Feedback Form

Pathways to Decarbonization – February 24, 2022

Feedback Provided by:

Name: Paul Acchione

Title: Management Consultant

Organization: MIDAC

Email: [redacted]

Date: March 7, 2022

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 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?	Most items look reasonable. Off-shore wind will face strong public pushback. I suggest you drop this item to avoid unnecessary controversy.

Topic	Feedback
Are there other considerations for the IESO?	Should include policies aimed at (1) energy efficiency especially building envelope improvements for new and refurbished buildings and (2) efficient deployment of district heating systems in cities.

Demand

Topic	Feedback
Are the assumptions indicated reasonable and comprehensive in terms of scale and timing?	There is too much emphasis on electrification of space heating. Space heating has a very high peak demand on cold winter days – up to 5x summer cooling load. It is too costly to build up the electricity system to meet that peak demand. Alternatives to use off-peak idle electrical capacity (especially gas-fired and nuclear) to store surplus energy in long term thermal storage for later use by district heating systems in winter should be included.

Topic	Feedback
Are there other considerations for the IESO?	Should include (1) alternative non-emitting fuels delivered by the natural gas distribution system (RNG, Blue/Green H2) and by truck, and (2) district heating systems in cities fueled by low emitting fuels or supplied by waste heat from electrical production at natural gas-plants or nuclear plants combined with long term thermal storage which is much cheaper than electrical storage.

Resources

Topic	Feedback
Are the assumptions indicated reasonable and comprehensive in terms of scale and timing?	Capacity values for wind in summer are too high based on IESO operating data during peak summer load hours. Commercial readiness value for large nuclear units is too low. Several large GEN-III+ reactors are now operating around the world (i.e.: China for EPR-1600 and AP-1000 and the UAE for APR-1400) with good operating experience and their time-lines are within your 12 year lead time. The capital cost of those plants was also lower than your assumed CAPPEX.

Topic	Feedback
Are there additional data sources that we should consider	District heating system data can be obtained from established district heating companies in Markham and Toronto (Enwave) for Canadian experience and costs. Long term thermal storage experience and costs will need to come from Europe where district heating is much more advanced than in North America.
Are there other considerations for the IESO?	Electrical planning needs to be integrated with other energy markets such as natural gas and truck delivered fuels to arrive at a more optimal energy system design. There are a lot of synergies among energy systems that should be harvested to keep overall energy costs for consumers affordable. There will be different optimum energy mixes for cities, suburban, rural and off-grid locations. These different locations should be analyzed separately because their needs are different and their solutions will be different.

General Comments/Feedback

The focus on the electricity system should be broadened to include other energy systems otherwise IESO will develop an electrical system solution that may be inappropriate and unaffordable for consumers' future energy needs.