

# Incremental Capacity Auction – Phase 2 - Options

## September 28, 2017

### Minutes of Meeting

<b>Date held:</b> September 28, 2017	<b>Time held:</b> 9:00 am – 3:00 pm	<b>Location held:</b> Four Points by Sheraton Toronto Airport
<b>Invited/Attended</b>	<b>Company Name</b>	<b>Attendance Status</b> (A)ttended; (WebEx) Attended via WebEx;
AMPCO	Anderson, Colin	A
Bruce Power	Dalzell, Pat	A
Bruce Power	Xu, Jennifer	A
Consumers Energy	Beattie, Jeff	WebEx
Customized Energy Solutions	Withrow, David	WebEx
EnerNOC, Inc.	Griffiths, Sarah	A
Gerdau	Forsyth, Dave	A
Goreway Power Station	Coulbeck, Rob	WebEx
Goreway Power Station	Sutherland, Chris	A
HQEM	Belanger, Frederic	WebEx
H2O Power	Medina, Ron	A
H2O Power	Somerville, Stephen	A
Northland Power Inc.	Samant, Sushil	A
Northland Power Inc.	Khan, Shahid	A
Ontario Power Generation	Wizniak, Lynn	A
Power Advisory LLC	Cumming, Alison	A
Power Consumer	Jagt, Mandy	A
Powerful Solutions	Inman, Peter	A
Resolute Forest Products	Degelman, Cara	A
Storage Power Solutions	Oreskovic, Mike	A
The Brattle Group	Spees, Kathleen	A
TransCanada Energy	Kuntz, Margaret	A
Virtual Power Plants Inc.	Rasmussen, Terry	A
Whisker Labs	King, Robert	A
IESO	Agavriiloai, Ioan	A
IESO	Agrawal, Vipul	A
IESO	Bedford, Julie	A
IESO	Brown, Dave	WebEx
IESO	Chagla, Farid	A
IESO	Duru, Josh	A
IESO	El-Samahy, Ismael	A

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IESO	Hill, Warren	A
IESO	Kandola, Shanjeet	A
IESO	King, Ryan	A
IESO	Lyle, Michael	A
IESO	Maniyappan, Sunil	WebEx
IESO	Movchovitch, Emanuel	WebEx
IESO	Nusbaum, Stephen	A
IESO	Zhao, Serena	A
Prepared by Josh Duru, please report any corrections, additions or deletions e-mail to <a href="mailto:engagement@ieso.ca">engagement@ieso.ca</a>		

All meeting material is available on the IESO web site at: <http://www.ieso.ca/en/sector-participants/market-renewal/market-renewal-incremental-capacity-auction>

### **Introduction, Review of Agenda and Meeting Objectives – Ryan King**

The IESO welcomed participants, reviewed the agenda and noted that the intent of today’s session is to introduce the possible design options for participation requirements, resource eligibility, and qualified capacity.

### **Participation Requirements – Stephen Nusbaum (Slides 11-27)**

The IESO presented the participation requirements which are the specific organizational information that must be provided in order to participate in the auction and administrative obligation in all phases of the Incremental Capacity Auction (ICA).

A participant asked if the non-defaulting participants will have to pick up any shortages created by a defaulting market participant (i.e. if a generator does not deliver its capacity procured through the ICA, who will pick up the cost?). (Slide 24)

*The IESO responded that the current process, outlined in the market rules, is that all loads who are online and consuming energy at the time of the default would be charged, which is what the prudential is intended to cover. If the defaulting load isn’t able to cover those costs, all participants who are in the market at that time would be charged, including generators.*

A participant stated, as a cautionary note related to the performance security charges, that the group would need to review these charges in more detail once they are decided upon to ensure that charges as a whole are reasonable. (Slide 25)

## Resource Eligibility – Stephen Nusbaum (Slide 29 – 97)

The IESO presented the Resource Eligibility design element, which are the requirements that each resource must meet in order to be eligible to participate in the auction. Resource Eligibility provides assurance to the IESO that the proposed resource will be capable of meeting obligations during the commitment period.

