

January 10, 2022

To: The Market Surveillance Administrator, market participants and other interested parties
("Stakeholders")

Re: **Stakeholder Comments on Letter of Notice for Additional Feedback from Stakeholder Consultation Session on the Operating Reserve Market Review ("Operating Reserve Market Review")**

The Alberta Electric System Operator ("AESO") received comments from Stakeholders in response to its December 1, 2021 *Letter of Notice for Additional Feedback from Stakeholder Consultation Session on the Operating Reserve Market Review*. These comments have been posted on the AESO website.

Comments were received from the following Stakeholders:

1. BluEarth Renewables Inc.;
2. Campus Energy Partners;
3. Canadian Renewable Energy Association;
4. Capital Power Corporation;
5. Enel North America;
6. Enfinite Power;
7. ENMAX Corporation;
8. Greengate Power Corporation;
9. Heartland Generation Ltd.;
10. Independent Power Producers Society of Alberta ("IPPSA");
11. Market Surveillance Administrator;
12. Millar Western Forest Products Ltd.;
13. Suncor Energy Marketing Inc.;
14. The Office of the Utilities Consumer Advocate;
15. TransAlta Corporation;
16. TransCanada Energy Ltd.;
17. URICA Asset Optimization Ltd.;
18. Versorium Energy Ltd.; and
19. Voltus Energy Canada.

All Stakeholder comments received can be found on the Stakeholder engagement page on the AESO website at www.aeso.ca. Follow the path Stakeholder engagement > Rules, Standards and Tariff > Operating Reserve Market Review.

Thank you to all Stakeholders who participated in this part of the Operating Reserve Market Review process. The AESO will take all comments received into consideration during the development of the Operating Reserve Market Review.

If you have any questions, please submit them to rules_comments@aeso.ca

Sincerely,

Jodi Marshall

Legal Manager, ISO Rules and Alberta Reliability Standards
Legal and Regulatory Affairs
rules_comments@aeso.ca

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: BluEarth Renewables</p> <p>Date: 2022/01/06</p>	<p>Contact: Roslyn McMann</p> <p>Phone: Contact Phone Number</p> <p>Email:</p>
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Instructions:

1. Please fill out the section above as indicated.
2. Add your feedback to the following comment matrix.
3. Email your completed comment matrix to rules_comments@aeso.ca.

Information from the slide deck presented during the Stakeholder session and available on aeso.ca may provide additional information that will be helpful in completing the below matrix.

	Questions	Stakeholder Comments
1	The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.	AESO’s historical analysis and finding that the market is highly concentrated for a limited number of players now does not consider how this could change with storage being added more regularly for example in a high renewables scenario and potential scenarios in pathways to decarbonization of the electricity grid. As such, we suggest that AESO provide a more forward looking analysis on how addition of storage (via LTO and more aggressive net zero scenarios) as well as future DER participation (that meets current thresholds) could affect future OR market.
2	Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.	The purpose and scope of the initiative are clear.
<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p>		

	Questions	Stakeholder Comments
	<p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>	
3	Equilibrium pricing & AESO bid price	<p>BluEarth supports the simplified pricing structure proposed by the AESO.</p>
4	Standing offers	
5	Offer transparency	<p>BluEarth supports the changes to offer transparency as proposed by the AESO.</p>
6	Minimum qualification & offer size	<p>BluEarth does not support the change to minimum qualification and offer size at this time, and per comments in #1, we feel additional forward looking analysis is required.</p> <p>BluEarth has concerns about lowering the threshold as we think reducing the minimum qualification will flood the market and will cannibalize revenue opportunities for storage by lowering the clearing marginal price (or equilibrium price) which will reduce overall revenue opportunities. Even without the revenue cannibalization, smaller project economics will suffer from loss of scale.</p>
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on</p>	



	Questions	Stakeholder Comments
	the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)	
8	Do you have any feedback on the AESO's proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?	
9	Do you have any additional comments?	

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<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: Campus Energy</p> <p>Date: [2022/01/07]</p>	<p>Contact: C Hughes</p> <p>Phone: 587-323-3750</p> <p>Email: Cameron.hughes@campusenergy.ca</p>
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2	Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.	
<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>		

	Questions	Stakeholder Comments
3	Equilibrium pricing & AESO bid price	If the AESO is concerned about ensuring it has sufficient reserves, a higher bid cap might make sense, but it doesn't seem the AESO is having a problem in procurement.
4	Standing offers	Campus doesn't see a problem in allowing for a standing offer to be made, but it submits that a standing offers should be voluntary. There should be a “good until date” feature for standing offers.
5	Offer transparency	<p>As a small market participant Campus Energy suggests that reasonable market outcomes and equilibrium prices could result even in the absence of offer transparency. Bid prices alone could be sufficient to inform participant offers.</p> <p>Removing offer transparency might result in a greater mix of market participants <i>striving</i> to form an OR index price, but with current concentration levels Campus Energy wouldn't expect the removal of offer transparency to have a meaningful long run impact on incentives, offer behaviour, average OR indices, OR market shares or total cost of OR.</p>
6	Minimum qualification & offer size	Technology and AESO systems should allow for any market participant capable of offering ~1 MW or more. Payments to aggregators reduce the incentive to participate in the market for the smallest market participants. Diversifying the procurement of OR among additional small resources could have reliability benefits.
7	<p>Are there in-scope elements of the market design that have not been identified in either 'group 1' or 'group 2' that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The 'group 2' design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared</p>	

	Questions	Stakeholder Comments
	before collecting fulsome feedback on these design elements.)	
8	Do you have any feedback on the AESO's proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?	Timing of future sessions may benefit from consideration of other AESO initiatives that have some bearing on OR. (e.g. frequency/MSSC).
9	Do you have any additional comments?	

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: Canadian Renewable Energy Association</p> <p>Date: 2021/01/07</p>	<p>Contact: Leonard Olien</p> <p>Phone: 587-971-0049</p> <p>Email: lolien@renewablesassociation.ca</p>
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2	Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.	The purpose and scope of the initiative are clear.
<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>		

	Questions	Stakeholder Comments
3	Equilibrium pricing & AESO bid price	CanREA supports the simplified pricing structure proposed by the AESO.
4	Standing offers	
5	Offer transparency	CanREA supports the changes to offer transparency as proposed by the AESO.
6	Minimum qualification & offer size	CanREA supports the change in minimum capacity to 1 MW. The change will increase competition by allowing smaller existing resources to participate in the OR markets and also reduce the barrier to entry for new resources as a smaller capital investment will be required before considering the opportunity to earn revenue from OR markets.
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	<p>Given the small excess offer volumes for Active RR (slide 33), the AESO should consider the ability for certain energy storage technologies to provide RR while charging. Not all storage technologies are technically capable of providing RR while charging, but some are. This extension will increase the volume of capacity available to participate in the RR market while also extending the period of time over which such a storage resource could provide RR.</p> <p>The AESO may need to evaluate certain internal processes to enable a charging storage resource to provide RR and this evaluation should be done as part of ‘group 2’.</p>
8	Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?	
9	Do you have any additional comments?	

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: Capital Power</p> <p>Date: 2022/01/07</p>	<p>Contact: Megan Gill</p> <p>Phone: 403.827.3566</p> <p>Email: mgill@capitalpower.com</p>
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	Questions	Stakeholder Comments
1	<p>The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.</p>	<p>Capital Power appreciates the opportunity to provide feedback as part of the AESO’s OR Market Review engagement process. While Capital Power believes it’s prudent to review the OR market to ensure the market is efficient, we have some concerns with respect to scope and timing of the review considering there are broader market changes and initiatives underway that impact the OR market and it may be more efficient and effective for the AESO to conduct a comprehensive review of the OR market once these have been completed. Please see responses to Questions 2 and 8 below for further details.</p> <p>In the stakeholder session, the AESO referred to conclusions it made in its Market Power Mitigation Advice to the Minister of Energy (2019) and two participant surveys that were conducted regarding limited OR participation (2020) as some of the historic observations that motivated this OR Market Review. In Capital Power’s view, more specific details are needed from the AESO regarding these sources of historical observations and analysis for stakeholders to better understand the issues and potential solutions. For example, it would be helpful for stakeholders to have more detailed information about the survey results to better understand the reported barriers to entry to be able to assess if and</p>

