

# Feedback Form

## Pathways to Decarbonization – February 24, 2022

### Feedback Provided by:

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Following the February 24 engagement webinar, the Independent Electricity System Operator (IESO) is seeking feedback from stakeholders on the items discussed during the webinar. The webinar presentation and recording can be accessed from the [engagement web page](#).

**Please submit feedback to [engagement@ieso.ca](mailto:engagement@ieso.ca) by March 16.** Please attach research studies or other materials for consideration by the IESO to support your submission.

If you wish to provide confidential feedback, please submit as a separate document, marked "Confidential". Otherwise, to promote transparency, feedback that is not marked "Confidential" will be posted on the engagement webpage.

## Policy

Topic	Feedback
Are the assumptions indicated reasonable and comprehensive in terms of scale and timing?	Using only currently existing policies to evaluate scenarios that span the next 26 years introduces a temporal bias that favours current technologies over emerging technologies and best practices. According to the International Energy Agency, almost half of the CO <sub>2</sub> emissions reductions in 2050 are likely to come from technologies that are currently in the demonstration or prototype phase. <sup>1</sup> We recommend IESO incorporate a sensitivity analysis into the modelling to anticipate ramps and timelines of policies and stringency of regulations.

Topic	Feedback
Are there other considerations for the IESO?	<ul style="list-style-type: none"> <li data-bbox="792 772 1490 1045">• Sensitivities that could be incorporated into the policy scenarios could include technology deployment subsidies, public funding for innovation<sup>2</sup>, market-based policies such as carbon pricing ramp-up, output-based pricing schemes or the Ontario clean energy credit<sup>3</sup>, and green procurement/Buy Clean policies.<sup>4</sup></li> <li data-bbox="792 1094 1490 1283">• The assumptions failed to include a mention of an MDV ZEV mandate, and only considered electrification of transit buses. In December 2021, Minister Guilbeault was asked to deliver a 100% ZEV sales mandate for MDV and HDVs by 2040.<sup>5</sup></li> </ul>

<sup>1</sup> International Energy Agency, *Net Zero by 2050 – A Roadmap for the Global Energy Sector* (2021), 15.

<sup>2</sup> Independent Electricity System Operator, "Grid Innovation Fund." <https://www.ieso.ca/en/Get-Involved/Funding-Programs/Grid-Innovation-Fund/Overview>

<sup>3</sup> Independent Electricity System Operator, "Clean Energy Credits." <https://www.ieso.ca/en/Sector-Participants/Engagement-Initiatives/Engagements/Clean-Energy-Credits>

<sup>4</sup> Clean Energy Canada, *A Buy Clean Roadmap for Canada* (2021).

<sup>5</sup> Prime Minister of Canada, "Minister of Environment and Climate Change Mandate Letter," December 16, 2021. <https://pm.gc.ca/en/mandate-letters/2021/12/16/minister-environment-and-climate-change-mandate-letter>

## Demand

Topic	Feedback
Are the assumptions indicated reasonable and comprehensive in terms of scale and timing?	The inputs for conservation programs from the 2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study are inconsistent with the Pathways Scenario timeline. The 2019 study extrapolates potential until 2038, <sup>6</sup> while the Pathways Scenario ends in 2050, leaving 12 years of modelling inputs unaccounted for. It is unclear from the assumptions document how this period will be managed in the model.

Topic	Feedback
Are there other considerations for the IESO?	Energy conservation programs contribute to the reliability of the electricity system as they reduce load and the risk of outages during demand peaks. As such they should be better represented in electricity system planning and their economic benefits, through cost savings to electricity consumers, should be considered if cost-benefit analyses of decarbonization pathways will be evaluated in the modelling.

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<sup>6</sup> Navigant Consulting Ltd., 2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study (2019), xiv.

## Resources

Topic	Feedback
Are the assumptions indicated reasonable and comprehensive in terms of scale and timing?	<ul style="list-style-type: none"><li>• Assumptions for distributed energy resources consider only capital and operating expenses, indicating that the economic benefits of their grid reliability services will not be considered in the analysis. Similar to conservation programs the economic benefits of distributed energy resources, through cost savings to electricity consumers, should be included if cost-benefit analyses of decarbonization pathways will be evaluated in the modelling. A study commissioned by Energy Storage Canada in July 2020 showed that installing 1GW of energy storage in Ontario over the next decade can provide up to \$2 billion in <i>net</i> savings for Ontario's electricity customers.<sup>7</sup></li><li>• It is unclear from the assumptions document if or how the IESO model will consider future changes in technology costs (solar, wind, storage) and capacity factors, all of which have experienced dramatic improvements over the last decade.</li></ul>
Topic	Feedback
Are there additional data sources that we should consider	The Institut de l'énergie Trottier forecasted trends in Canadian energy production and consumption and performed an analysis of energy transformation scenarios occurring over the next 40 years in a report titled the Canadian Energy Outlook 2021. <sup>8</sup>

<sup>7</sup> Energy Storage Canada, *Unlocking Potential: An Economic Valuation of Energy Storage in Ontario* (2020), 38.

<sup>8</sup> Institut de l'énergie Trottier, *Canadian Energy Outlook* (2021).

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Are there other considerations for the IESO?	Ontario is currently finalizing a hydrogen strategy that considers its production, storage and distribution, and end-use for electricity storage and grid balancing. <sup>9</sup> The International Energy Agency further states that hydrogen electrolyzers are one of the biggest innovation opportunities that contribute to CO <sub>2</sub> emissions reductions in 2050. <sup>1</sup> We recommend that hydrogen storage be considered in the decarbonization pathways analysis as a resource available in the long-term, and as part of the technology deployment policies considered.

## General Comments/Feedback

We appreciate the IESO in undertaking an assessment of a moratorium on new natural gas resource acquisition, and the development of decarbonization pathways for Ontario’s electricity system. We see this as a valuable opportunity to help improve stakeholder understanding of the issues, the model inputs, and the potential solutions associated with reduced reliance on gas for electricity generation in Ontario.

We feel that the demand scenario driver assumptions accurately represent the level of ambition needed in the modelled sectors to achieve net-zero by 2050 as they are in line with recommendations for global decarbonization by the International Energy Agency. However, there needs to be a better effort at modelling future policies for clean technology deployment, and at incorporating the economic benefits energy savings and grid reliability services offered by emerging technologies and best practices if the lowest cost option to decarbonization is to be pursued.

Thank you for the opportunity to provide our feedback. We look forward to hearing your responses to the stakeholder comments submitted, and to continuing the discussion as part of this engagement.

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<sup>9</sup> Government of Ontario, “Low-carbon hydrogen,” January 7, 2022. <https://www.ontario.ca/page/low-carbon-hydrogen>