Comprehensive Market Design Stakeholder Comment Matrix
Energy and Ancillary Services ("E&AS") 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

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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?	1. At the February 14th E&AS WG session, several questions were raised regarding the scheduling process. It was not clear whether the sequence for e-tag approval and dispatch were congruent. As noted in the session summary, WG members…"raised questions regarding the feasibility of tagging upon dispatch versus need to tag for the hour to allow intra hour scheduling." Given this lack of clarity, **Capital Power recommends that the AESO provide an example of intra-hour intertie scheduling that includes details related to timing, sequence and activities to receive and comply with a dispatch.**
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?	2. Assuming imports are eligible to participate in the capacity market, can submit non-$0 offers at or before T-2 and can be scheduled intra-hour, **Capital Power is supportive of the "must-offer" requirement in the E&AS market applying to the capacity volume of committed external resources but suggests exploring this to include non-committed firm import capacity**. This is the requirement proposed for all intra-Alberta resources. In Capital Power 's view, it should be no different for external resources. Applying the same offer obligation ensures that all resources compete on a level playing field.
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?	3. Capital Power provides the comments below recognizing that AESO analysis regarding options for flexibility remains ongoing. Elements of the feedback provided may change depending on the findings of the AESO's completed assessment or in the event other interrelated design elements are revised. a. At this time, **Capital Power takes no issue with the CMD1 proposal to require the submission of ramp rates for each offer block**. However, at the February 14th E&AS working group session Capital Power noted that the ramp rate of a capacity resource may differ depending on the direction in which it is ramping. **Should the AESO determine to continue exploring the "ramp by block" design element, Capital Power recommends including "ramp-up" and "ramp-down" as part of offer submissions**. At this time, **Capital Power does not oppose reviewing and potentially adjusting the existing dispatch tolerances**; however, **Capital Power requests that the AESO provide additional information identifying the specific tolerances being considered.** Additionally, **Capital Power requests that the AESO work closely with stakeholders before developing a specific proposal** to avoid implementing changes that are overly restrictive and/or incompatible with the standard operations of a typical generating unit. b. Capital Power does not oppose shorter settlement but would note that previous AESO assessment found that there was limited benefit to shortening the settlement interval from 15 to 5 minutes. Further, the AESO indicated that while 15-minute interval metering data currently exists for all pool assets except retails loads, metering may be a challenge with 5-minute settlement. **Should the AESO proceed with a shorter interval and based on information to date, Capital Power is supportive of 15-minute settlement**.

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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.	c. **Capital Power is not proposing any options for consideration at this time**. d. Advanced dispatches, if determined on a forecast basis, shifts energy production in anticipation of future system and market conditions. This can distort the ahead of real-time market fundamentals and the energy price particularly as a result of forecast error. To mitigate these and potentially other unintended consequences, **Capital Power recommends minimizing the use of pre-dispatch to avoid distorting the real-time energy price and, if necessary, should be employed as close to real-time as possible**. e. The provision of ramping cannot be physically separated from the delivery of energy. Furthermore, all dispatchable resources that have been dispatched in the E&AS market contribute to the overall requirements of the system including the need for ramping. Therefore, it is unnecessary to separately price ramping from energy through the use of a ramp product. For these reasons, **Capital Power recommends that the energy price be preserved as the primary signal for and means of compensating ramping and flexibility**. 4. **Capital Power remains of the view that no changes are required to the AS market at this time**. The sequential procurement of ancillary services recognizes that market participants have the option to offer their available capacity for either the provision of energy or ancillary services. By maintaining the current framework, price formation of these distinguishable products is more transparent and the price signal in each market is maintained. Recent AESO analysis has shown that there are a significant number of hours in which sequential procurement is more efficient than through co-optimization. Any savings that may have been illustrated through co-optimization may have been attributable to the difference in procurement timing rather than the sequence itself.
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?	5. Subject to additional AESO analysis to be completed and details to be provided in upcoming E&AS WG, **Capital Power can accept the proposed *ex-ante* market power screen and mitigation framework**. However, Capital Power notes that some elements of the proposed approach may need to be revised to address implementation-related constraints. In addressing these and other potential issues, Capital Power emphasizes the importance of maintaining the market's ability to signal the need for increased flexibility and competitive responses from things like price-responsive load. In refining the proposed screen and mitigation framework, it is imperative to ensure that the market price is allowed to reflect the true value of energy and incent efficient operational behavior by, among other things, preventing over-mitigation. The AESO appears to recognize this in the CMD1 rationale document. In arriving at the proposed market power mitigation screen for example, the AESO notes that it "…reduces the issues related to false positives." a. As an element of the complete mitigation framework being proposed and based on the information available at this time, **Capital Power can accept the proposed 0.9 RSI.** However, the Brattle analysis used to inform the proposal appears to have been based on historic offer patterns. Therefore, **Capital Power recommends that the Brattle analysis should be updated to reflect future expectations of offer behavior in the E&AS markets. The proposed 0.9 RSI should then be further discussed in light of the updated results.** b. Capital Power understands that the Adjusted RSI formula contains the 'Obligation' variable to account for whether a market participant has the incentive to exercise market power. Though Capital Power agrees with the principle for including this variable, **Capital Power**