	Questions	Stakeholder Comments
		<p>how the proposed alternatives address the AESO-identified problem(s).</p> <p>Instead of relying solely on historical observations, the AESO's analysis should include forward-looking aspects to ensure any changes made as part of the review are prudent on a go-forward basis. In Capital Power's view, the AESO should update its analysis to reflect more recent data given the Market Power Mitigation Advice to the Minister of Energy report was produced two years ago. It doesn't make sense to implement changes to address yesterday's problems if tomorrow they don't exist or are fundamentally different.</p> <p>It would also be helpful to understand what the AESO's benchmark is for efficiency in the OR market. For example, the AESO stated in the 2019 report to the Minister that market concentration is a concern, but it is unclear what the AESO believes to be the appropriate threshold in the OR market. Capital Power is concerned that the AESO is overstating the problem of market concentration and the risk of market power by inappropriately applying the concentration ratio that it uses to evaluate market power in the energy market to the much smaller OR market.</p>
2	<p>Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.</p>	<p>The purpose and scope are clear to the extent that Capital Power understands that the AESO is assessing opportunities to enhance competition and price fidelity in the existing OR market to improve efficiency. However, more clarity is needed from the AESO to understand how this review fits in with other related initiatives including the AESO's review of grid reliability, the evaluation of MSSC, the revenue sufficiency assessment, and recently announced work on pathways to net-zero emissions. The AESO should also contemplate and provide a multi-year roadmap of how this OR Market Review fits into the AESO's long term outlook of increased intermittent supply on the grid.</p>

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	<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>	
3	Equilibrium pricing & AESO bid price	<p>There should be further analysis completed to demonstrate if and how removing equilibrium pricing and clearing the market at the marginal offer would reduce complexity and reduce barriers to entry. While Capital Power is not opposed at this time to the AESO’s proposed alternative, we are not convinced that this is a significant barrier to entry or that competition or price fidelity would be enhanced with the proposed changes.</p> <p>If the AESO replaces the bid price with a publicly disclosed price cap, the price cap would need to be set at a level high enough to ensure bids are cleared even in extenuating circumstances. Further evaluation and stakeholder engagement would be required to establish the appropriate cap. As part of this evaluation, the AESO should consider a price cap that is equal to and moves with the energy price cap.</p>
4	Standing offers	Capital Power is not opposed to the proposed voluntary standing offer at this time.
5	Offer transparency	Capital Power is not opposed to the proposed move to a sealed-bid format.
6	Minimum qualification & offer size	Capital Power is generally supportive of reducing barriers of entry and allowing smaller resources to participate in the market. However, more analysis is needed from the AESO to demonstrate and quantify the impact of this change on competition and

	Questions	Stakeholder Comments
		<p>efficiency of the market. The AESO should carefully consider and evaluate the potential for reliability and efficiency concerns with having many small participants potentially in non-compliance and ensure appropriate mitigations are in place.</p> <p>More analysis is needed to understand the risks and benefits of changing the dispatch tolerance to 5% for all assets. An evaluation of other dispatch tolerance scenarios would also be helpful. Capital Power supports enhanced competition in the market as long as it does not result in an unlevel playing field or inefficient market outcomes.</p> <p>Capital Power would like to understand to what extent the AESO has considered and evaluated aggregation as an alternative (ie. require units <5MW to aggregate keep the minimum qualification and offer size as it is today).</p>
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	<p>Capital Power would like to better understand how the AESO has evaluated barriers of entry specific to energy storage resources for participating in the OR market (and specifically the regulating reserves market). The AESO should evaluate potential enhancements to the market as part of this review to ensure that energy storage technologies are able to participate fully and increase competition and market efficiency.</p>
8	<p>Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?</p>	<p>Capital Power proposes that the AESO could postpone the bulk of this consultation until a later date when more information is known about the need for new OR products (and/or increased volumes of OR) coming out of the grid resiliency and reliability initiatives, the evaluation of its MSSC, and its consultation on net-zero emissions pathways. Capital Power is not opposed to the AESO making enhancements in the near-term if it is clearly demonstrated that efficiency would be improved in the OR market. At this time, it</p>

	Questions	Stakeholder Comments
		<p>appears many of the alternatives proposed by the AESO do not materially enhance efficiency and are not worth the effort of ongoing stakeholder engagement compared to other priorities in the market.</p> <p>To proceed with any OR market changes, as mentioned in the responses above, Capital Power submits that more information and analysis is needed from the AESO to demonstrate how the proposed alternatives improve market efficiency. There should be a clear definition of the problem(s) (including more comprehensive analysis and specific examples) to inform appropriate solution(s). Specifically, the AESO should specify and quantify the problem related to both competition and price fidelity, define what it believes would be an efficient outcome, and specify and quantify how the proposed alternatives would address the problem(s) and result in an efficient outcome. This would help stakeholders to better understand the value of moving forward with the proposed changes at this time or if it would be more efficient to hold off for a broader stakeholder engagement process where this review of the OR market is contemplated as part of a more comprehensive evaluation of existing and potentially new ancillary service products.</p>
9	Do you have any additional comments?	<p>Capital Power would like to understand if the AESO is considering potential red tape reduction opportunities as part of this review. For example, will the AESO be reviewing its approval process for assets to participate in the OR market to identify any potential opportunities for streamlining the process?</p>

Period of Comment: December 1, 2021 through January 7, 2022	Contact: Sarah Griffiths
Comments From: Enel North America (Enel X, Enel Green Power, Energy and Commodit Management)	Phone: (416) 697-3744
Date: [2021/01/07]	Email: Sarah.griffiths@enel.com

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1	The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.	
2	Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.	Enel North America (Enel) supports the purpose and scope of the initiative to review the Operating Reserve Market. Enel supports enhancing competition and price fidelity in the existing OR market to improve efficiency.
<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific</p>		

	Questions	Stakeholder Comments
regarding the methodology and assumptions that would be applied.		
3	Equilibrium pricing & AESO bid price	Enel supports the proposal.
4	Standing offers	Enel supports the ability to submit standing offers.
5	Offer transparency	Enel supports the proposal to align OR offer disclosure with the energy market offer disclosure.
6	Minimum qualification & offer size	<p>Enel supports the proposed reduction in minimum qualification and offer size to 1 MW and the dispatch tolerance to 5% for all assets. Enel X has long advocated for a reduction in minimum qualification and offer size to enable cost effective, reliable MW to participate in OR. This proposed reduction will meet the purpose of this engagement to enhance competition in the OR market.</p> <p>During the engagement session, AESO agreed to provide technical information on the ability to move to a 1 MW minimum. Enel requests that this include information on why a move to 100 kW is not being proposed. Numerous other jurisdictions, including the open wholesale markets in the US (PJM, ERCOT, ISO-NE, NY-ISO) now have 100 kW minimum participation size.</p>
7	Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and	Enel recommends that a re-evaluation of the need for real-time SCADA data be included in the OR market review. By allowing for different metering infrastructure, the OR program would be more

	Questions	Stakeholder Comments
	<p>assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	<p>accessible to different resource types and sizes. Currently data for participants in OR is sent in real-time to the AESO. However, the same data could be provided to the AESO after-the-fact weekly, monthly and/or following an event. Data in real-time is not a requirement for similar OR programs in ERCOT and PJM.</p> <p>Enel recommends that the ability to connect to the AESO via a ‘cloud/internet-based RTU’ for higher-reliability products. It is Enel’s experience that an internet-based connection is as reliable as a dedicated on.</p> <p>Enel recommends that the AESO review an increase to the lead time for response beyond the 10 minutes. A 30 minute response time has enabled additional resources to participate in OR markets in other jurisdictions.</p>
8	<p>Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?</p>	<p>Enel supports the proposed Path Forward for this engagement however would be willing to move up the 2nd and 3rd sessions to enable rule drafting to commence in Q2 to ensure implementation in 2022.</p>
9	<p>Do you have any additional comments?</p>	<p>For over 20 years, Enel has been a renewable energy leader and innovator in the United States and Canada. Our goal is to help companies and communities create value in sustainability. We are driving toward a decarbonized future through our Enel Green Power, Enel X, and Energy & Commodity Management business units, each providing a spectrum of energy products and services to businesses, utilities, municipalities, and other commercial energy users, as well as private electric vehicle charging.</p>

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: Enfinite Power</p> <p>Date: 2022/01/07</p>	<p>Contact: Jessica Halland</p> <p>Phone: 403-615-7594</p> <p>Email: jhalland@enfinite.com</p>
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	Questions	Stakeholder Comments
2	<p>Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.</p>	<p>Although the purpose of the OR Market review is clear, the scope of these suggested market alternatives does not seem to address the larger issues that affect the current market. Further conversations concerning what enhancing competition and price fidelity entails need to be addressed.</p> <p>It is also unclear as to whether or not these market changes are prudent and in the best interest of all affected parties as there are significant proposed technological, environmental and legislative changes that will have a direct impact on the current structure of the OR Market that need to be addressed and defined prior to this review.</p>
<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>		
3	<p>Equilibrium pricing & AESO bid price</p>	<p>Although this proposed change enables more competition by simplifying the offer strategy, this is likely not advantageous to a more established trading operation. This is likely to drive the price further down in a market that is already struggling to remain competitive in comparison to the energy market. This will likely cause less participation and competition in the OR Market.</p>
4	<p>Standing offers</p>	<p>Enfinite submits that there is a risk to reliability of the grid if smaller participants don’t get contracts consistently and abruptly receive a contract without being prepared to offer. This is also likely to create more compliance issues for smaller participants in terms ensuring compliance of AESO rules and keeping on top of changes to rules</p>

