Power Inc. provides a table "Comparison of Power Generation Options" (page 17) and commentary regarding alternative technologies. The characteristics for comparison include: meeting the expected target date for delivery, capacity, providing energy over sustained periods of time, flexibility to ramp, as well as GHG Emissions. All the commentary in the table and Initial Project Description is qualitative.

What is missing from the proponent's Initial Project Description is a calculation of the Levelized Cost of Electricity (LCOE). LCOE is an objective tool for regulatory authorities such as the Impact Assessment Agency of Canada to compare the 'Hydrogen Ready Power Plant' project to similar natural-gas electricity generating facilities, and to alternative technologies.

Eastern Power Inc., as the proponent, acknowledges in the Initial Project Description that they are bound through corporate entities to the existing 'Green Electron Power Plant' adjacent to the proposed site for the 'Hydrogen Ready Power Plant' project. The LCOE of the Green Electron Power Plant should be considered as a surrogate for the lack of information on the LCOE for the proposed project.

A detailed economic analysis, including the LCOE of the proposed project and comparisons to alternative technologies, is beyond the scope of our comments at this time.

Conclusion and Recommendation:

The proponent offers the use of hydrogen as a fuel as an expectation for the future. ***If the project is moved ahead for further review, a schedule for the use of hydrogen should become a commitment and requirement for approval.***

If the project is moved forward for further review there must be consideration and analysis of the carbon intensity of the use of hydrogen as a fuel in a blend with natural gas. This will determine the

extent to which the project will impair the carbon-intensity of the Ontario electricity grid. **We recommend that the carbon intensity of the Ontario electricity grid not be impaired.**

If the project is moved forward, *we recommend that further review must include an analysis of LCOE*. This will permit an objective comparison to other technologies for generating electricity. It will also allow the final review to assess the economic impact on user rates.

If the proposed project is not rejected during this stage, then the Bowman Centre for Sustainable Energy recommends any approval to be contingent on a commitment by the proponent to schedule the use of hydrogen as a fuel, that the carbon intensity of the electricity generated by the proponent not impair the carbon intensity of the Ontario grid, and that the proponent demonstrate that the LCOE contributes to the affordability of user rates.

Submitted on behalf of the Bowman Centre for Sustainable Energy,

Marshall Kern, President

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