

Enabling System Flexibility – Meeting 4

August 1, 2017

Meeting Notes

Date held: August 1, 2017	Time held: 9:30 am – 11:30 am	Location held: Four Points by Sheraton
Invited/Attended	Company Name	Attendance Status (A)ttended; Attended via Webex
Kleynerman, Tom	Ameresco	A
Anderson, Colin	AMPCO	A
Butters, Dave	APPrO	A
Xu, Jennifer	Bruce Power	A
Dalzell, Pat	Bruce Power	A
Giannetta, Brandy	CanWEA	A
Fitzgerald, Steve	Capital Power	R
Tinkler, Mark	Customized Energy Solutions	A
Goodhand, Jason	Green Charge	A
Belanger, Frederic	Hydro Quebec Energy Marketing	A
Kelly, Brandon	Market Surveillance Panel	Webex
Shalaby, Amir	Market Surveillance Panel	Webex
Gilmour, Charles	NextEra Energy Canada	Webex
Fairlie, Matthew	Next Hydrogen Corporation	Webex
Rioux, Jason	NRStor Inc.	A
Wizniak, Lynn	Ontario Power Generation	A
Wilkinson, Bill	Oxford	A
Cumming, Alison	Power Advisory LLC	R
Inman, Peter	Powerful Solutions	A
Goddard, Rick	Rodan Energy Solutions	A
Park, Katherine	Samsung Renewable Energy	R
Anders, David	Samsung Renewable Energy	A
Chen, Katherine	Temporal Power	A
Marshall, Brenda	TransAlta Corporation	A
Nguyen, Thanh	TransAlta Corporation	A
Kuntz, Margaret	TransCanada Energy Ltd.	A
Lindsay Miller-Branovacki	University of Windsor	A
Carriveau, Rupp	University of Windsor	A
Sears, Heather	Workbench Corp	Webex
Garner, Tracy	IESO	Webex
Grbavac, Jason	IESO	Webex
King, Ryan	IESO	A
Ng, Hok	IESO	A
Sapona, Ingrid	IESO	A
Short, Dave	IESO	A

Scribe: Ingrid Sapona. Please email any corrections, additions or deletions e-mail to the scribe at ingrid.sapona@ieso.ca.

The meeting started at 9:30 a.m.

Introduction – Ryan King, IESO

The IESO welcomed the participants to the fourth meeting on Enabling System Flexibility. Going forward, this engagement will be integrated with the Market Renewal Program.

Presentation – Hok Ng, IESO

Shareholder Engagement Update

The IESO updated participants on the objectives of this engagement, including a recap of the topics covered in the first three meetings. The IESO reiterated that flexibility needs relate to managing forecast uncertainty in the intra-hour timeframe.

Pricing Outcomes and Flexibility

The IESO presented information on recent price spikes. What contributes to price spikes and how price spikes relate to the need for greater system flexibility were discussed.

A participant asked for clarification on the connection between reliability and price spikes.

The IESO explained price spikes may not be synonymous with reliability issues. Recently, among other factors, there have been price spikes because the market has been clearing at a “steep” part of the supply curve, i.e., where more expensive generation is the marginal resource. In addition, a price spike may signal that if the system condition experienced was further intensified, a reliability issue could develop.

A participant asked if a price spike in the energy price is correlated to a price spike in OR (operating reserve). The participant noted that in May, the hourly prices were at record lows and yet OR prices were substantially higher, on average, than the hourly price.

The IESO indicated that price spikes could both peak at the same time. That’s because the dispatch algorithm co-optimizes energy and OR dispatch. As more energy needs to be dispatched, some resources that were previously economic for OR become economic to provide energy. The OR requirements would then need to be provided by other resources higher up in the OR resource stack. These resources higher up in the OR resource stack could be priced significantly higher resulting in simultaneous price spikes in both energy and OR. Regarding OR prices higher than energy prices, energy prices tend to be low when demand is low and there is surplus baseload generation. During such times, OR prices may increase as there are lower amounts of OR offers in the market as no thermal resources committed and/or hydro facilities cannot provide OR as they must provide only energy during freshet conditions.

A participant asked why there seems to have been no price spikes this past fall.

The IESO explained during the fall there were outages taken requiring additional resource commitments. The additional resource commitments provided the needed flexibility.

A participant asked whether the IESO has mapped how much gas-fired generation would have been online during spike periods.

The IESO noted the amount of gas-fired generation by the number of commitments, but its relationship to price spikes is likely related to the amount of unscheduled residual capacity from committed generators. The thought is that less unscheduled residual capacity available and in general, a lower supply cushion, the higher likelihood for price spikes to occur.