	Questions	Stakeholder Comments
		and regulations.
5	Offer transparency	Enfinite is opposed to removing information as it does not aid in a healthy and competitive market. A 60-day lag in information is not helpful to market participants and does not prevent participants with a larger market share from continuing to have superior visibility in regard to market behaviour.
6	Minimum qualification & offer size	Although Enfinite has no specific concerns about this proposed market design alternative, there should be a minimum capital threshold to ensure that all market participants have the resources to offer in when awarded a bid. There is a great risk to reliability of the grid if this is a frequent occurrence and undermines the purpose of operating reserves. There are also concerns regarding underperformance of smaller units with less dispatch tolerance and the impact that may have on reliability.
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	
8	Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?	As mentioned previously, there are issues with the timing of this engagement process as there are significant engagement and studies scheduled for 2022 that will have a material impact on the outcome of this particular review. As new technology drives new products to market, there will likely be required changes to facilitate these new products. Enfinite suggests that the AESO place the OR Market Review on hold until it is clear what changes need to be

	Questions	Stakeholder Comments
		implemented to ensure that this market can accommodate these new products.
9	Do you have any additional comments?	<p>Enfinite reiterates that the AESO has not provided sufficient data of its own to justify its suggested market design elements and they don't sufficiently address the above-mentioned issues. Further, none of the design alternatives proposed in the initial group seem to have a material impact on the market and, therefore, there is no justification for this review to occur at this time as it is costly and burdensome on stakeholders and regulators.</p> <p>The AESO also needs to gain a better understanding of barriers of entry for new technologies, such as battery storage, to ensure that the OR Market is attractive enough for these units to participate in this market.</p>

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: ENMAX Corporation</p> <p>Date: 2022/01/07</p>	<p>Contact: Mark McGillivray</p> <p>Phone:</p> <p>Email: MMcGillivray@enmax.com</p>
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	Questions	Stakeholder Comments
1	The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.	The motivation for the AESO’s review appears to be the recent increase in AS procurement costs to the AESO. Rather than looking at the absolute cost, it may be more appropriate to look at an index to pool price given market participants offer AS based on opportunity cost. With power prices rising, carbon taxes and the reality of an increase in intermittent resources in Alberta, it is logical that AS procurement costs will follow suit.
2	Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.	At this point the purpose of the initiative remains unclear and limited in scope. As acknowledged by the AESO, at the highest level the existing market is functioning and costs are in line with expectations, therefore it does not appear that any significant change to the existing OR market is required at this time.

Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.

Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.

Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?

	Questions	Stakeholder Comments
	<p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>	
3	Equilibrium pricing & AESO bid price	<p>Further analysis would be required to understand how removing the equilibrium price would result in notable improvements to the existing OR market.</p> <p>Per slide 35 of the AESO’s presentation, the AESO indicated that SR activation prices are too high and should not be occurring frequently as providers do not incur their full marginal cost of energy. This appears to be an incorrect assumption and should not be used as a reason to make changes to the market, given market fundamentals (e.g., PPA expiries, carbon tax increases) are what has been driving current prices, not the market structure itself.</p>
4	Standing offers	<p>Current AS offer requirements as they currently stand are not overly burdensome, lengthy or complex, and are unlikely to act as a barrier to participation. Standing offers may increase errors and non-performance.</p>
5	Offer transparency	<p>Offer transparency should be maintained as it is today and some additional ex-post reporting could be a benefit to the market.</p>
6	Minimum qualification & offer size	<p>Regardless of the minimum offer size, a level playing field should be maintained and all market participants participating in the OR market should be subject to the same requirements and rules.</p> <p>Any move towards aggregation should be based on a robust cost/benefit analysis. As it is, there is no shortage of offers or participants in the AS market. The added AESO IT infrastructure and systems to enable smaller participants or aggregation may be costly without suitable benefits to the market.</p>
7	Are there in-scope elements of the market design that have not been	No comment at this time.

	Questions	Stakeholder Comments
	<p>identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	
8	<p>Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?</p>	<p>ENMAX requires further clarity on how the AESO’s OR Market review will fit with other interrelated initiatives currently being undertaken by the AESO such as its consultations on MSSC and Energy Storage rules.</p>
9	<p>Do you have any additional comments?</p>	<p>None.</p>

Stakeholder Comment Matrix – December 1, 2021
Additional Feedback from Stakeholder Consultation Session on the on the Operating Reserve
Market Review (“Operating Reserve Market Review”)



<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: Greengate Power Corporation</p> <p>Date: 2022/01/07</p>	<p>Contact: Scott Perry</p> <p>Phone: 403.519.6194</p> <p>Email: scott@greengatepower.com</p>
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	Questions	Stakeholder Comments
1	The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.	The historical analysis that was provided by the AESO made observations about the general market function of Operating Reserves. Specific analysis of the historical, existing, and scenario predictions for market prices and competition may make it clearer to participants how to reach better competition level and enhance price fidelity with respect to the specific proposed changes being evaluated.
2	Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.	If the equilibrium price method is modified as proposed, how will the AESO deal with the market power on the buy side? The AESO states that:” There are instances where the structure, conduct and performance of the OR market has not delivered competitive outcomes”. Can the AESO provide specific examples of this?

	Questions	Stakeholder Comments
	<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>	
3	Equilibrium pricing & AESO bid price	Generally, there does not appear to be a problem with the equilibrium pricing and its calculation method. If the AESO believes it causes undesired outcomes, these outcomes should be explained and examples provided. Unless specific undesired outcomes can provide context to the problem, Greengate is supportive of the continuation of the equilibrium price method.
4	Standing offers	While we do not understand how standing offers would impact competition or price fidelity in the OR markets, having an option for standing offers may simplify the offer process for some participants Greengate does not oppose this initiative.
5	Offer transparency	Changes to bid practices identified will likely make little difference since all offers are submitted on a last minute basis, replicating the outcome of sealed bids. Sharing all bid data ex-post as soon as possible is supported by Greengate and we would encourage the AESO to consider daily/weekly frequency as opposed to the proposed 60 days.
6	Minimum qualification & offer size	While we do not understand the size of the potential OR market participants between 1MW-5MW Greengate does not oppose a 1

	Questions	Stakeholder Comments
		MW as the minimum offer size provided they meet the relevant criteria for offer and can be reliably directed.
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	Greengate has no comment at this time.
8	Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?	While alignment of these changes with broader topics such as MSSC may prove a more effective use of resources, Greengate supports the general timelines outlined by the AESO. Greengate supports an expeditious review and timely proposal of updated proposed rules to the AUC.
9	Do you have any additional comments?	In the Standby market, participants face an opportunity cost to providing the service (if the pool price exceeds the strike price). Therefore, it makes sense that participants would require a premium for this risk.

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: Heartland Generation Ltd. (“Heartland Generation”)</p> <p>Date: [2022/01/07]</p>	<p>Contact: Kurtis Glasier</p> <p>Phone: (587) 228-9617</p> <p>Email: Kurtis.Glasier@heartlandgeneration.com</p>
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	Questions	Stakeholder Comments
1	<p>The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.</p>	<p>Heartland Generation is concerned that the proposed alternatives have not been justified and may not be aligned with the stated purpose. The AESO has not identified the need to make changes to the Operating Reserve (OR) market at this time. Changes should not be made for their own sake, and the proposed alternatives need to measurably “enhance competition and price fidelity in the existing OR markets”.</p> <p>Alberta’s OR market continues to function. This is partially shown by how the OR costs closely follow the energy price; despite a higher concentration ratio, there has not been a small but significant and non-transitory increase in price (SSNIP). Even with the anticipated return of the Hydro PPA the overall function and efficiency of the OR market was not impacted. Further analysis on the OR market performance and alleged inefficiencies would need to be conducted to justify significant changes, like some of those being proposed. This should include a more robust analysis of the competitive landscape of the OR market; for example, the concentration ratio analysis is incomplete and may mislead conclusions about market efficiency.</p> <p>Therefore, without further analysis being provided, Heartland Generation recommends that changes to the OR market be shelved until the more pressing and active consultations have concluded. The frequency response and Most Severe Single Contingency (MSSC) review consultations have the potential to impact the overall OR market design and product definitions.</p>

