

# Non Emitting Resources Subcommittee

## August 2018: Response to Stakeholder Feedback

Following the August 16, 2018 Non Emitting Resources Subcommittee (NERSC) stakeholder meeting, the IESO invited stakeholders to provide comments and feedback to help advance efforts of the group.

The IESO received feedback from the following stakeholders:

- APPrO
- EverGreen Energy Corp
- Ontario Waterpower Association
- TransCanada

This feedback has been posted to the [NERSC webpage](#).

### Note on Feedback Summary

The IESO appreciates the feedback received from stakeholders. This stakeholder feedback, along with the comments provided at the stakeholder engagement sessions, is important to the collaborative approach the IESO has committed to. All feedback received has been noted and will be considered as the work of the NERSC moves forward. Below, the IESO has provided a summary table which outlines responses in respect of specific feedback or questions for which an IESO response was required at this time.

### **Stakeholder comments and IESO responses**

Design Element	Stakeholder	Feedback	IESO Response
General	APPrO	With reference to fuel price assumptions used in	Thank you for your feedback. The \$3.50

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		<p>the modelling exercise, it should be noted that natural gas prices have been low this year, but that the 5 year average is higher than \$3.50 CAD/GJ.</p>	<p>CAD/GJ value is based on gas price estimates at Dawn Hub where day ahead prices were on average almost exactly \$3.50 CAD/GJ over the 12 months ending June 2018. The 2013-2017 5-year average prior to this was somewhat higher at \$4.50 CAD/GJ.</p> <p>Based on stakeholder feedback, the modelling exercise will explore a wider range of gas prices between \$3.50 CAD/GJ and \$8.00 CAD/GJ, while also including a change case with a lower gas price at \$3.00 CAD/GJ for the low net demand scenario.</p>
General	EverGreen Energy	<p>EverGreen Energy provided specific recommendations for the Decentralized Future Scenario:</p> <ol style="list-style-type: none"> <li>1) Electric load growth should decrease due to conservation and efficiency, nuclear power will decline while renewables will increase, EV's will become prevalent but their power requirements will not be as high as anticipated.</li> <li>2) Policies will include support for net metering,</li> </ol>	<p>A number of these recommendations are reflected in the most recent versions of the scenarios to be modelled, which will be presented at the September 21 webinar. For example the Decentralized Future scenario will explore a future with a decrease to net load. The impact of a clean attribute market and customer participation in wholesale markets will</p>

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		<p>carbon pricing, and new rate structures.</p> <p>3) High natural gas and gasoline prices drive electrification and the extensive use of biomass.</p> <p>4) DERs and energy storage provide economic power across Ontario. Baseload will be supplied by biomass and hydro, and solar and wind will provide intermittent generation while storage will be used to help meet peak power needs. These changes will significantly impact the requirements of the distribution grid and bulk transmission being needed less.</p> <p>6) Customer preferences will be for low costs, energy efficiency, and for non-emitting resources to combat climate change impacts.</p>	<p>also be explored. The impact of higher gas prices is proposed to be explored through other scenarios.</p> <p>As far as specific supply outcomes are concerned, however, the modelling exercise does not aim to make future supply mix decisions. Instead it assumes a certain amount of existing supply remains and then explores what the most economic options are to meet the rest of our system needs, based on a given market design across a range of plausible scenarios.</p>
General	Ontario Waterpower Association	<p>Why are there no alternatives provided with respect to cost reductions for waterpower relative to current costs in the modelling assumptions? A significant increase in input costs in Ontario in the last decade is attributable to regulatory burden, but we have a new government committed to reducing red tape and an "open for business" mantra. OWA is also interested in how the modeling will compare 100 year lifespan assets such as waterpower relative to other shorter lived technologies.</p>	<p>Thanks for your feedback. Proposed prices for all resources will be shared at the September 21 NERSC webinar. This will be an ideal opportunity to hear stakeholder thoughts on the costing assumptions.</p>
General	TransCanada	<p>TransCanada believes that there was sufficient feedback from stakeholders at the session about the modelling exercise and particularly about the fundamental assumptions for that modelling,</p>	<p>The IESO values stakeholder input in developing the scenarios and has scheduled a webinar on September 21 to provide more information around the</p>

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		that the IESO should consider holding a follow-up webinar or meeting in mid-September to ensure final alignment before the modelling is completed.	detailed assumptions of the modelling exercise.
General	TransCanada	TransCanada recommends that the objectives of the modelling simulation be modified to include an estimate of the overall system cost associated with each scenario. This cost estimate should represent the actual total system costs and ensure that it is not distorted by the effects of cost shifting. It should delineate the incremental system cost associated with each NERSC modelling scenario.	The NERSC modelling exercise will illustrate both markets and global adjustment impacts across the scenarios. Further details on this will be communicated at the September 21 webinar.
General	TransCanada	TransCanada recommends that an expected case scenario be developed as a reference for the comparison of the impacts associated with the other scenarios and particularly with respect to cost. This reference case should be developed from the modules underlying the 2017 Long Term Energy Plan with adjustments for changes that have occurred since October 2017 and for changes that can be reasonably anticipated given stated government policy, including: 1) The cancellation and winding down of 758 renewable energy contracts. 2) The Urgent Priorities Act which cancelled the associated contracts and agreements between the IESO and wpd White Pines Wind Incorporated 3) The announced closure of the Thunder Bay	The NERSC modelling exercise is taking a different approach in that it aims to test the robustness of the future markets across a range of plausible scenarios. The intention is not to identify the most likely future for Ontario's energy sector but to help the IESO and stakeholders understand what could occur under a variety of outcomes.  Nonetheless, many of pieces identified in this feedback are important for the modelling exercise and are being incorporated into the scenarios; for example, the inclusion of the East-West transmission line, closure of Thunder Bay,

