Comprehensive Market Design Stakeholder Comment Matrix
Technical Working Group – *FINAL*

Please complete this matrix by February 27, 2018, and upload it to the "Feedback" folder on the CMD SharePoint site. The AESO will post all comment matrices received from working group members on www.aeso.ca. **Please note that the names of the parties submitting each completed comment matrix will be included in this posting.** The AESO does not intend to respond to individual submissions. If you have any questions about this comment matrix, please email capacitymarket@aeso.ca

Name: Clarke Lind Organization: Powerex

Date: February 20, 2018

CMD Key Design Questions	Comments and / or Recommendations
1. UCAP: Can you support the availability factor/capacity factor over the 100 hours of smallest supply cushion being used to calculate the UCAP?	The AESO has proposed using a Capacity Factor Methodology to calculate the UCAP value for the interties, using intertie schedules during the 100 tightest supply cushion hours per year over the previous five years. While Powerex respects the AESO's initial challenge to establish a UCAP methodology for the interties, Powerex does not believe the Capacity Factor Methodology will establish an 'equivalent reliability value of one MW across resource types.' Moreover, using historic scheduled volumes over the intertie during Alberta's 100 tightest supply cushion hours per year is not an indicative measure of the 'amount of capacity' an external resource can 'provide on average, during tight supply and demand conditions.' **Issues with the Capacity Factor methodology and Alberta's 100 smallest supply cushion hours:** The primary issue is related to the transition from a price-taker energy market for imports, which has no Must Offer Requirements, to a priced, intra-hour market, with all capacity committed imports having a Must Offer Requirement. Historically, only economics have driven energy schedules into Alberta. There has been no requirement for external supply to schedule energy into Alberta during a tight supply situation. Moreover, certain external participants have opportunity costs across other North American markets. Therefore, intertie scheduling during Alberta's 100 smallest supply cushion hours is not an indicative measure of the amount of supply an external resource can reliably provide. Going forward, under the priced, intra-hour, capacity committed import Must Offer regime, certain intertie participants will have the ability to use an offer curve to bid into the Alberta market. This is similar to internal, dispatchable assets. By treating the interties as variable assets, the UCAP value for dispatchable assets across the intertie will NOT be treated equivalent to internal resources. **Powerex proposals for interties' UCAP:** 1. Availability Factor Methodology, based on the minimum of (1) the average ATC of the intertie rating during Alberta's 100 smallest supply cushion hours, (2) the firm rating. a. Equation: Intertie UCAP = Min(Avg. ATC 100 tight AB hrs, firm rating) 2. Availability Factor Methodology, based on the average scheduled energy during the largest 100 spread hours between MIDC (on peak) and the Alberta pool price.

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	Powerex believes Proposal 1 is the best available methodology to establish an equivalent reliability value of one MW across resource types, and to determine the average capacity an external resource can provide during a tight supply and demand situation within Alberta. Powerex believes Proposal 2 is not a good measure of the maximum capability of the intertie, but it is superior to the AESO's proposal of the 100 tightest supply cushion hours as it is more reflective of participants' opportunity costs with scheduled energy into Alberta. It could also be used to weight available capacity in the first years where this is no 5 year history. Powerex would happily discuss the details of these methodologies with the AESO and the broader Working Groups. *Note – Powerex is aware that the above comment only dealings with the UCAP rating of the intertie and that the physical external resource, or external system resource's UCAP will be assessed separately.
2. UCAP: Can you support the UCAP calculation being based on 5 years of historical data?	Powerex supports the use of the UCAP calculation based on 5 years of historical data. However, Powerex does not support the proposed data that the AESO plans to assess for the interties' UCAP over the 5 year period. **AESO Proposed Methodology:** The AESO has proposed to use a Capacity Factor Methodology to calculate the UCAP value for the interties, using intertie schedules during the 100 tightest supply cushion hours per year over the previous five years. This would grant to AB-BC intertie a UCAP of roughly 215 MW. **Powerex Proposed Methodology:** As outline in response 1 (above), Powerex believes the best available methodology to establish equivalent reliability value of one MW across resource types, and to determine the average capacity an external resource can provide during tight supply and demand situations is for interties' UCAP to be assessed by using the below methodology: 1. Availability Factor Methodology, based on the Minimum of (1) the average ATC of the intertie rating during Alberta's 100 smallest supply cushion hours, or (2) the firm rating. b. Equation: Intertie UCAP = Min(Ave. ATC 100 tight AB hrs, firm rating) This would result in a maximum AB-BC intertie UCAP of 480 MW (the BC firm rating).

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	Alternatively, should the AESO want to measure external market participants' opportunity costs against scheduled energy into Alberta, the below methodology may work as an option: 2. Availability Factor Methodology, based on the average scheduled energy during the largest 100 spread hours between MIDC (on peak) and the Alberta pool price. This would grant to AB-BC intertie a UCAP of roughly 360 MW. **<u>5 years of historical data to be reviewed based on above mentioned proposals:</u>** Proposal 1 – The AESO would assess the Minimum of (1) the average ATC of the intertie rating during Alberta's 100 smallest supply cushion hours, or (2) the firm rating over the previous five years. Proposal 2 – A blending scenario. Over time, scheduling during the largest 100 spread hours between MIDC and the Alberta pool price can be merged with Alberta's 100 smallest supply cushion hours to calculate the interties' UCAP. Once five years of data is available under the new the priced, intra-hour, cleared capacity Must Offer regime, the AESO should use the previous five years of intertie schedules during Alberta's 100 smallest supply cushion hours to establish the interties' UCAP. Powerex would happily discuss the details of either of these proposed methodologies with the AESO and the broader Working Groups.
3. UCAP: Are there risks with including planned outages in the availability factor data used to calculate UCAP? If so please describe.	
4. Demand Curve: Do you have any feedback on the material presented in the CMD 1? Note: AESO and the WG will revisit the shape of the demand curve once draft outputs from the Resource Adequacy model are available.	
5. Load Forecast: Can you support the proposed approach to forecast load? Are there any outstanding comments or concerns with the	

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proposed approach?	
6. CONE: Can you support the intended Gross CONE estimation approach?	
7. CONE: What are the important considerations AESO needs to take into account when selecting the Energy and Ancillary Service offset estimation methodology?	
8. CONE: Are there any issues or gaps in our considerations or plan in Net CONE estimation?	

General Comments: Any comments on relevant scope areas of the CMD that are not addressed above