	Questions	Stakeholder Comments
		<p>These inter-related consultations will necessarily impact the discussions/outcomes. This may lead to futile or redundant effort from the AESO and/or stakeholders should all of these consultations proceed in parallel. Stakeholders can more effectively comment on proposed alternatives when other related areas of the market have discussed/settled.</p>
2	<p>Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.</p>	<p>As above, the purpose and scope of this initiative appear disjointed from the other active AESO consultations. The frequency and MSSC consultations could result in new products or changes to the OR market which have the potential to frustrate or make redundant some of the proposed alternatives being discussed in this engagement.</p> <p>Heartland Generation is not convinced that the proposed changes to the OR market are necessary at this time. Therefore, acknowledging the other active consultations, at a minimum the OR market review should be deferred. The AESO should consider how the OR market review fits into larger consultations like the Net-Zero Emissions Pathways, Energy Storage and Distributed Energy Resources roadmaps.</p>
<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>		
3	<p>Equilibrium pricing & AESO bid price</p>	<p>It is not clear how this proposed alternative relates to better OR market outcomes, specifically how efficiency will be improved.</p> <p>If the AESO removed its bid price, then a higher bid cap could be more reflective of anticipated market conditions. This may provide further alignment between allowing the market price to be accurately reflected, WECC procurement requirements, and the AESO acting as the sole buyer.</p>

	Questions	Stakeholder Comments
4	Standing offers	<p>Heartland Generation is not clear on the details of this proposal, nor how the introduction of standing offers would increase participation in the OR market without corollary risks to the delivery of that product. For example, if a prospective participant is not active in the OR market due to the complexity of offer submission, a relatively low sophistication requirement, are there concerns that the participant will be able to reliably deliver the required products when called upon. However, with this concern in mind, Heartland Generation is not generally opposed to the introduction of standing offers.</p>
5	Offer transparency	<p>Competitive markets thrive through universal access to timely and reliable information. Heartland Generation supports participants being able to access market information shortly after the market clears, as is the current process.</p> <p>Further, the move toward a sealed bid auction would decrease transparency and increase complexity (e.g., as it increases participant forecasting requirements and market assumptions). This increased complexity may act as a barrier to entry for smaller participants. This would appear contrary to the purpose of these changes to increase participation in the OR market.</p>
6	Minimum qualification & offer size	<p>This proposed change and its potential alignment with other market rules needs further analysis and examination. As currently proposed, Heartland Generation has concerns over level-playing field between OR providers based on asset size. All participants delivering the same OR product need to be treated the same by the system controller in terms of activations, expected performance, and dispatch compliance.</p> <p>During the AESO’s Grid Reliability and Operational Preparedness sessions, it was identified that some small distribution participants were unable to provide reliable frequency response due to their location on UFLS feeders. Lowering the minimum qualification size for OR products could potentially increase the participation from small DERS that may run into a similar delivery problem regarding OR. Heartland Generation is interested in the analysis that the AESO has conducted regarding performance and compliance of small assets in providing reserves, specifically considering scenarios similar to the identified frequency response problem.</p> <p>It would be helpful for the AESO to produce analysis showing activation data</p>

	Questions	Stakeholder Comments
		<p>for different contract/asset/technology sizes; and any further analysis to ensure that dispatch for the same product does not contain bias. This would give stakeholders greater confidence that lowering the minimum qualification size maintains a level playing field. If assets of varying sizes are not receiving similar treatment through activation, then the argument can be made they are not providing the same “product”. Depending on the outcome of this analysis, and feedback received from stakeholders, a further OR product definitions consultation may be warranted.</p> <p>Aggregation may increase small asset participation in the OR market and allow system controllers to rely on aggregators to the same extent as large assets to provide OR. The AESO should explore whether the framework allows for the efficient level of aggregator participation.</p>
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	<p>As stated above, Heartland Generation does not feel consultation on Group 1 market design changes should proceed at this time. As such, the AESO should further delay any discussion on Group 2 changes until such a time that all other AS market consultations have concluded.</p>
8	<p>Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?</p>	<p>The AESO should defer this consultation until the other directly related consultations, MSSC and frequency response, have concluded. At that time and with the results of those consultations, the AESO should provide analysis supporting the alleged inefficiencies of the current competitive OR market. Further, the AESO would need to provide evidence showing how each of the proposed alternatives will address the stated purpose of this consultation, a measurable and discernible increase in competition. This justification needs to include the costs and expected efficiency or value</p>

	Questions	Stakeholder Comments
		gained for each alternative.
9	Do you have any additional comments?	Heartland Generation recommends that the AESO implement greater transparency when it directs assets to provide contingency reserves. The current framework does not provide market participants with the understanding of which assets are being actively dispatched.

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: IPPSA</p> <p>Date: [2022/01/07]</p>	<p>Contact: Evan Bahry</p> <p>Phone: 403-669-8664</p> <p>Email: Evan.Bahry@IPPSA.com</p>
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	Questions	Stakeholder Comments
1	The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.	<p>We remain concerned that this initiative has not been well justified. Furthermore, we are concerned that OR matters will now progress in piecemeal with this exercise being undertaken while other OR matters – namely Most Severe Single Contingency and a 2022 flexibility study – are not yet complete.</p> <p>We recommend that the AESO conduct this review only after the other OR-related matters are complete, and then take a comprehensive rule change to stakeholders for consultation and then the Alberta Utilities Commission.</p> <p>As the AESO has indicated, Alberta’s OR market is functioning. The AESO is able to procure the volumes it needs. OR prices have trended with Energy Market prices. For a number of reasons, OR remains a unique subset of Alberta’s electricity market and that uniqueness may explain the composition of the participants in it.</p>
2	Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.	As above, it is not clear how this initiative will fit with other imminent OR-related work (e.g. frequency/MSSC). We’re concerned that this OR review will end as a future consultation on new OR products may begin. As such, we’d recommend that this initiative be deferred until a comprehensive set of rules can be taken to

	Questions	Stakeholder Comments
		stakeholders for consultation and then to the AUC.
<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>		
3	Equilibrium pricing & AESO bid price	One suggestion is for a higher bid cap (one that would be high enough to consider all market conditions.) This may alleviate the concern that the AESO is a forced buyer and also provides a bid price. Even so, we don’t understand how this proposed change will lead to measurable improvements in OR outcomes.
4	Standing offers	Generally, we’re not opposed to this idea. But we’re also not clear what this will achieve, especially if the mechanism is to include a ‘stale date’ within the offer. Such a mechanism suggests that the provider will need to follow the market anyway. Can the AESO quantify how many MWs it believes a standing offer will enable?
5	Offer transparency	<p>Participants are opposed to removing market information. Markets perform better when they are information rich. Offer information should be provided to the market shortly after the market clears, not 60 days after.</p> <p>We would note that less transparency increases the complexity of forming bids and that would act as a barrier to competition.</p>
6	Minimum qualification & offer size	We would note that with smaller bid blocks, the AESO will require more effort to ensure compliance. We leave that with the AESO to

	Questions	Stakeholder Comments
		<p>consider.</p> <p>We would also ask the AESO not craft rules in such a way that tips the playing field or that seeks a given market outcome. Rules should favour neither large nor small providers. Proper rules should enable an equality of opportunity for both.</p> <p>Alternatively, the AESO may wish to examine barriers to aggregators participating in the OR market, who can coordinate the participation of blocks of smaller-sized providers.</p>
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	
8	<p>Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?</p>	<p>As above, it is not clear how this initiative will fit with other imminent OR-related work (e.g. frequency/MSSC) We’re concerned that this OR review will end as a future consultation on new OR products may begin. As such, we’d recommend that this initiative be deferred until a comprehensive set of rules can be taken to the AUC.</p>
9	<p>Do you have any additional comments?</p>	<p>We’d recommend greater transparency from the AESO when it directs assets on for contingency reserves. Participants would appreciate understanding which asset was directed on and why. Perhaps the pattern of such directives may inform future changes to the OR market.</p>

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: Market Surveillance Administrator</p> <p>Date: 2022/01/07</p>	<p>Contact: Mark Nesbitt</p> <p>Phone:</p> <p>Email: Mark.nesbitt@albertamsa.ca</p>
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	Questions	Stakeholder Comments
1	The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.	The MSA does not currently have additional analysis suggestions. As part of the MSA’s mandate to conduct surveillance of the electricity market, it conducts analysis of Alberta’s operating reserve markets and reports on this in its Quarterly Reports. The MSA will continue this in the future.
2	Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.	The MSA finds the purpose and scope of this initiative to be clear.
<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>		

	Questions	Stakeholder Comments
3	Equilibrium pricing & AESO bid price	The MSA supports the AESO's proposed alternative.
4	Standing offers	The MSA supports the AESO's proposed alternative and suggests the AESO consider measures to ensure that offers are updated by market participants and reflect actual availability of the product.
5	Offer transparency	The MSA supports the AESO's proposed alternative.
6	Minimum qualification & offer size	The MSA supports the AESO's proposed alternative but believes further feedback from providers is required to ensure the 5% directive tolerance band is achievable for smaller assets.
7	<p>Are there in-scope elements of the market design that have not been identified in either 'group 1' or 'group 2' that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The 'group 2' design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	The MSA does not currently have additional elements for discussion.
8	Do you have any feedback on the AESO's proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?	No comments.
9	Do you have any additional comments?	

