Feedback Form

Gas Phase-Out Impact Assessment – May 27, 2021

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Date: June 17, 2021

To promote transparency, feedback submitted will be posted on the Gas Phase-Out Impact Assessment webpage unless otherwise requested by the sender.

Please provide feedback by June 17, 2021 to engagement@ieso.ca. Please use subject:

Feedback - Gas Phase-Out Impact Assessment

Questions

Topic	Feedback
Are there additional considerations the IESO has not identified in defining the scope of the assessment to examine the reliability, operability, timing, cost and wholesale market implications of reduced emissions on the electricity system?	The cost of battery storage systems continues to decrease forcing market operators around the world to investigate the impact of increased EVs, ESRs, and DERs on their increasingly renewable grids. Apart from having 1) low costs, battery storage systems have proven to, 2) have operational flexibility, 3) contribute to grid resilience, and 4) have much shorter build and construction time than traditional resources. The assessment should focus on these resources as they fit the stated attributes of the gas fleet's capabilities. The expected growth in EVs provides the opportunity for harnessing mobile battery storage as a grid resource via the use of bi-directional chargers as demonstrated by Peak Power. In light of the above, the IESO should use this opportunity to examine the extent to which bi-directional EV chargers, ESRs, DR, and DERs can offset the need for gas peaker facilities. The economic value created by paying to re-contract low capacity factor, aging fossil generators versus creating incentives with the same money to attract additional bi-directional EV chargers, ESRs, DR, and DERs should be added to the scope of the assessment.

General Comments/Feedback

Click or tap here to enter text.

Background:

Peak welcome's the opportunity to comment on this engagement. Climate change is a broad concern and Peak's business, products and services all directly address this concern. Analyzing ways to reduce factors that contribute to climate change is welcome and should be the de facto standard in future studies.

Comments on "What does the Gas fleet Provide" slide 13. The IESO identifies certain attributes that the gas fleet provides. These attributes can be acquired fairly and openly from other resources that can provide them:

1. Flexibility – the power markets in the UK and California have created markets for the flexibility attribute. DERs and other resources with battery storage excel at delivering this attribute to the grid as they have faster response and ramp times.

2. Insurance for planning risk –The IESO can acquire additional capacity through Forward Capacity Auctions to protect against longer-term supply and demand risk. The IESO is in the process of creating a capacity auction that will allow the IESO to procure sufficient capacity at market prices. This auction should be held for future years allowing for clear price signals for the development of new resources and/or technologies. The construction time for resources with battery storage systems is significantly shorter than traditional gas, nuclear, and hydro resources. The combination of Forward Capacity Auctions and Battery storage resources allows the IESO the ability to significantly mitigate planning risk.
3. Local and regional reliability
   a. There are examples of battery storage systems being added at locations where fossil generator resources are retiring. This strategy leverages the existing grid connections and maintains local and regional reliability. Examples are Moss Landing in California and H.A. Wagner in Maryland.
   b. The concept of Locational Capacity has developed in US Northeast ISOs and has proven to incentivize new-build generation and resources where it most required. DR and DER are usually located in high-load zones and can provide capacity in these zones.

Other attributes that DERs can provide:

4. DERs are now commonplace in industrial facilities and institutional facilities such as hospitals and universities for backup power and other reasons. Similarly, many residential customers would purchase residential energy storage systems for backup power if there was a mechanism to provide a revenue stream to the homeowners for providing grid services. As the deployment of DERs continues that need for gas and fossil fuel generators as these facilities will diminish. DERs are also being deployed at other locations like commercial and residential buildings, malls, and schools add to both local and grid resiliency.
   DR and DERs contribute to a much more decentralized grid. This is inherently better for the grid and the economy as they allow multitudes of homeowners and businesses to invest in grid assets, compared to natural gas plant contracts which benefit only a handful of Independent Power Producers.
5. IESO's Dec 2020 Annual Planning Outlook estimates that Ontario will have 0.7M EVs by 2030. Assuming a conservative 10 kW charger throughput, this would equate to ~7GW of flexible capacity through Vehicle to Grid technology with bidirectional chargers if the appropriate regulatory structure is in place to allow participation in energy markets through aggregation. These assets are purchased for transportation use cases, but have only a <5% utilization rate, meaning that 95% of the time they could be utilized to support the grid at a very low cost since the asset is already paid for. Like residential storage, EVs would also be able to provide backup power leading to a more resilient and decentralized grid. Peak Power has already demonstrated the technical capabilities of using electric vehicles to provide grid services through their Peak Drive project which has used EVs to provide both Demand Response and Global Adjustment Capacity Reduction services.