A participant asked if a facility would be ineligible if they were party to another bilateral contract with an external jurisdiction. Further, if there was merchant capacity that was outside of a contract would that be eligible for the ICA? (Slide 34)

*The IESO responded that one of the key criteria for eligibility in the ICA is that Ontario would require first rights, when called upon, to that capacity. If a participant has sold their capacity to another jurisdiction they would be ineligible over the duration of that agreement. Merchant capacity outside of contract would be eligible subject to the capacity qualification process.*

A participant asked what would happen if a contract is expiring in the middle of an auction's commitment period? (Slide 34)

*The IESO responded that a resource would be ineligible if its capacity was committed under contract for any portion of a commitment period. If the ICA includes seasonal commitment periods, a resource could be eligible for those commitment periods where its capacity is not committed under contract.*

A participant asked if the IESO has considered how it will treat the current Demand Response (DR) resources that are providing a product which is likely different than what will be defined through the ICA. The participant asked if there was any risk in defining DR treatment prior to determining commitment periods and rules related to must-offer.

*The IESO responded that there has been no determination on DR resources or what will be considered new vs existing resources for the ICA. The IESO would ask that, if there are concerns from the DR community on the potential options being considered, those comments should be submitted.*

A participant asked if the IESO could reconsider the minimum project size requirement indicating that 1 MW of residential load is a substantial amount and is a market entry barrier for DR aggregators. The participant noted that California, Texas and New York allow 100 kW projects and urged the IESO to reach out to these jurisdictions to understand how it is done. (Slide 45)

*The IESO responded that there is benefit in allowing smaller projects to participate in the ICA but also noted that changing the current 1 MW threshold is a major undertaking. The IESO is in the process of developing a DER framework and strategy which may review this concern. Note: this will be added to the ICA Issues Tracker.*

A participant stated that the long time horizons (3-5 years) between the pre-auction period and the commitment period for the ICA would make demonstrating ongoing public support as part of the eligibility process challenging due to changes in local government/stakeholders.

*The IESO acknowledged the challenge of demonstrating ongoing public support for a project. The IESO is seeking stakeholder input on whether demonstrations of public support should be included in the eligibility process and, if so, how the qualification for public support could be determined i.e. once during initial eligibility or multiple times during eligibility, selection and site development stages.*

A participant stated that there are a number of issues that make having some kind of 'unique' public support requirement (i.e. beyond the consultations required in the regulatory and environmental approvals processes) unattractive including the potential for buying of support, the question of how to apply the requirement for different technologies, and how to ensure a level playing field for all resource types.

*The IESO acknowledged the participant's concerns and committed to responding to this question after the meeting.*

A participant asked if the IESO would manage the state of charge associated with energy storage similar to how other jurisdictions do. The participant urged the IESO to develop a new category of participant for storage resources and for the IESO to manage the state of charge themselves.

*The IESO responded that the discussions on how to integrate storage are still ongoing and no decisions have been made. The IESO appreciates feedback from the group on this topic. Note: this will be added to the ICA Issues Tracker.*

A participant asked if energy storage would have to be bid into the market separately or could be aggregated with other resources such as wind and solar.

*The IESO responded that the concept of firming (aggregating resources) is something that the IESO would be supportive of, but details around resource aggregation rules and qualification of resources of different technology types are yet to be established.*

A participant stated that the unique aspect of storage is that a MW of storage will have to be qualified with consideration for how many hours the MW is available (i.e. total number of hours over which the MW of capacity can be discharged).

*The IESO agreed that this is something that will have to be assessed from a number of perspectives, for both the performance obligations and qualified capacity processes.*

A participant stated that there may be multiple types of storage resources the IESO will have to consider including storage combined with a solar or wind resource at a utility scale, or storage as an aggregation of a number of smaller resources.

A participant stated that storage, like demand response, is a limited duration product and the offer system should be set up to allow such resources to include a time/duration element to their offer. This would allow the IESO to optimize in a way that could capture their value.