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: Millar Western Forest Products Ltd.</p> <p>Date: 2021/12/10</p>	<p>Contact: Regan Baer</p> <p>Phone: 780-778-2036 Ext. 4227</p> <p>Email: rbaer@millarwestern.com</p>
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	Questions	Stakeholder Comments
1	The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.	N/A
2	Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.	N/A

Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.

Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.

Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?

Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.

	Questions	Stakeholder Comments
3	Equilibrium pricing & AESO bid price	<p>Removing the equilibrium pricing would simplify the daily bidding process, however, we do not believe it would not have a significant effect on participants.</p> <p>More information on what the publicly disclosed price cap would be from AESO is needed.</p>
4	Standing offers	<p>Standing offers that carry over would be acceptable, as long as market participants still have the ability to change offers to a new volume, or remove the offer altogether on a daily basis.</p>
5	Offer transparency	<p>We believe that having no offer transparency ('sealed bid format') would limit competition. The current system and transparency allow some insight into whether or not a Facility would be able to procure reserves at their price point. Having no visibility would mean Facilities may end up with only part / or none of their bid, which makes it more difficult to operate at, if only part of their bid is accepted. This could ultimately lead to less competition, due to Facilities bidding in less because of the unknowns associated with whether or not their full offered volume will be accepted.</p> <p>If offer transparency is removed, it would be helpful if either: a) a Facilities bid is accepted at its full submitted volume or, b) not at all.</p>
6	Minimum qualification & offer size	<p>What is the AESO's goal of changing the minimum qualification and offer size given that supplemental reserves in particular are oversubscribed by approximately 100%?</p>
7	<p>Are there in-scope elements of the market design that have not been identified in either 'group 1' or 'group 2' that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The 'group 2' design elements were introduced to help Stakeholders</p>	<p>We believe one element of market design that warrants discussion is market share. How does AESO plan to deal with participants who have a significant market share (eg. >30%), and how this could lead to competition issues within the reserves market?</p>

	Questions	Stakeholder Comments
	gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)	
8	Do you have any feedback on the AESO's proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?	N/A
9	Do you have any additional comments?	N/A

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: Suncor Energy Marketing Inc.</p> <p>Date: 2022/01/07</p>	<p>Contact: Horst Klinkenberg</p> <p>Phone: (403) 819-7125</p> <p>Email: Horst.Klinkenberg@suncor.com</p>
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	Questions	Stakeholder Comments
1	<p>The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.</p>	<p>During the stakeholder session, Suncor hear anecdotal concerns about ancillary service directives and internally there have been similarly anecdotal concerns around performance of smaller providers. Suncor would appreciate if the AESO could provide analysis confirming or refuting these concerns. Particularly, Suncor is interested in analysis comparing:</p> <ul style="list-style-type: none"> i. Number of directives relative to asset type (Hydro, CCGT, ...) ii. Number of directives relative to contract size iii. Relative directive volume (<i>i.e.</i> directed volume divided by contract volume) relative to contract size iv. Non-performance relative to provider capability (<i>i.e.</i> total approved volume for OR) v. Non-performance relative to contract size <p>The goal of the first three analyses would be to determine whether a bias in directives exists. If so, any bias should be addressed in some form during this review. The goal of the final two analyses would be to determine whether there are concerns related to contract or provider size before the market is changed to accommodate even smaller contracts/providers.</p>
2	<p>Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.</p>	<p>The purpose and scope are clear, the timing less so. Given that so far, the AESO has identified no immediate or significant concerns, Suncor believes other initiatives may be more urgent, particularly anything related to readiness for a net-zero grid by 2035.</p>

	Questions	Stakeholder Comments
3	Equilibrium pricing & AESO bid price	Suncor supports removing the AESO bid price and replacing it with a sufficiently high price cap. As a single buyer with a purchase obligation, it is inappropriate for the AESO to submit a bid, which at the same time provides an inappropriate signal and distorts the final price.
4	Standing offers	Suncor does not support introducing standing offers. Given the importance of operating reserves, the risk of stale/invalid offers that distort the market and create volume concerns is too great in comparison to the minor hurdle represented by the need for actively submitting daily offers.
5	Offer transparency	<p>Suncor is partially supportive of the AESO’s proposed alternative.</p> <p>Suncor agrees that the move to a sealed-offer format would be beneficial as the current practice of early offers and extremely late offers creates concerns.</p> <p>Suncor disagrees with the disclosure proposal. Contrary to the real-time energy market, where market pricing and unit output levels are available in real-time, operating reserves are traded in interconnected markets on a day-ahead basis and even the day after, only partial information is available and that only in an aggregated format. An information-rich environment supports efficient markets and Suncor is therefore in favour of disclosing market information immediately after the market closes and the price is set to give participants enough information to make informed decisions before subsequent markets close.</p>
6	Minimum qualification & offer size	<p>Suncor has two concerns regarding the proposed alternative:</p> <ul style="list-style-type: none"> • Absent the analysis requested under item 1 above, it is not clear whether opening the market to smaller providers puts the reliable provision of operating reserves at risk. No change should be undertaken before the analysis can confirm that there are no issues. • It is unclear how the AESO will enforce sub-1 MW dispatch tolerances. More information in this area is required before Suncor could support this change.

	Questions	Stakeholder Comments
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	<p>At this point, Suncor does not have any concerns regarding the OR market that have not already been identified.</p>
8	<p>Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?</p>	<p>Suncor reiterates its concern regarding the timing of this initiative. However, Suncor believes there is value in the AESO undertaking and publishing the results of the analyses requested under item 1. This information would help determine if there any urgent concerns regarding the OR markets. This analysis should further be conducted before any future session.</p> <p>If the AESO continues with this consultation at this this time, Suncor believes that two Group 2 elements should be included in Group 1:</p> <ul style="list-style-type: none"> • The current practice of curtailing ancillary services over energy does not reflect the value and criticality of the products and should be reviewed. • The current standby reserve pricing mechanism is confusing and lends itself to gaming. The pricing methodology should be reviewed and simplified while at the same time better aligned with the corresponding active product. <p>Further, based on the availability and completeness of the related information and analysis, the proposed Group 1 element <i>minimum qualification & offer size</i> might be better suited as a Group 2 element.</p>

	Questions	Stakeholder Comments
9	Do you have any additional comments?	Thank you for the opportunity to provide comments. Suncor has no further comments at this time.

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: The Office of the Utilities Consumer Advocate</p> <p>Date: [2022/01/07]</p>	<p>Contact: Srikanth Venugopal</p> <p>Phone: (587) 582 4228</p> <p>Email: srikanth.venugopal@gov.ab.ca</p>
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	Questions	Stakeholder Comments
1	<p>The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.</p>	<p>The UCA appreciates the opportunity to provide comments on the OR market review and recommendations. Following are a few issues that the AESO may consider for more investigation:</p> <ul style="list-style-type: none"> - For the liquidity analysis, the AESO analyzed the volume offered for each product “in excess of” the traded volume to show the market liquidity for each RR, SR, and SUP on-peak and off-peak products. In addition to excess volume, the AESO may also analyze the “total available and qualified volumes” in the market that have decided not to participate and offer. This may lead to a better understanding of how the barriers to entry (e. g. complexity of the market) keep these qualified volumes out of the market and, as a result, reduce the competition and efficiency of the market. - The UCA understands that the AESO will keep the current pricing mechanism for the Standby reserve on a pay-as-bid basis. A few considerations regarding the pay-as-bid pricing methodology may need further investigation to reach the maximum efficiency for these products. In the pay-as-bid method, the general belief is based on the perception that a unit will always offer at the unit’s marginal cost in a competitive pay-as-bid auction, even if other units are clearing at a higher price. This argument could be incorrect. As long as there is sufficient market price transparency,