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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?	**recommends that the AESO clarify how it intends on measuring 'Obligation' and whether this will include financial and/or physical obligations**. In Capital Power's view, a market participant's incentive to exercise market power will depend on its net portfolio position and is composed of both financial and physical obligations. This; however, requires commercially sensitive data to assess and may present implementation challenges. To this end, **Capital Power recommends that the AESO identify implementation constraints to focus the design of an appropriate solution**. Additionally, the proposed formula does not account for capacity flexibility. Alberta's current fleet possesses, and is likely to continue possessing, significant amounts of capacity designated as minimum stable generation. This is particularly the case for large thermal generating units and co-generation facilities that, in order to avoid the cycling of these assets, offer this minimum stable ("must-run") capacity at $0/MWh to avoid start-up and shut-down costs. Given that these blocks are largely inflexible, including it as part of the RSI calculation without adjustment will overestimate a supplier's ability to exercise market power. **Capital Power recommends that further adjustment to the RSI formula be considered to reflect inflexible capacity and should be discussed at the forthcoming WG session.** c. **Capital Power is concerned about the arbitrariness of administratively setting a threshold for scarcity** when it is inherently a dynamic aspect the E&AS market that can change hourly. As noted in Capital Power's previous feedback during the SAM process, administrative mechanisms are not reliable means of accurately and reliably signaling market fundamentals. With the introduction of the ex-ante screen to supplement the existing ex-post framework, **Capital Power maintains that a scarcity screen is unnecessary so long as E&AS prices are allowed to reflect competitively tendered offers.** d. As an element of the complete mitigation framework being proposed and based on the information available at this time, **Capital Power can accept the conduct threshold at 300% of short-run marginal cost**. However, the Brattle analysis (e.g. Figure 10) contains assumptions regarding the cycling of coal generating facilities that appear to be inconsistent with what has been expressed in the AESO's *Net Demand* Variability study. In further assessing the proposed framework, **Capital Power recommends that the Brattle analysis regarding mitigation be updated to reflect a consistent set of assumptions regarding cycling as well as what appears to be an omission of the cost of emissions. The conduct threshold should then be further discussed in light of the updated results.** e. **Capital Power is supportive of incorporating opportunity costs as part of the formulation of offer thresholds**. Other jurisdictions consider this element to estimate the short-run marginal costs for hydro resources. Additionally, **Capital Power recommends that opportunity costs include fuel constraints as part of establishing the short-run marginal costs of thermal assets.** This would reflect the lost opportunity for having to shift fuel-limited and rationed output from higher to lower priced hours.
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	6. The AESO has expressed that it expects to present additional flexibility analysis and details of a draft roadmap at the next working group session in April. **Capital Power expects that WG participants will have the opportunity to provide feedback on the "Roadmap" shortly**

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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)	**thereafter.** As it relates to the elements that may be delayed, phased in or have otherwise been determined to be out of scope, Capital Power provides the comments below. a. Based on the proposed CMD1 framework, **Capital Power can support the "efficiency pieces" taken out of scope at this time**. b. Based on the proposed CMD1 framework, **Capital Power can support the pricing-related elements taken out of scope at this but notes that these elements may need to be revisited based on the results of ongoing analysis or in the event of material changes** to the CMD framework demonstrating that fundamental flaws exist with the E&AS price whether it be in its formation or ability to incent efficient behavior.

General Comments: Any comments on relevant scope areas of the CMD that are not addressed above
Capital Power is generally supportive of CMD1 and believes that, as an overall framework, the design is largely consistent with fundamental aspects of a well-functioning market. Additionally, it honors the Government of Alberta's commitment to treat existing assets fairly while maintaining a level playing field between new and existing resources. Though the foundational elements are largely constructive, improvements to certain E&AS design elements can be made to ensure energy price fidelity, incent flexibility and maintain a fair, efficient and openly competitive market. In this regard, Capital Power's recommendations are provided above. Capital Power reiterates that the feedback provided above is based on its understanding of proposed CMD1 overall and is subject to change based on potential revisions to the design elements as a result of the remaining development and approval processes.