*The IESO responded that for Ontario to get the full value of energy storage, the IESO recognizes that more will need to happen outside of the ICA to understand how they can be dispatched and what their value proposition is for the system. As noted above, how best to integrate storage resources into the energy market a topic that has been added to the ICA Issues Tracker.*

A participant stated that the IESO will need to evaluate what type of resources it is looking for through the ICA. Is the IESO looking for peaking resources for short durations or baseload resources that run over a longer duration? (Slide 70)

*The IESO noted that this discussion will be part of the ICA's review of performance obligations. However, ultimately the intent is to provide the right price signals (e.g. energy, ancillary services, capacity, etc.) to the sector to allow investors to decide what is the most efficient type of resource to offer into the ICA to meet resource adequacy needs.*

A participant reinforced a recommendation from the Demand Response Working Group (DRWG) to make the DR product more flexible in terms of the IESO's actual operational use of DR. The participant encouraged the IESO to continue to pursue the DRWG recommendations as well as reducing barriers for residential DR related to meter data access.

*The IESO acknowledged and thanked the participant for the feedback.*

A participant asked about the time period between clearing the DR Auction and when the resource may start being called upon.

*The IESO responded that the lead time between the auction and commitment periods is much shorter for the DR auction, where the qualification process begins 3 months prior to the auction and the summer commitment period begins 5 months after the auction.*

A participant stated that asking a large industrial DR resource to commit capacity five years in advance is difficult.

*The IESO responded that during the discussion on Target Capacity this concern was raised which may provide some justification for a hold-back which would allow those shorter lead time resources (like DR) an opportunity to efficiently participate. The IESO will be taking this feedback into account.*

A participant asked for some sense of what the IESO is thinking with respect to the product that the ICA will be procuring.

*The IESO responded that the capacity product that will be procured through the ICA has yet to be defined and that the IESO will be assessing its needs from a resource adequacy perspective to define what is needed from the ICA.*

A participant asked why the IESO would try to model these aspects of aggregated resources rather than just require the offer structure (e.g. 3 part offers or other) to define certain parameters that the projects describe (i.e. ramping capability, minimum generation/load, etc.).(Slide 75)

*The IESO responded that these comments would be taken back for consideration.*

A participant stated that it would be useful if the current geographic limitations that are placed on aggregation of DR resources could be removed to allow aggregation across zones. The participant stated that these limitations are currently a barrier for residential DR.

*The IESO responded that with respect to aggregating across zones, the concern is not the price differences across zones. The concern is related to power system flows, voltage support and stability issues that could arise when modeling the system for DR activations across the province.*

A participant asked for clarification on eligibility of aggregated resources, specifically, the process for application and approval.

*The IESO responded that the application will first need to be received prior to knowing if the aggregation of resources will be eligible since the determination is dependent on the size and the location of the project.*

A participant commented that many stakeholders may seek to take advantage of the ability to aggregate facilities but only if zonal limitation information is available prior to the auction.

*The IESO responded that the zonal limitations, and more specifically the virtual limitations, which will detail the amount of aggregation allowed within each zone, are anticipated to be provided as part of the pre-auction report.*

With respect to the example on slide 80, a participant asked if the IESO was concerned that a resource under contract would be at a competitive advantage from the perspective that the ratepayer was already paying for the real-estate of the facility (i.e. any uprate would be subsidized by the resource's contract/the costs of the land were paid for by the FIT contract).

*The IESO responded that this question is something that the IESO would want feedback from the broader community on. From the IESO perspective, low cost capacity available for the ICA is positive but the IESO would also want to ensure a level playing field.*



A participant commented on how to determine incremental capacity from a hydro-electric facility, noting that the Ministry of Finance has a model based on the Gross Revenue Charge holiday which works on a baseline concept. The IESO may want to consider this model.