	Questions	Stakeholder Comments
		<p>then a supplier will always seek to obtain the price that clears the market to maximize profit. So, in a pay-as-bid market, the unit with a specific marginal cost will raise its offer price to its estimate of the price offer of the most expensive unit cleared in the same auction time period. This incentive raises the following concerns with pay-as-bid auctions. First, the need by sellers to estimate the hourly market clearing price could lead to many incorrect guesses, which, even in a competitive market, will lead to inefficiency as all offers for a particular hour will cluster around the market-clearing price. It may result in sending a wrong signal through the market for higher-cost unit investments. This could be one of the reasons for higher Standby activation prices in the market, according to the AESO analysis.</p> <p>Second, because all offers will likely cluster around the estimate of the market-clearing price in each auction period, if there is the need for ex-ante or ex-post market power monitoring and mitigation, the regulator will have more difficulty reconstructing which units have been raising their offers above marginal cost in an attempt to manipulate price levels.</p> <p>Considering these possible shortages of the pay-as-bid pricing method, the AESO may need more investigation to figure out whether these issues have an impact on the market’s efficiency for these products.</p>
2	<p>Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.</p>	<p>It is UCA’s view that the AESO has reasonably addressed potential opportunities in the OR market, which will improve the competition and price fidelity and, as a result, enhance efficiency in this market. The UCA has concerns that the AESO determine how best to coordinate these changes in the OR market with other AESO’s initiatives. There are a few ongoing initiatives and engagements that the outcomes of those consultations may affect the OR market and the interest to participate in this market, such as Most Severe Single Contingency (MSSC) evaluation and operational reliability initiatives. For instant, there is an expected net increase in ancillary</p>

	Questions	Stakeholder Comments
		service costs by enabling a higher Static MSSC Limit.
	<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>	
3	Equilibrium pricing & AESO bid price	<p>The UCA supports removing the equilibrium pricing and clearing the market at the marginal offer similar to the energy market. This pricing method is less complex than equilibrium pricing, and participants are more familiar with clearing the market at the marginal offer as it is the same method as the energy market. In addition, pricing the products out of the market, even partially through the AESO bid price, could potentially reduce the market's efficiency and make the pricing more complex, especially when the AESO bid prices are not visible to parties outside the WattEx platform. The UCA's view is that by reducing the minimum qualification and offer size and simplifying the pricing method, more types and sizes of resources would participate and, as a result, would increase the market's competition and efficiency.</p>
4	Standing offers	<p>Allowing the market participants to submit standing offers that would carry forward and be automatically included in future trading will simplify the offer process. This is especially important to reduce the burden for new assets willing to actively participate in the market, particularly for smaller assets, as the qualification and offer size will be reduced to 1 MW.</p>

	Questions	Stakeholder Comments
5	Offer transparency	<p>The UCA agrees that fully transparent offer information potentially increases the risk of anti-competitive and market power practices in the market. According to the AESO analysis, the OR market is substantially concentrated, especially the RR market, and the highest combined market share is held by a given number of market participants. So, moving to a sealed-bid format similar to the energy market will reduce the risk of exercising the market power and increase the market efficiency in the long term, when each supplier submits their offers and cannot see other offers and the AESO determines what to dispatch in the merit order based on the marginal offer.</p>
6	Minimum qualification & offer size	<p>The UCA supports this recommendation as reducing the minimum qualification and asset size requirement to 1 MW will remove the barrier to entry for smaller participants such as DER. Higher participation of DERs in the OR Market has the potential to improve the grid reliability as more resources become available for the system operator to deliver power during system failure events effectively. As the AESO jurisdictional review indicated in the DER market participation engagement, almost all jurisdictions in North America have decreased or are proceeding to reduce their minimum participation size to 100 kW to enable greater participation of resources in the OR market. Although it can potentially reduce market concentration concerns and subsequently reduce the need for more scrutiny around market mitigation, it is not clear if these approaches of lowering thresholds as far as 100KW can provide the security of larger dispatchable generating units. On the other hand, the existing limits are a barrier to entry for DERs, and a reduction to 1MW is acceptable.</p>
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and</p>	<p>One of the main drivers of increasing market efficiency is preventing anti-competitive practices in the market, especially for the OR market that is substantially concentrated. The UCA is on the belief that these few changes in group 1 may support market power mitigation in the OR market. However, the UCA suggests</p>

	Questions	Stakeholder Comments
	<p>assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	<p>further assessment by the AESO to investigate and clarify how these changes will lead to enhance market power mitigation and promote market efficiency. In addition, there is a need for more analysis and clarification regarding the new price cap for the OR market, including the price cap level and how it would be effective to limit the market power.</p>
8	<p>Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?</p>	<p>No, the UCA does not have any concerns at this time.</p>
9	<p>Do you have any additional comments?</p>	<p>As the last point, it is the UCA’s view that simplifying the OR market, lowering the threshold to 1 MW, and other AESO’s related initiatives such as “DER and Energy Storage market participation” and possible ISO rules amendment in this regard, has the potential to reduce the market concentration by entering the smaller assets into the market, especially small storage projects and as a results enhance the market efficiency.</p>

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: TransAlta Corporation</p> <p>Date: 2022/01/07</p>	<p>Contact: Akira Yamamoto</p> <p>Phone: 403-267-7304</p> <p>Email: akira_yamamoto@transalta.com</p>
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	Questions	Stakeholder Comments
1	<p>The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.</p>	<p>TransAlta disagrees that the AESO’s motivation to engage in this initiative is timely, sound or founded in analysis.</p> <p>There is no benefit of pursuing changes to the Operating Reserve (OR) market without a clear understanding of the reliability needs that may arise in the future. The impact of a lack of clear analysis prior to implementing a change was experienced previously, when the AESO reduced the procurement of regulating reserves only to be faced with frequency response issues after the change in procurement. In that situation, the additional regulating reserves could have mitigated or prevented the underfrequency load shed that arose due to the increased occurrence of frequency events.</p> <p>The pursuit of such changes to the OR market, without a full understanding of how the reliability needs of the system are expected to evolve in the future, is poorly considered and inefficient. The AESO and industry are likely to spend time designing and implementing changes that only reflect current or historical reliability needs, only to find ourselves re-designing the changes a second time to accommodate future needs. We strongly recommend that the AESO complete its 2022 Long Term Plan work and revisit this initiative only if a roadmap for future OR changes is identified as</p>

	Questions	Stakeholder Comments
		<p>providing value or meeting future reliability needs.</p> <ul style="list-style-type: none"> • The AESO has yet to provide analysis that addresses any of the concerns TransAlta raised about reducing OR thresholds – the AESO continues to recommend reductions in OR thresholds in the name of increased competition without responding to our repeated requests for additional analysis or addressing our concerns about a level playing field and OR product performance. Our comments were provided in the AESO’s Distributed Energy Resource Market Participation Draft recommendations¹ and specifically requested the following: <ul style="list-style-type: none"> ▪ An analysis of the frequency and magnitude of the directives issued to small and larger OR resources. ▪ A regulatory analysis of the fairness implications of allowing small resources that are below 5 MW to operate without a “must offer, must comply” obligation, including the ability for those resources to escape energy and operating reserves compliance requirements while still being paid to provide operating reserves or selling OR while not reserving the capacity to meet those obligations in the energy market. At a minimum, small OR suppliers should carry the same obligations as large suppliers in the energy and OR markets. ▪ An evaluation of the potential other reliability impacts associated with small resource participation. More specifically, we note that larger generators are likely to provide more/better inertial support (i.e., larger spinning masses) than small units. We request that the AESO assess the level of inertial support that the system receives from large unit participation and compare that against the inertial support that would be provided if

¹ See TransAlta October 30, 2020 and March 17, 2021 stakeholder comment matrices: <https://www.aeso.ca/assets/Uploads/grid/DER-Session-1-Stakeholder-Feedback-.pdf> and <https://www.aeso.ca/assets/Uploads/grid/Stakeholder-Feedback-Session-2-DER-Long-term-markets-participation-recommendation-paper.pdf>.