A participant asked what was driving the price spikes set out in the examples in the slide presentation.

The IESO explained two components contributed to the price spikes in the examples: an over-forecast of variable generation and an under-forecast of demand.

The participant asked why the IESO didn't implement demand response (DR) when the price goes as high as in the example.

The IESO explained that for DR, the signal comes from pre-dispatch when there would be no indication of price spikes occurring in real-time.

A participant asked if the capacity factors for wind considered the amounts curtailed.

The IESO indicated that the capacity factors were calculated using forecasts of wind, but it will confirm.

A participant asked what was the financial cost of the problem over the past 12 months.

The IESO questioned what base scenario would be used as a relevant comparison.

In follow-up, the participant wondered whether the financial cost could be determined by cutting off the caps of each of price spike and then quantifying the cost of each of those spikes according to "normal rates".

The IESO explained that the issue with doing that is determining what would be considered as a normal scenario to compare against. The IESO doesn't clear the market for a certain price outcome or 'normal rates'.

Proposed Interim Solution

The IESO indicated an additional 740 MW of flexible capability in 2017/18 is required. As an interim solution, the IESO proposes using operating reserve (OR) to enable more flexibility.

A participant asked what contributed to the increase of available flexible megawatts in the system.

The IESO explained that a resource changed the way it operates so that it can provide more flexibility.

A participant asked whether that change was done without compensation.

The IESO replied that it was done without compensation.

A participant asked if this would go into an SGOL (spare generation on line) calculation around the joint optimized energy and operating reserve for determining commitment.

The IESO responded that yes, the SGOL program rules would be used to commit a resource.

A participant said that based on his understanding of the solution, the IESO is proposing to increase the 30 minute OR, when needed for flexibility. He noted that Hydro Quebec, which is providing OR through an intertie, has made some upgrades to increase capacity by 200 MWs more of OR. However, there is some issue preventing the IESO from increasing the tie limit for now. The participant wondered whether the IESO has any information on this.

Action Item: *The IESO took note to look into the matter further.*

A participant asked for more information on the current regulation RFP and believes the intertie with Hydro Quebec would be able to help the flexibility problem in Ontario.

Action Item: *The IESO indicated it would have to get back to the participant on this.*

A participant asked for clarification about whether, if the IESO were to procure more OR, wouldn't that just mean that mean paying a higher price for OR?

The IESO explained the idea is to put out a signal for flexibility need, so that more market participants could respond. Whenever the operator takes a manual action, the resource that gets manually dispatched is compensated by CMSC which is non-transparent and potentially inefficient. However, if you satisfy the flexibility need through market processes, it is more transparent and uses the optimization of the dispatch algorithm to choose the most economic solution. So, it should help drive the cost down.

A participant indicated that flexibility can be provided through different means, including use of interties and storage. He inquired if proposals to provide flexibility could be achieved by

augmenting existing procurement processes under way with the IESO, such as the regulation service RFP.

The IESO responded that the proposed use of OR for flexibility is one potential interim solution and the IESO is open to suggestions from stakeholders of other potential near-term solutions.

Next Steps

The IESO will work on developing interim use of OR to enable more flexibility. As well it will continue investigating other ways to enable flexibility. In the longer term, as part of Market Renewal, the IESO will further assess needs as the resource mix evolves, and it will be looking at an enduring solution.

A participant asked what the “near term” means to the IESO.

The IESO indicated near term means six months to about the end of 2018.

A participant said that if there are lower-cost solutions that can be done in six months, the IESO should do the math so that everyone can agree it’s the right decision.

The IESO asked the participant whether he had a particular low-cost solution in mind. The IESO assured participants that it would be open to look into other options suggested.

The participant responded that if, six months from now, someone wanted to bring on a 100 MW battery to meet some of the system flexibility needs, the IESO should consider it.

The IESO said it is assessing flexibility needs and also looking at other IESO initiatives that might be in the pipeline. Decisions will be made based on complete information. There is no intention to prevent anyone from bringing other resources on line. The IESO’s goal is to send a flexibility signal out further ahead of time so other resources can participate to meet the need and capture some of the associated revenues.

A participant indicated that to participate it needs a sense about the actual forecasted demand for the product and the actual existing supply. The capital expenditure cannot be justified if there’s no idea of what the market looks like. The participant wondered if the IESO could provide more details about the shape of the supply curve.

The IESO said it cannot provide details of the supply curve because doing so may reveal confidential or commercial information that would put some participants at a disadvantage.

