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: Matthew Davis **Organization:** ATCO

Date: February 27th, 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?	ATCO does not have any comment on this design element at this time.
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?	ATCO does not have any comment on this design element at this time.

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.	ATCO understands the AESO's approach to manage net demand variability (NDV) will be the same as the current process, where the system controller dispatches up and down the merit order, and over-dispatching to achieve the ramp rate required. ATCO has observed that system controllers have been using the energy market merit order (EMMO) to dispatch for ramps, particularly when slower ramping resources are on the margin. These actions, particularly since they are applied inconsistently, can distort the price signal. This issue will be become more apparent with additional intermittent resources on the system along with changes to the relative competitiveness of fuel types in response to increasing carbon costs. Further, under this proposal, the AESO appears to be taking another attribute for reliable operations for granted, without compensation for the performance. As such ATCO suggests that if the AESO truly needs a ramping product(s) then requirements should be determined, and a new product procured; otherwise, price signals will become more distorted due to ramping concerns. In general, ATCO believes that attributes provided for the benefit of the system deserve compensation. While detail is expected prior to the April working group sessions, ATCO understands from the SAM working group process that suggested changes to the dispatch tolerance rules include tightening of the response time to start ramping from 10 minutes to 5 minutes and ramp variance from +/- 40% to +/- 5%. Any rule change must be demonstrated to be achievable by operators, and the AESO should provide tools (by block ramp rates up/down, response times) to facilitate any changes. ATCO looks forward to the AESO's commitment to provide more detail and supporting analysis to fully comment on the reasonableness of the AESO's planned changes. ATCO views the move to 15-minute settlement as reasonable, but would request clarification on whether this change is proposed for the first delivery period, or within the roadmap? Currently, all interval meters are capable of 15-minute settlement, however, investment in additional infrastructure, metering systems, and changes to settlement policies and practices may be required. Moving to 5-minute settlement, as suggested within the session would be significant endeavor which would require investment in meter infrastructure as well as load settlement process changes. ATCO is of the view this issue requires further study and input from those outside the current working group process. Given that other markets are heading towards 5-minute settlement, ATCO would suggest that these discussions begin as part of the roadmap discussions. Overall, suppliers should be naturally incented to move quickly to dispatch levels (e.g. through shorter settlement intervals, payments to suppliers on the margin). Further, generators should not pay a compliance price for wind/solar being on the system as would be the case if dispatch tolerance bands are tightened too far.

CMD Key Design Questions	Comments and / or Recommendations
	ATCO is looking forward to further detail, discussion, and consultation on the use of security constrained economic dispatch (SCED). Optimization look ahead and pre-dispatch should consider the lead time of assets available to the system controller, as such should consider as far out as T-24 hrs to develop a view of requirements for the system. This is particularly valuable for a large proportion of the capacity available to the AESO which, while historically may not have been viewed to be long-lead time, could be long-lead time in the future due to increased cycling as a result of NDV. ATCO expects further detail in advance of the April working group sessions and reserves the right to clarify our responses in response to the additional detail during that consultation period.

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?	ATCO is of the understanding that there will be more detail provided on the market power screens and test in advance of the forthcoming April working group sessions. As such we plan on commenting in full once all the details are presented, particularly with respect to the yet to be determined scarcity screen. In response to the specific questions: a. ATCO is still uncertain on whether a 0.9 RSI is the appropriate test and appropriate level at which the screen should be set. b. In the revised formula, the addition of the obligation term may be untenable, as ATCO does not understand how obligations would be captured by the AESO. c. ATCO requires detail before providing comment on the scarcity screen. Without this screen, ATCO views the potential for the framework to result in the perverse outcome with lowering prices as the market tightens. d. ATCO is concerned that under this framework, the three times marginal cost threshold may not reflect recovery of start-up, no-load, and fuel transportation costs (which can vary and be scarce). Further the methodology could result in some absurd outcomes should input costs be low / negative. As such ATCO suggests that a floor be put in-place as well. e. ATCO notes that all resources may have opportunity costs associated with operations (environmental permitting, emission caps, limited operational availability, fuel supply constraints) and there is no justification to specifically exclude thermal resources from having the ability to support and defend opportunity costs. For imports, ATCO is supportive of the suggestion in the working group session to have a linkage to external price points. Requirements for units based on opportunities costs should not lead to perverse outcomes (such as requiring limited supply to operate in advance of the tightest periods).

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)	ATCO continues to believe that the AESO is in the best place to perform unit commitment, particularly as the grid evolves to include additional intermittent resources, and changing resource mix. Further the AESO has indicated that unit commitment could result in $100-$150 M in production cost savings for the system in 2025, and an estimated savings of approximately 0.5 MtCO2e in 2025 through more efficient dispatch of long-lead time units (coal, coal-to-gas) which typically have higher emissions,[1] but are low cost capacity for consumers. As such ATCO believes that the AESO should continue to evaluate unit commitment though the roadmap process. ATCO believes that the risk of penalties for non-performance in the capacity market should be symmetric with the opportunity to earn energy and capacity revenue. With potential performance penalties exceeding $1,000/MWh, closing off discussion on price cap and shortage pricing is pre-mature. ATCO believes that there is reason to warrant continued discussion on price cap, and shortage / scarcity pricing to ensure that the energy market incents the flexibility necessary to integrate increasing levels of variable generation, and provide efficient signals for demands to reduce consumption. Plus, the risk of scarcity and shortfall prices encourages forward market participation for energy which could be muted through mitigation in the energy market.

[1] Based on estimates made through the AESO's posting Commitment Modelling - EAS Group 20180214_f addendum.pdf.

General Comments: Any comments on relevant scope areas of the CMD that are not addressed above
There is an increased need for sufficient information in the market to make accurate business assumptions and decisions, this is heightened by the continued self-commitment model proposed in CMD 1. ATCO proposes the following considerations: AESO modelling/publishing of supply and demand expectations, the replacement of a historic trading report (or similar publication) should be revisited in renewed context, also there may be interest in extending the price forecast to 6-hr or day ahead. With respect to the market power mitigation approach, ATCO expects that the AESO will further clarify the mechanics. Will tests be run at T-3 and then self-mitigated, or will AESO mitigate once locked in? In general, ATCO remains concerned that the combination of choices made in the CMD1 still requires adjustments to have an effective capacity market that "works efficiently with the energy and ancillary service markets." There needs to be a balance of risks and rewards and the current model appears to be biased to risks and penalties. ATCO is looking forward to continuing to evolve the market design through the working groups and remaining CMD versions. Based on commitments made in the working group sessions in February, ATCO expects a number of outstanding design details to be provided in advance of the April sessions.