	Questions	Stakeholder Comments
		<p>those large units were replaced by small units.</p> <ul style="list-style-type: none"> ▪ The cost of implementing small resource dispatch and directives, including the cost of system implementation and ongoing systems operations and maintenance to enable dispatches of 1 MW units, and the staffing requirements (Full Time Equivalents) for compliance monitoring and assessment must be assessed. Our understanding from previous discussions and presentation from the AESO’s system control group is that generator variances that are 10-15 MW are “noise” and too small from a system perspective to manage or be concerned with. Based on this feedback, an operations assessment must be conducted that explains how the system controllers will now actively manage resources that are at the 1-5 MW size. A comparison of the cost of the AESO to enable small OR providers versus the cost of an aggregator to manage these services is required. The analysis should consider the impacts to innovation for small resource participation from an aggregator model versus a central AESO model. • The analysis to date does not evaluate how procurement changes made by the AESO’s have impacted the market – the AESO has changed procurement volumes on several occasions that have had a significant and meaningful impact on the size the OR market. The AESO should evaluate how those changes have impacted system reliability and competition in the market, including an assessment of whether dynamic efficiency has supported or hindered when decisions about procurement and market size and if they can be made unilaterally and without forewarning. <p>An analysis that does not account for changes in the AESO’s procurements results in poor analysis of outcomes and misleading conclusions. The AESO has changed (reduced) its active procurements which necessarily impacts demand and</p>

	Questions	Stakeholder Comments
		<p>market fundamentals. A fair and reasonable assessment of competitive outcomes would factor in how the AESO procurement decision changes may have impacted market participation, competition, and pricing across OR products. The analysis should consider that a reduction in active procurement increases the likelihood of standby activation which is likely to have driven standby activation prices higher in the historical data. The AESO should present an analysis of what active and standby OR prices would have been if it had not reduced its active OR procurement volumes, which would likely have led to lower standby activation prices being observed in the historical period.</p> <ul style="list-style-type: none"> • Analyze the changes in suppliers over time and identify and assess differences in the opportunity costs of suppliers – the suppliers in the various OR products have changed over time, including the significant participation of load customers in supplement reserves. It is reasonable to expect that different suppliers will have different economics and opportunity costs associated with providing an operating reserve product. The AESO’s observations about activation prices does not account for any differences in suppliers that may better explain changes in suppliers can impact pricing. • Assess day-ahead expectations and OR outcomes – Operating reserves markets are traded day-ahead and pricing will reflect suppliers’ expectations about future real-time pricing. It is reasonable and efficient to expect that suppliers will take into account all information, including price volatility, and tail event high prices in their pricing for obligations that will be delivered a day later. <p>The AESO should conduct an analysis to compare whether higher activation prices are correlated with high forward transaction prices, high real time prices, and high market volatility. It is also reasonable to expect that day-ahead and real-time pricing will not converge perfectly for all hours but the fact that these do not converge or correlate perfectly should not be</p>

	Questions	Stakeholder Comments
		<p>characterized or concluded to be an inefficiency or anti-competitive result.</p> <p>We fundamentally reject the notion that any difference standby pricing relative to settled real-time price is indicative of an inefficiency in pricing outcomes. Rather, we expect that suppliers will price in a premium in standby offers to reflect the uncertainty and risk that they are exposed to from taking on a standby OR obligation.</p>
2	<p>Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.</p>	<p>No, the purpose and scope of this initiative are not clear.</p> <p>The AESO referred back to its own report dated November 29, 2019, <i>Market Power Mitigation Advice to Minister</i>,² and its own conclusions as the part of the basis for this initiative. The AESO’s report concluded that the OR market is smaller and more concentrated than the energy market, that the hydro PPAs provides strong incentives to ensure that a significant portion of hydro capability is scheduled to provide OR, and that the increase of market power in the OR market will increase the price without a corresponding long-term dynamic efficiency gain.</p> <p>We disagree that the AESO’s conclusions from its “point-in-time” evaluation are relevant concerns as the remarks are based upon outdated information. Competition in the OR market has evolved significantly since the report. This includes the entry of new battery technology resources in the market, particularly in spinning reserves, which suggests that OR market signals are being responded to with new investment and innovation. We also note that load resources are dominant suppliers of supplemental reserves, which undercuts any conclusion that there are unreasonable barriers to entry or participation for a wide variety of potential suppliers.</p> <p>The AESO’s own assessment of the OR market, as conveyed in its</p>

² <https://www.aeso.ca/assets/Uploads/AESO-Market-Power-Mitigation-Report-Nov-29-2019.pdf>

	Questions	Stakeholder Comments
		<p>presentation,³ was that: before and after the hydro PPA expiry have not changed the state of the market and that OR prices have generation remained constant or declined through 2021. This conclusion does not substantiate or support the potential concern flagged in the AESO’s previous advice report.</p> <p>As the AESO previously heard in its Market Power Mitigation stakeholder consultation, stakeholders support allowing the market to continue to operate in a competitive manner and emphasized the importance of the stability of market rules and avoiding regulatory uncertainty. We view the AESO’s OR market initiative, which is proposed to be a multi-session stakeholder engagement, as exactly the type of needless and time-consuming review and regulatory change process that stakeholders advocated against. We see no justification or rationale for the engagement.</p> <p>Conducting this initiative is unnecessary given other important demands. Industry is heavily engaged in: a bulk and regional tariff redesign regulatory proceeding; faces Most Severe Single Contingency (MSSC) issues that the AESO needs to take action to resolve (restoring the MSSC to the static level of 466 MW in all hours)⁴; are working on reducing the bottlenecks and increasing the capacity of the AESO to manage the large number of projects in the interconnection process; face challenges to plan the efficient utilization of the transmission system (including the implementation of dynamic line ratings); and are identifying and planning the reliability requirements for the significant increase in renewable generation. Industry needs the AESO focus its efforts and time on moving these substantial issues – not to distract itself and stakeholders with other discretionary initiatives.</p>

³ Slide 37-38, *Operating Reserves Market Review Session #1* (<https://www.aeso.ca/assets/LARA-Rules-and-ARS/OR-Session-1-Slides.pdf>), November 31, 2021.

⁴ The MSSC limit is currently reduced to 425 MW when the AB-BC intertie is out.

	Questions	Stakeholder Comments
	<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>	
3	Equilibrium pricing & AESO bid price	<p><i>The choice of equilibrium pricing was the AESO’s, not market participants; Equilibrium pricing could be replaced by marginal pricing</i></p> <p>TransAlta is largely indifferent to the AESO’s proposal; however, we wish to better understand why the AESO has changed its stance or rationale for supporting equilibrium pricing.</p> <p>The implementation of the current equilibrium pricing mechanism that averages the marginal offer and the AESO’s bid price is a practice that the AESO chose to implement. It appears that the AESO deemed it necessary to provide itself the opportunity to influence pricing outcomes through its own setting of bid price. In our view, the use of the AESO bid price approach can ensure that OR is priced at a premium to reflect the higher value of OR products relative to energy-only which will help incentivize participation plus provide price signal for future investment to support grid reliability.</p> <p>Now the AESO has determined that the bid price can be replaced with a publicly disclosed price cap and that it no longer sees a need for the AESO to influence price setting through its setting of the bid price. The AESO has not provided any real qualitative or quantitative analysis to assess the cost or benefit of its recommended change. If the AESO makes this change it will be imperative the price cap aligns with an efficient market and provides the correct price signals that align with future carbon or technological requirements of the grid. As noted by the AESO in its Operating Reserves Market Review</p>

	Questions	Stakeholder Comments
		Session #1 presentation, the market participants in the OR market have adapted and function under the AESO’s equilibrium pricing model and could adapt to a marginal pricing model.
4	Standing offers	<p><i>Standing offers should not be implemented and should be rejected</i></p> <p>TransAlta does not see any benefit in implementing standing offers. Operating reserves are premium reliability products that suppliers voluntarily provide. It is important that the suppliers of these products be serious about providing these products as they underpin system reliability during a frequency or contingency event and need to adequately reflect the value of that service so that the market receives the right signal to develop reserve-capable resources.</p> <p>Standing offers are an accommodation for suppliers that rarely clear the market, likely because their resources are not competitive or reliable reserves providers. We have significant concerns that standing offers could result in the selection of resources that are not prepared to meet reserves obligations. Our concern is that more reliable suppliers of reserves such as hydro will face greater conscription into service to make up for the shortfalls that result from poor performance of “standing offer” resources that are surprised that they cleared a procurement and have a reserve commitment.</p> <p>If anything, the frequency events that we have experienced over the last two years have shown the need for better operating reserve performance that comes from reliable suppliers that are experienced in meeting the reserve requirements. This will not be supported by the increased participation of resources that have limited experience or resources to provide reserves. We recommend that the AESO reject the implementation of standing offers that can be carry forward and automatically included in future trading intervals.</p>
5	Offer transparency	<p><i>Removing offer transparency and implementing a sealed-bid format does not support competition and should be rejected</i></p> <p>The AESO’s observation that full and transparent offer information</p>