*The IESO acknowledged the suggestion.*

A participant asked if the IESO had an interest in the energy associated with the capacity and asked if the energy will be treated separately by the IESO. The participant noted that dispatched energy in the Day-Ahead and Real-Time markets may be treated differently than dispatched energy under contract in the Day-Ahead and Real-Time market. (slide 86)

*The IESO responded that this has to be considered. Contract obligations related to must offer or availability requirements will have to evolve to ensure they are operating as intended. There may be a need for a sub working group to discuss all the contract implications since a participant cannot separate the actual MWs when they have a contract that settles on actual MWh production (FIT & PPA). With the gas and other contracts which are settled on 'deemed' production, this will not be an issue.*

A participant commented that the IESO should discuss with the government the question of a coal facility being permitted to import its capacity into Ontario.

*The IESO responded that this is a fair point but that the IESO wanted to raise the issue with stakeholders in case there was a concern stakeholders would want the IESO to bring to the government's attention.*

A participant asked whether the same would apply for system-backed imports when there is coal being burned in the external jurisdiction.

*The IESO responded that this will be considered, however from a practical perspective it is not expected to be an issue as only Quebec provides system-backed capacity trade and they do not have coal in their resource mix.*

A participant asked, with respect to the capacity-sharing agreement with Quebec, if these MWs would be considered contracted MWs that would not be allowed to participate in the ICA.

*The IESO requested that the question be submitted as written feedback to enable the IESO to provide a complete answer. The fundamental principle from the IESO's perspective is that if the capacity is not committed elsewhere it would be allowed to participate.*

A participant stated that previous procurements had additional public policy objectives with respect to community or Indigenous participation as eligibility criteria – how is this being evolved into the ICA?

*The IESO responded that this comment would be taken back for consideration.*

## Qualified Capacity – Ismael El-Samahy (Slides 99 – 157)

The IESO presented the Qualified Capacity requirements which establish the amount of capacity that a resource can be expected to provide, on average, during hours over which the performance will be measured in the commitment period(s).

A participant asked whether the two categories of resources for capacity qualification (i.e. Thermal and Intermittent & Energy Limited) will be completely satisfactory over the long term.

*The IESO responded that the classification is not determining whether a resource is reliable or unreliable, it is only detailing the methodology that will be used to determine the amount of qualified capacity from this resource.*

A participant commented that whether it is a conventional or unconventional resource, planned outages are typically used to maintain the capacity and reliability of the asset regardless of the technology. Therefore planning outages during times when a resource is not required will reduce the forced outage rates when the resource may be required.

*The IESO acknowledged the comment.*

A participant asked if the calculation of the forced outage rate is done on a facility/fleet basis.

*The IESO responded that the forced outage rate is calculated at the resource level.*

A participant asked why (slide 121) “forced outages and derates are implicitly captured in historical production data” applies to intermittent and energy limited resources and does not apply to thermal resources.

*The IESO responded that for the thermal resources the IESO assesses forced outages and derates separately, while for intermittent and energy limited resources the IESO looks at the historical production data which already includes the impact of these resources’ forced outages.*

A participant asked if the IESO was determining the Equivalent Forced Outage Rate on Demand (EFORd) for a range of combined cycle gas units based on historical averages.

*The IESO responded that for thermals the IESO uses a ‘top-down’ approach where a facility is reduced by its seasonal derates and EFORd. Therefore historical outages are captured in the amount of capacity qualified on a go-forward basis. For a renewable facility it operates ‘bottom-up’ where the IESO looks at its actual production data and the average is used to determine availability on a go-forward basis.*

A participant then asked if the IESO is using a bottom-up approach for intermittent and energy limited resources why the same could not be used for thermal resources.



*The consultants supporting the ICA project (The Brattle Group) responded that this would not be a good way to determine forced outages for thermals because looking at the example of a combustion turbine that only runs 5% of the time overall but 95% of peak periods, the capacity value of the resource should be based on the 95% of peak periods because that is when the system needs the resource.*

A participant asked if the Qualified Capacity for a thermal resource was based on the EFORd and if the Qualified Capacity for a hydro resource was based on a capacity factor.