A participant asked how frequently over the course of the year the IESO anticipates needing the 740 MWs and whether that coverage is just needed in spring/fall, or a couple of months.

The IESO said that the 740 MWs was calculated to ensure that there would be sufficient flexibility coverage for 95% of the time. The IESO's experience with conditions lacking flexibility is relatively new, so it's challenging to determine the average amount of flexibility requirement for now.

A participant noted that for Class A customers paying HOEP rates, price spikes would factor into their cost of operation. So, if a Class A customer could respond within 30 minutes of a price spike and if it were large enough to be a dispatchable load, would that be an option that would help?

The IESO agreed Class A customers generally are more exposed to HOEP spikes than Class B customers, and yes, dispatchable loads would be part of the solution. But, the IESO also noted that depending on how the dispatchable load bids, the price spike might not be high enough to actually dispatch them down.

A participant asked whether, with a price spike, the impact on the generation side is that all generators would be paid the market rate. If so, it would seem there are many solutions besides carrying additional OR.

The IESO confirmed the generators do get the market price, but their overall revenue depends on the details of their contract.

A participant commented that load pays the price with spikes, but increased transparency is good for everybody because it allows generators and loads to re-evaluate their offers and bids. The participant is glad to see the IESO is working on this.

A participant asked whether the IESO is proposing to activate 30-minute OR.

The IESO said that's one possibility but the details need to be determined.

A participant asked whether the IESO predicts this interim solution will eliminate the need for operators to take out-of-market actions.

The IESO reiterated that this process will help determine which resources are needed to provide the flexibility, so fewer out-of-market actions would be taken.

A participant asked about a scenario when the forecast is incorrect. For example, what if there is a forecast flexibility need in hour 16 but it turns out to be needed in hour 14?

The IESO responded that if the need is based on a forecast that is too early, it risks more forecast error and may need to increase the flexibility requirement for that increased risk. It will have to balance between using a forecast that is further out in time or a more recent forecast that is more accurate but may not allow sufficient time for some non-quick-start resources to respond. The details of the timing of when to determine flexibility needs have to be determined.

A participant asked whether the calculation the IESO will do regarding variable generation uncertainty and, consequently, any flexibility deficit will be done continuously.

The IESO confirmed that the calculation would be done continuously.

A participant noted that the flexibility calculations are only based on the resource calculation and that there's nothing about demand uncertainty and embedded generation.

The IESO said that on the operability side, it is primarily focused on variable generation because it contributes to a larger proportion of the overall forecast uncertainty. The IESO also noted that it does account for of embedded resources in the demand forecast.

There was some discussion about the scheduling flexibility example shown on slide 27 of the presentation.

A participant, referring to the economically scheduled flexibility situation, asked whether the IESO pre-dispatched at hour 2 and the resource was available at hour 4 for all that time (on the slide) where it's dark green?

The IESO explained that in that scenario, the resource is operating at its minimum level and has unscheduled residual capacity available for flexibility.

The participant followed up and sought confirmation that though it is predicted that the resource is only for the 2-3 hours where it's at the lowest value, the IESO would be paying for the 30-minute OR reserve over the 15 hours shown.

The IESO explained that because the requirement for that OR is only for those four hours, not the 15 hours, the resource would not be paid over the 15 hours.

The participant asked what costs the IESO would be paying that resource over the 15 hours it's committed.

The IESO explained that the resource would be committed through the existing commitment program and compensated under current rules.

The participant pointed out that if a quick-start resource is available, it might be a more economical solution because it would only need to be paid for the three hours it actually bids, rather than having to pay to another resource all the other residual costs for the 15 hours.

The IESO agreed.

A participant asked what the desired timelines for implementation is.

The IESO said the plan is sometime toward the end of the year to the beginning of next year.

Conclusion – Barbara Ellard and Ryan King, IESO

The IESO explained it has presented its ideas early because it hopes to hear participants' thoughts and questions to be considered. While this proposal appears to be a suitable option, there are some important design questions needing stakeholder feedback. For example, what kind of notice does the resource mix need in order to be able to respond? The IESO is open to having one-on-one meetings, but it will depend on the feedback received.

Responsible Party	Action	How Addressed	Date Addressed
IESO	The IESO will look into the whether there is some issue preventing increase of the OR intertie limit		
IESO	The IESO will follow-up on the regulation RFP and whether it may help with Ontario's flexibility issues		

Participants were reminded their feedback/thoughts can be sent to: engagement@ieso.ca

The meeting concluded at 11:30 a.m.