

# 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?	No – I appreciate the EPS tapering to 0 tonne CO <sub>2</sub> e by 2035 for the Pathways Modelling but it should be 0 from today for both studies. That’s the cost of emissions as determined by the federal government – that’s what it costs the rest of society to offset every tonne emitted in the electricity sector. The fact that your APO, Figure 43, shows the average emissions to be 370 tonnes/GWh from 2029 onwards, meaning, on average, no tax is paid completely undermines the credibility of this study – it’s supposed to be about decarbonization, yet fails to use a powerful tool the federal government has given you.

Topic	Feedback
Are there other considerations for the IESO?	1) The objective is not stringent enough. Toronto’s goal is Net Zero by 2040. There should at least be milestones in terms of maximum tonnes/year by 2030, 2035, 2040 and 2045. 2) As noted above, each tonne emitted by the electricity sector must be offset in other sectors in order to meet both the provincial and federal GHG reduction targets for 2030 and 2050 and that will cost society approximately the carbon price per tonne. Also, when the marginal emissions are 370 tonnes/GWh the net cost of any other decarbonization measure is burdened with that. E.g., if it takes a GWh of electricity to reduce emissions from a building by 500 tonnes, for an incremental \$X the net cost of that is now \$X divided by 130 (500 -370) instead of \$X divided by 500 \$/tonne, i.e., much higher cost. So, you are imposing higher costs for decarbonization on the rest of society. So, your cost minimization model is not actually minimizing the full cost to Ontarians. It could if you charged the full amount of carbon tax on every tonne emitted 3) I appreciate CCUS being ruled out for the moratorium case but why not also for the Pathways Study?

## Demand

Topic	Feedback
Are the assumptions indicated reasonable and comprehensive in terms of scale and timing?	No – they are nowhere near consistent with societal decarbonization goals. E.g., for Residential and Commercial expected regulation, it amounts to no reductions in new buildings until 2030 and none in existing buildings until 2035, then for the latter we can assume about 5% turnover each year, therefore 100% reduction by 2055, but Toronto’s climate goal is 60% reduction by 2030 and Net Zero by 2040. That is in line with the latest scientific recommendations from the IPCC.

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Are there other considerations for the IESO?	Similarly, industrial fuel switching is assumed to be 1% per year, when it needs to be at least 3.6% to even make zero by 2050. Although you assume Border Carbon Adjustments will be in play, this low level of industrial decarbonization would leave our industry, and jobs, vulnerable to job-killing BCA’s against us from more progressive jurisdictions. Similarly, you assume 100% electrification of transit by 2040. Toronto’s goals are 60% reduction by 2030 and net zero by 2040, but they can’t all be electrified in one year so some must be electrified earlier.

## Resources

Topic	Feedback
Are the assumptions indicated reasonable and comprehensive in terms of scale and timing?	Not comprehensive – no costs for SMR’s or retrofitting SCGT’s – or volumes of CO2 utilization or storage potential

Topic	Feedback
Are there additional data sources that we should consider	The maximum NRG resource available. See <a href="https://www.enbridge.com/~media/Enb/Documents/Media Center/RNG-Canadian-Feedstock-Potential-2020(1).pdf?la=en">https://www.enbridge.com/~media/Enb/Documents/Media Center/RNG-Canadian-Feedstock-Potential-2020(1).pdf?la=en</a>

Topic	Feedback
Are there other considerations for the IESO?	No CCUS I know of captures 100% of the emissions except the <a href="#">Allam Cycle</a> , which is a totally different kind of gas turbine. But even then the upstream methane emissions should be taken into account.

## General Comments/Feedback

- 1) It would be interesting to learn the rationale of maximum MW of storage constraints.
- 2) The likelihood of electricity price rate reform as advocated by the Ontario Society of Professional Engineers should be considered in the economic analysis since this would open up new streams of revenue that would offset otherwise surplus electricity. See [Retail Electricity Price Reform: Path to Lower Energy Bills and Economy-Wide CO2 Emissions Reforms, Full Report April 9, 2019](#). Essentially there would be voluntary retail contracts where kWh were charged at HOEP and all fixed costs recovered through demand charges (average demand could be used where customers don't have demand meters). This would open up new markets like green hydrogen production and also heat via Thermal Energy Storage. Revenue from otherwise surplus electricity would make it less costly to overbuild wind, water and solar sources. Flexibility could be gained by controlling the flow of MW into Thermal Energy Storage.