*The IESO responded that there are different considerations for a hydro resource related to baseload and peaking portions of the capacity qualification but generally if an intermittent and energy-limited resource has a capacity factor calculated for the resource, the Qualified Capacity would reflect this.*

A participant commented that intermittent and energy-limited resources can still have derates on equipment but if that equipment has been maintained, it may still be able to perform to its full capacity if adequate fuel is available.

*The IESO responded that this would be implicitly captured in the historical production data.*

A participant commented that the IESO is using the assumption that an intermittent resource will produce as much as it can which may not be the case because they have curtailment rights and could be dispatched down. This would impact the resources production data.

*The IESO responded that this is tied to how the capacity contribution factor is calculated and the methodology used by the IESO today adds back the curtailed-down energy.*

A participant asked how the IESO would determine capacity factors for DR.

*The IESO responded that a methodology has yet to be established.*

A participant asked if establishing seasonal capabilities for qualified capacity would be an onerous process and if the expectation is for hydro resources to have different qualified capacities over freshet versus the rest of the year.

*The IESO responded that if a seasonal auction is put in place, capacity would be qualified on a seasonal basis to align with the commitment periods.*

A participant stated that it will be difficult from a planning perspective to build a new resource if it is only required for resource adequacy needs in one season.

*The IESO responded from a resource adequacy perspective, the system needs to account for seasonal differences in a resource's ability to produce. Seasonal impacts will need to be accounted for by a supplier when developing their ICA offer strategy.*

A participant asked if the regional plans that are a subset of the Long Term Energy Plan (LTEP) provide an indication of where capacity may be required in the province.

*The IESO responded that regional plans do not look at constraints across different zones; they are designed to meet the needs of consumers in those regions.*

A participant asked if there was a possibility that capacity resources could be located in such a way to optimize the existing infrastructure to ensure synergies between the existing transmission capability and strategic location of capacity.

*The Brattle Group responded that this should be a top priority and something that a locational capacity market can accomplish very well alongside an energy market that produces locational prices. Providing the right incentives to ensure that the locational resource adequacy picture is properly reflected in the capacity market is an important aspect of the ICA.*

A participant asked if the IESO could share the aggregated qualified capacities for resources that are calculated today for resource adequacy.

*The IESO responded that its resource adequacy NPCC studies which produce class average EFORD's based on fuel type are available publicly. From an Ontario aggregate level, wind provides about 13% in the summer, solar about 10%, and hydro is around 65-70%. While thermal will vary depending on fuel types and forced outage rates.*

A participant asked why the IESO uses 30% in the summer for solar compared to MISO whose are using 50%, what is difference?

*The IESO responded that the 50% is used for the first year, only, as a starting assumption for a new solar resource in MISO. The 30% value for Ontario is based on current assumptions regarding the ability of solar to meet NPCC resource adequacy requirements, and noted that Ontario and the jurisdictions that are part of MISO have different load profiles and solar insolation characteristics.*

A participant asked how peaking, baseload and storage duration considerations for hydro-electric facilities are being taken into account in other jurisdictions, with respect to qualified capacity.

*The Brattle Group responded that it often comes down to how much hydro is part of a jurisdiction's portfolio and the nature of the hydro resource. Some jurisdictions may look at output over a 4 hour duration which is based on a technical review of capabilities. Other jurisdictions may have separate treatment for run-of-river hydro and for peaking hydro. Another potential model is the effective load-carrying capability concept which is a probabilistic assessment of availability over peak periods. Most other jurisdictions do not have as much hydro as Ontario and therefore their models may not be as applicable.*

A participant stated that the calculation methodology (option 2 on slide 152) seems reasonable but the assumptions required to use the calculation will have to be discussed at length.

*The IESO acknowledged the comment.*

The IESO thanked participants and reiterated feedback is appreciated and should be sent to: [engagement@ieso.ca](mailto:engagement@ieso.ca). In particular, the IESO emphasised its interest in feedback on the questions posed in blue throughout the presentation.

The next ICA meeting is scheduled for November 6, 2017.

DRAFT