Comments on "Much of Ontario's current natural gas-fired generation is under contract" in slide 17.

1. Certain gas facilities under contract will have been replaced by more efficient resources had it not been for the out-of-market contracts they hold. This trend can be seen in neighboring ISOs and RTOs. Contracting inefficient resources leads to price suppression and stifles the

competitive market signal required for the investment and development of replacement technologies. There is value in the IESO using this assessment to break the cycle of contracting aging facilities and allow Ontario to move toward the creation of a modern grid with a higher level of decentralization based on market economics.
2. The assessment contemplated in this engagement will need to make a clear case that continuing contracting and/or re-contracting of low capacity factor gas resources is an efficient usage of taxpayer's money in light of GHG emissions and expected growth of more efficient ESRs, DR, and DERs.
3. Any new re-contracting should be done pursuant to an open and fair competitive process. This will allow for a transparent price signal to be created. New technologies should be allowed to participate.

Comment on "Gas Generation –Economic Life" slide 18

1. The IESO states "Shutting down plants early that have useful life left removes a cost effective source of capacity from competitive acquisitions". Please provide details of studies or reports showing that under a competitive acquisition model that these gas facilities will be cost-effective into the future.
2. IESO should complete value and economic-life studies for DR, DERs, and smaller resources in the assessment to be able to compare with the value proposition the aging gas fleet is offering.

Comments on "Equivalent Services of Gas Generation" slide 19

1. Energy Efficiency, DR, and other forms of load reduction may reduce the amount of replacement capacity that will be required if gas facilities were to be decommissioned.
2. Bidirectional chargers, ESRs, and DERs can offset a portion of energy needs, provide increased flexibility, and add resiliency. Increased transmission can likewise increase the grid operator's flexibility.
3. The IESO should prioritize ensuring that replacement resource pools with the capability to meet reliability needs are being developed and proven at this scale. The IESO will be binding future generations of Ontarians into paying high contract rates to keep the infrequently used aging gas fleet operational.

Comments on "Location Importance" slide 20

1. Bidirectional EV charging, DR, and DERs programs can be created to incentivize construction in strategic locations to provide local and regional reliability. These resources can add a level of flexibility that current gas fleets cannot provide.
2. Bidirectional EV chargers, DR, and DERs require minimal additional land.
3. The reinforcement of transmission can provide long-term benefits to the grid and the consumer in terms of congestion management.

Comments on "Defining the Intent and Scope" slides 22, 23, 24, 25 and 26

1. A strong focus on the implementations of bidirectional EV chargers, ESRs, DR, and DERs will lead to a more complete assessment. Decentralized resources provide a reduction in the load being served and an increase in generation closer to power consumption.

2. Studies with varied amounts of Bidirectional EV chargers, DR, and DERs should be conducted. The study should identify the locations and quantities of these resources that will be required to offset any portion of the gas generation phase-out.
3. A production cost assessment should also be carried out. The ISO-NE Future Grid Reliability Study has a framework that can provide insights into the depth of studies required.

Comments on Areas of “Assessment for 3 Scenario's” slide 27:

1. Reliability: Bidirectional EV chargers, ESR, DERs, and DR can provide energy (or energy reduction), operating reserves, regulation, and Capacity close to loads. The added benefit of decentralized resources is increased reliability via increased resilience.
2. Cost and Wholesale Market: Deceased battery cell costs are driving down battery energy storage system costs make them cost-effect in ESR, DR, and DER deployments. Decentralized models are inherently better for the economy as they allow multitudes of homeowners and businesses to invest in grid assets rather than just a few monopoly utilities.
3. Operability: Bidirectional EV chargers, DESR, DERs, and DR provide numerous wholesale services. Deployments with battery systems have increased operability via increased flexibility.
4. Timing: ESR, DR, and DER deployments with battery systems can be constructed in a shorter time frame than traditional resources.