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		<p>Generating Station.</p> <p>4) The intention to transfer the Conservation First and Industrial Accelerator Program programs to the tax base.</p> <p>5) The target to reduce the cost of electricity by 12% from the current levels and eliminate the Cap and Trade program.</p>	<p>and consideration of renewable energy contracts that are being winded down. These assumptions will remain constant throughout the scenarios.</p>
General	TransCanada	<p>TransCanada challenges the assumption that the five scenarios developed during the July 24th meeting are plausible. These scenarios were developed through a brainstorming session and not sufficiently vetted to determine plausibility. TransCanada would recommend a more conventional and rigorous approach to developing scenarios based on deviations from an expected case along broad themes that would bracket the range of outcomes for the benefit of stakeholders and decisions makers.</p>	<p>At the brainstorming session, stakeholders developed a set of scenarios to assess whether the future market design will meet system needs under a variety of potential futures. These scenarios were subsequently reviewed with stakeholders at the August NERSC meeting and have been further refined for the September webinar. We welcome feedback on what specific aspects of the planned modelling scenarios may not be plausible and appreciate the feedback that has been provided to date.</p>
General	TransCanada	<p>TransCanada would recommend only three of the five scenarios be pursued: 1. Low Net Demand, 3. Booming Economy &amp; Electrification and 5. Decentralized Future. These represent a reasonable range of potential outcomes.</p>	<p>The IESO will proceed to model each of the five scenarios that were developed together with stakeholders throughout the July and August NERSC meetings.</p>
General	TransCanada	<p>TransCanada would challenge the approach of fixing so many input variables. The key variables to each scenario are the market conditions and</p>	<p>In order to make the outputs of this exercise meaningful and manageable, scenarios will be based on a set of</p>

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		Government policy. Fuel prices, supply mix, carbon prices and other variables identified in the matrix may be more truly outputs to the two main inputs rather than controlled inputs, and to the extent they are inputs (i.e. natural gas prices), these inputs should align with long term planning documents or be subject to sensitivity testing.	internally consistent assumptions and sensitivity analysis will be conducted through change cases using a limited set of levers in the areas that stakeholders have identified as most significant.
General	TransCanada	Treatment of system reserve adequacy margins (currently 18% on peak demand) as well as supply contribution at peak (capacity) needs to be verified and modelled appropriately in each scenario considering specific supply mix and system attributes. Specifically, TransCanada believes that demand response and distributed energy resources should not net out demand and instead should be treated as supply resources with appropriate ICAP and UCAP ratings or similar and appropriate reserve margin allocation.	These considerations will be reflected under the decentralized future scenario, where DERs will participate in wholesale markets alongside transmission level resources. The IESO welcomes further conversation on this topic.
General	TransCanada	As TransCanada has stated previously, while we appreciate the interest in minimizing the modelling effort by taking a higher level indicative view (i.e., not a granular minute by minute / node by node modelling exercise), we note that a large value driver for utility scale storage is through reducing price volatility. Volatility will not be picked up without granular modelling. In our experience, it is very difficult	The IESO acknowledges that forward-looking models generally don't capture all possible drivers of price volatility. However, the proposed modelling exercise will strike a balance between evaluating multiple revenue streams under several future scenarios and granular modelling of each resource type. The exercise will develop a wide

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		<p>for conventional energy forecasting software to effectively model the impact of volatility. The reduction of volatility is a major contributor to reducing ratepayer costs and to the evaluation of NERSC options thus needs to be assessed as part of the modelling exercise. As an alternative, we would recommend the IESO consider an assessment of the potential to reduce volatility by looking at actual granular data for an appropriate specific time period and compare energy prices under each of the three scenarios. This data could then be extrapolated over the planning horizon to approximate the long-term value.</p>	<p>range of energy prices, reflecting varying load, renewable generation, imports and exports, offers from various resource types, and scarcity. The model's representative days approach allows assessment of energy arbitrage value within the day, driven by these varying prices. In addition to energy arbitrage, the exercise also allows assessment of ancillary service and capacity market revenue streams, resulting in a relatively complete picture of the value of storage and other resources.</p>
General	TransCanada	<p>With respect to the proposed timeframe for the analysis, TransCanada would recommend the IESO consider extending the time span by at least 10 years to effectively capture the opportunity presented by large capital-intensive infrastructure such as utility scale storage. These types of assets have working lifespans of greater than 50 years. They are capital intensive and thus their contribution needs to be compared over a longer timescale.</p>	<p>The NERSC modelling exercise will not evaluate the future markets over a range of time (e.g. 10 or 20 year period) but rather extrapolate outcomes based on representative days that reflect the assumptions for each scenario. As indicated in the feedback, assets have varying lifespans with capital intensive resources typically online for greater than 50 years. The model will account for the investment costs of each resource type and levelize these over the assets' economic lifespan.</p>

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