Enabling System Flexibility

October 23, 2017

Meeting Notes

Date held: October 23, 2017	**Time held:** 1-3 pm	**Location held:** St. Andrew's Conference Centre
Company Name	**Attended**	**Attendance Status** (A)ttended; (R) Registered; (S)ubstitute; (TC) Teleconference; (P) Presenter
Registered for the meeting person were:		
AMPCO	Anderson, Colin	A
Bruce Power	Xu, Jennifer	A
Bruce Power	Radan, George	R
Bruce Power	Radojicic, Danny	R
EnerNOC, Inc.	Griffiths, Sarah	A
Goreway Power Station	Sutherland, Chris	A
Great Circle Solar	Wharton, Karen	A
Ontario Power Generation	Wizniak, Lynn	A
Ontario Power Generation	Raffaele, Guy	A
Power Advisory LLC	Cumming, Alison	A
Powerful Solutions	Inman, Peter	A
Alectra	Carr, Daniel	A
Samsung Renewable Energy	Park, Katherine	A
TransAlta Corporation	Nguyen, Thanh	A
TransCanada Energy Ltd.	Kelly, Brian	R
TransCanada Energy Ltd.	Kuntz, Margaret	A
Virtual Power Plants Inc.	Rasmussen, Terrence	A
Workbench Corp.	Sears, Heather	A
Oxford	Wilkinson, Bill	R
IESO	Grbavac, Jason	A
IESO	King, Ryan	A
IESO	Ng, Hok	P
IESO	Palmer, Nathan	A

All meeting material is available on the IESO web site at:
http://www.ieso.ca/en/sector-participants/market-renewal/enabling-system-flexibility

1. Introduction – Ryan King

The IESO welcomed the participants to the fifth meeting on Enabling System Flexibility. The agenda for this presentation expanded upon the previous stakeholder engagement, which

proposed an interim solution to use 30-minute reserve for flexibility. Additional analysis as well as responses to feedback received from the prior engagements would be presented.

2. Stakeholder Engagement – Hok Ng

Engagement Recap
The IESO presented how the flexibility needs manifest in the market and described observations supporting the system's needs for more flexibility. The IESO updated participants on the objective of this engagement, which is to determine potential solutions that can enable and achieve flexibility to meet the evolving system needs. From the last meeting, in August, the IESO presented on pricing outcomes and how some of these pricing outcomes are related to the need for flexibility. The IESO also reiterated how the options or solutions being proposed are to act as bridging mechanisms in the near term, to the enduring solution that would to be put in place through Market Renewal.

Proposed Interim Solution
At the last engagement, the IESO introduced a proposal to use 30-minute operating reserve to represent flexibility as an interim measure. This concept is still a proposal, as the IESO continues to works through the details. The aim of this meeting is to provide more information to help stakeholders understand the rationale behind the proposal and explain how the use of 30-minute operating reserve is be a suitable solution on an interim basis.

The IESO abides to reliability standards established by the Northeast Power Coordinating Council (NPCC). Using NPCC's definition for reserves is 'operating capacity in excess of that required for actual load'. Reserves can be used for three purposes: contingency, regulation and flexibility. Contingency is the unexpected loss of system elements and is not a frequently expected. The IESO requirement and usage follows NPCC rules, which specify the 10-minute reserve requirement to cover the single largest contingency and 30-minute reserve to cover half the second largest contingency. Regulation is used for second-to-second supply/demand balancing and frequency control within a dispatch interval. The IESO's requirement for regulation must meet NERC Control Performance Standards (CPS), where usage is frequent and automatic within the dispatch process. Flexibility is reserve carried to deal with variable generation and uncertainty in a future dispatch interval. The reliability organizations have not established a standard for reserves to be used for flexibility. This is likely due to the recent emergence of variable generation and changing supply mixes. However, in various forms, other ISO's have thought of how to carry reserves to fulfill their system's need for additional flexibility. For example in CAISO and MISO, they have created ramp capability products to hold additional reserves to provide flexibility for variable generation and system uncertainties. This interim proposal is consistent with the Market Renewal principles of efficiency, transparency and competition. The proposed solution is efficient as it would use or enhance current market processes for economic evaluation and commitment of resources for flexibility. It is transparent as it indicates flexibility need in advance of real-time dispatch. Finally, it also

for market participants to offer competitively to meet the flexibility requirements represented as additional operating reserve.

High Level Concept of Solution
This process of using 30-minute reserve for flexibility can be broken down into three main processes: Assessment, Scheduling and Deployment. The first process relates to determining the amount of flexibility to represent as 30-minute operating reserve. Once, the amount of additional reserve for flexibility is determined, the next process requires indicating the need in the pre-dispatch/day-ahead processes to schedule/commit resources. Once a resource is scheduled/committed, as we approach real-time, if flexibility is needed, how do we use these resources for flexibility? A few examples of these processes were presented.

Question: A participant asked how will changes to Control Action Operating Reserve (CAOR) and other operating reserve initiatives impact the proposal of using additional 30 minute reserve for system flexibility.

IESO Response: Specific to the proposed CAOR offer structure changes, simulations of market outcomes were completed and indicated that the impact on reserve prices is minimal, with an average increase in OR prices by roughly five cents. Using OR for flexibility would tend to increase the 30-minute reserve prices toward the 10-minute reserve prices.

Analysis Using OR for Flexibility
Simulations were completed to estimate the frequency, amount and duration of scheduling extra 30 minute OR for flexibility. Assumptions used 2018 forecasts of demand and resource availability and a high wind profile. Based on simulations projecting conditions for 2018, there could be between 70 and 110 days that would require extra OR for flexibility. These days are projected to occur predominantly during the winter and shoulder months when historically variable generation is high, demand is lower and there are fewer resource commitments.

Question: A participant has observed, when looking back on that last year a lot of the flexibility requirements stem from when there when there is a significant difference between forecasted load and actual load, sometimes upwards of 1000MW both during ramp up and ramp down conditions. Does the IESO's need for flexibility account for the difference between forecasted load and actual load?

IESO Response: Yes forecast uncertainty on the load side should also be accounted. The IESO may use a measurement of net forecast uncertainty to determine the amount of flexibility needed.

Responses to Feedback from Last Meeting
The IESO provided responses to feedback received from the last meeting. Written responses will also be available on the engagement website.

Next steps

The IESO requested written feedback by November 8th. The IESO is aware and open to alternative feedback methods as it recognizes the information may have competitive implications. If it is preferred by the MP to have an in person meeting or discussion with the IESO or have the feedback presented back anonymously we're open to that to facilitate feedback.

The IESO reminds participants to send their feedback/thoughts to engagement@ieso.ca with a deadline of November 8th 2017.