Comprehensive Market Design Stakeholder Comment Matrix
Energy and Ancillary Services WG – *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: Dan Chapman **Organization: NRStor, on behalf of Energy Storage Canada**

Date: February 27, 2018

CMD Key Design Questions	Comments and / or Recommendations
1. Offer Obligations, Dispatch, and Scheduling: Are there any issues or gaps / in the CMD proposal for intra hour scheduling and priced import assets?	The rules regarding participation of energy storage in both the capacity market and EAS markets are either not well defined or unclear. Therefore, it is challenging for market participants to determine: 1. How energy storage assets will be treated in the CM and EAS markets 2. Whether conflicting treatment or inconsistencies exist for energy storage relative to the CM and EAS market rules On page 4 of the Feb 14 Energy and Ancillary Services Session Summary, NRStor raised a question regarding Must Offer obligations for duration limited resources (such as energy storage and hydro) in the energy market. It is recommended that the AESO clarifies Must Offer treatment for energy storage assets that participate in the Alberta market under the following cases: 1) Energy storage asset participation in both Capacity and EAS markets 2) Energy storage asset participation only in EAS market NRStor requests confirmation that depletion of the stored energy in an energy storage asset classifies as an AOR. To illustrate, we wish to verify that a depleted storage asset that cannot provide energy associated with a previously accepted offer into the EAS market, due to an instantaneous AC of zero MW, is classified as an AOR from the perspective of EAS market participation.
2. Offer Obligations, Dispatch, and Scheduling: Assuming imports can be scheduled and priced intra-hour, can you support that capacity committed imports must offer their capacity volumes?	Supports that interties meet the same requirements as other market participants. Interties do not provide a unique service to the AIES, as there are candidate technologies such as long duration energy storage, that can provide the same services and benefits.

CMD Key Design Questions	Comments and / or Recommendations
3. Flexibility and Price Fidelity: a. Any concerns with addressing ramp by block and dispatch tolerance to address system variability? b. Any concerns with shorter settlement at 15 minutes? 5 minutes? c. Any options missing from the options to evaluate to address variability? d. Any unintended consequences with optimization look ahead or pre-dispatch? e. Any comments on ramp product? 4. Any comments on co-optimization (EAS) in the context of SCED model? Note: The AESO will continue the analysis on the options for flexibility and present at the next WG session in April.	3.e) **Ramp Product** We are supportive of the AESO considering a ramp product. We believe that a ramp product offers a reasonable alternative to the AESO's AGC directive. Currently, thermal assets provide a low granularity response to a ramp directive issued via an AGC signal. The thermal asset overshoots the AGC directive, which is then followed by decreased output, often triggering a directive to deploy energy from an ancillary service to meet system needs quicker than possible through an energy dispatch in accordance with the merit order. Alternatively, a fast ramp product would provide a discrete and precise response to an AESO ramp directive, reducing the need to deploy ancillary services and allowing the AESO to manage balancing through energy market dispatches to a greater degree. Batteries and flywheels are both suitable technologies to providing fast ramping response.

CMD Key Design Questions	Comments and / or Recommendations
5. Market Power Screen and Mitigation: Can you support the proposal for ex ante mitigation as stated (RSI and scarcity screen and conduct threshold), specifically: a. Are there issues with 0.9 RSI that warrant further consideration? b. Are there any issues with the revised RSI formula? Is it required? c. Are there any issues / unintended consequences with additional scarcity screen? d. Are there any issues with a conduct threshold at 3x? Are there better alternatives? e. Are there any issues with opportunity cost exceptions? Any input for formulae / evaluation?	Yes. Generally supportive. Market Power should be both screened and mitigated to ensure that the EAS market functions in a competitive manner.

CMD Key Design Questions	Comments and / or Recommendations
6. Roadmap: A fulsome roadmap will be presented to the April WG. The rules required for 2021 and taken out of scope have been identified. Rules that may be delayed or phased in will be identified at that time. a. Can you support the efficiency pieces taken out of scope (SCUC, BDAM, co-optimization)? (See section 10.4) b. Scope: Can you support the pricing pieces taken out of scope (price cap, shortage pricing, negative pricing)	**EAS Roadmap**. The energy storage community is interested to review the EAS roadmap to understand how the roadmap affects fulsome future participation of energy storage assets in the EAS market. The rules regarding participation of energy storage in both the capacity market and EAS markets are either not well defined or unclear. Therefore, it is challenging for market participants to determine: 1. How energy storage assets will be treated in the CM and EAS markets 2. Whether there any conflicting treatment or inconsistencies for energy storage relative to the CM and EAS market rules **Pricing**. NRStor and ESC can only support development of pricing rules (involving price cap, shortage pricing and negative pricing) to be taken out of the 2021 scope if there are firm commitments made by the AESO to comprehensively address these pricing topics shortly after the 2021 roll out of the capacity market and preliminary EAS market rules modifications. **Tariff and Rule Changes**. Page 3 of the Feb 14 Energy and Ancillary Services Session Summary states that “it is the AESO’s intention to do additional analysis to determine where rule or tariff changes are required for the AS market to support new technologies.” NRStor and ESC commend the AESO’s commitment to identify such rule or tariff changes required to support fulsome participation of new technologies in the EAS market. ESC and NRStor respectfully request that such analysis is conducted and distributed prior to publication of CMD 3 Draft on April 24th.

General Comments: Any comments on relevant scope areas of the CMD that are not addressed above
The rules and tariffs governing participation of energy storage in both the capacity market and EAS markets are either undefined or unclear. Therefore, it is challenging for market participants to determine how energy storage assets will be treated in the CM and EAS markets. NRStor and ESC commend the AESO on acknowledging that there may be gaps regarding the participation and treatment of energy storage under the current and developing Alberta electricity market. However, it is imperative that energy storage is included and consulted to ensure that: 1. Energy storage is represented and included in future planning efforts through AESO Long Term Outlook and system planning initiatives 2. Rule and tariff changes required to support fulsome participation of energy storage are identified and executed as soon as possible