	Questions	Stakeholder Comments
		<p>may create the opportunity for anti-competitive practices is specious. As noted in the AESO’s analysis of historical pricing, OR prices have remained constant or declined. This does not support a conclusion that there is any collusion between market participants or behaviour that drives up prices. Rather, the availability of full offer visibility on WattEx drives strong competitive tension and has the effect of driving offers and prices down.</p> <p>The AESO observes that offers are often precisely timed at the end of the auction and raises concerns that this could create vulnerability to latency issues.</p> <p>First, most, if not all, auctions are designed to maximize competitive tension and, by design, solicit bursts of competitive offers and responses at their closing, when the competitive tension is at its peak. A seal-bid process only permits one offer opportunity and eliminates the dynamics of competitor response in the procurement process. These dynamics are particularly important for forward procurement processes, in which decisions are made on less information than is available in real time, provide for better price discovery through multiple offers in the same auction session or between auction sessions, and competitor responses that are enabled by offer transparency.</p> <p>Second, vulnerability to latency issues may be a concern but the AESO has not shown a pattern or any instances where this has occurred or has been observed to be a concern. Furthermore, the latency risk issue has not driven out participation that puts the AESO at any risk of not securing the reserves it requires or an impact on the delivery of reserves in any way. As noted, the design of the procurement mechanism is to drive competitive tension and efficient price discovery and to achieve these outcomes there is a small trade off of potential latency risk.</p>
6	Minimum qualification & offer size	<p>The OR thresholds should not be lowered until the AESO can provide assurances that large and small providers will be dispatched and directed on in the same manner</p> <p>As stated in TransAlta’s DER Market Participant Draft</p>

	Questions	Stakeholder Comments
		<p>Recommendations comment matrix filed on March 17, 2021:</p> <p>TransAlta does not agree with the AESO’s recommendation to lower the OR asset qualification thresholds for operating reserves. The AESO must ensure that small DERs will be activated and directed to provide OR in an equivalent and proportionate manner to larger OR providers. Without providing this assurance, we believe that the AESO is conflating the creation of a different, less used OR product for small DER as enhancing competition.</p> <p>Our concern with the proposal is that the AESO has not explained how its systems or practices will be adapted to dispatch a fleet of small OR providers to ensure that large and small providers are treated the same when providing OR. Furthermore, the AESO has not presented the cost of changing its system to accommodate this change – which may be explained if the AESO did not contemplate that it would make any changes. Even today from our historical experience, we believe that the AESO’s system operators direct larger providers more frequently when loss of generation events occur than they do for smaller providers. If in the future the AESO has more 1 MW suppliers, we expect that the system controllers may have even more reason to prefer activating larger providers, particularly, if it is even more work to direct on small DERs.</p> <p>As noted by the AESO, much of the growth for DERs will come from intermittent renewables that cannot even provide OR. We struggle to reconcile whether there are real benefits of enabling DER participation in OR against its potential costs. We believe that the AESO is making a suboptimal trade-off between open competition for fairness and efficiency in market in its recommendation.</p>
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders</p>	<p>As stated in our response to question 2 above, we do not agree that an Operating Reserves Market Review should be undertaken now. This includes the entire scope of the consultation including the “in-scope” elements that the AESO has identified in “group 1” and “group 2”.</p>

	Questions	Stakeholder Comments
	gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)	
8	Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?	<p>As stated above, TransAlta does not support proceeding with this engagement or the next steps proposed by the AESO.</p> <p>The more prudent and efficient approach forward is to reconsider this initiative based upon any assessment or analysis provided in Q1 2022 on the AESO’s 2022 Long-term Transmission Plan that may identify a need for new reliability products in the future. We expect that the identification of future reliability needs may better inform how the operating reserves products may need to be changed including how the introduction of new products may change the way that current operating reserves products may be used in future (e.g., implementing new fast response products that may be complimented with the way that other reserves products are dispatched and directed on.)</p>
9	Do you have any additional comments?	No additional comments at this time.

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: TransCanada Energy Ltd. (TCE)</p> <p>Date: 2022/01/07</p>	<p>Contact: Mark Thompson</p> <p>Phone: 403-589-7193</p> <p>Email: markj_thompson@tcenergy.com</p>
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	Questions	Stakeholder Comments
1	<p>The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.</p>	<p>TCE recommends that the AESO increase the scope of its analysis in certain areas, particularly regarding liquidity and market concentration.</p> <p>The AESO liquidity analysis was limited to a single year, which included the first two months of the pandemic. As a result, it is difficult to assess whether the results are reflective of a trend or of an anomaly that existed during the study’s timeframe. It is also difficult to agree with the AESO’s assessment that liquidity for RR was limited. The study indicates that liquidity for RR was lower than for other OR products, but this does not necessarily mean that it was limited. Without further explanation or comparisons, it is not apparent that having excess offers at 29% on-peak signifies limited liquidity.</p> <p>The AESO concluded that the OR market is substantially concentrated. The AESO reached this conclusion by comparing the OR market concentration ratios to the Competition Bureau’s guidelines. It is well established that acceptable concentration ratios are dependent on the size of the market. Small markets cannot sustain a large number of competitors if they are to cover fixed costs. It is for this reason that the Competition Bureau accepts higher levels of concentration in Canadian markets than</p>

	Questions	Stakeholder Comments
		<p>does the Department of Justice in the U.S. Relative to other markets (for both electricity and other products), Alberta’s electricity market is very small. As such, it should be expected that the concentration ratios will be high relative to the Competition Bureau guidelines.</p> <p>The AESO has also stated that participants identified the following issues:</p> <ul style="list-style-type: none"> • Technical barriers to entry • Prohibitive complexity • Offers priced out of the market • Other products/services are priced more attractively. <p>TCE agrees that it is appropriate to address barriers to entry when they are found to exist. With respect to the complexity issue, TCE submits that this is a complex industry that frequently requires complex solutions, and investments in expertise, to maintain reliability.</p> <p>TCE further submits that the final two bullets suggest that the OR market is competitive. Some technologies are better suited to provide certain OR products than other technologies, which would naturally cause some offers to be priced out of the market and for other products to be more attractive. However, these other technologies do discipline the exercise of market power as they are available should prices rise.</p>
2	<p>Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.</p>	<p>TCE understands the scope and purpose of this initiative. TCE submits that this initiative is closely related to the AESO’s consultation with respect to the MSSC and its fast frequency response pilot project. TCE recommends that the AESO ensure that these related projects and associated impacts are considered jointly.</p>

	Questions	Stakeholder Comments
	<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>	
3	Equilibrium pricing & AESO bid price	Removing the AESO bid price may be a step in the right direction. However, without knowing that the “publicly disclosed price cap” will be, it is difficult to know whether this proposal will be more or less efficient than the current design.
4	Standing offers	It is not clear why submitting offers is burdensome compared to the other activities that are necessary to operate a generating facility. That said, provided market participants remain able to respond to dispatches and ensure that their offers reflect their available capacity, TCE does not oppose the standing offer proposal.
5	Offer transparency	This proposal does not appear to be linked to the AESO’s historical observations and analysis. Please explain what is driving this proposal. The AESO states that offer transparency may create anti-competitive practices. TCE is not aware of any evidence suggesting that this is the case. Further, the AESO fails to recognize that transparency can increase the competitive response by disciplining offers. The AESO also states that submitting offers at the last minute may create a risk that offers may not be accepted. TCE is not aware of any circumstances where market participants have identified this as a problem that needs to be addressed. Similarly, the AESO’s analysis supporting this consultation did not identify

	Questions	Stakeholder Comments
		this as a problem. TCE recommends that the AESO maintain the current format.
6	Minimum qualification & offer size	TCE supports a FEOC market. TCE does not oppose the reduction in the minimum qualification and offer size provided a level playing field is maintained. The level playing field must be maintained both within the ISO Rules and the AESO’s operational practices. For example, if an issue arises where an operator needs to dispatch a large volume of operating reserves, they must treat all assets in the same manner regardless of size even if it results in more work for the operator.
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	TCE has no comments at this time.
8	Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?	TCE has no comments at this time.
9	Do you have any additional comments?	TCE has no comments at this time.

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: URICA Asset Optimization Ltd. (URICA)</p> <p>Date: 2021/12/23</p>	<p>Contact: Tory Whiteside</p> <p>Phone: 403-689-7243</p> <p>Email: tory.whiteside@urica.ca</p>
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	Questions	Stakeholder Comments
1	<p>The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.</p>	<p>In URICA’s view, the AESO’s historical analysis presented to date does not necessarily help clarify the rationale for the proposed changes.</p> <p>The AESO has noted that the Supplemental Reserve market has cleared above the Spinning Reserve market between 20-80 times/year. However, without any further evaluation it is extremely hard to support the AESO’s assertion that this is an inefficient market outcome. During these occurrences, did the AESO look at what mitigating market factors were at play? For instance, in many cases historically, the active Supplemental Reserve price has been impacted by distribution connected generation (DCG) assets not participating in the market when there was a high potential for Coincident Peak Demand. As DCG credits are being eliminated, the impetus for this behaviour will be removed and more volume is expected to be offered into the Supplemental Reserve market on a consistent basis. This is expected to reduce the number of times we see the observations noted by the AESO moving forward. Beyond this, unit availability, clearing prices, bid volumes and offer prices in both markets also need to be considered for context before jumping to the conclusion of that an inefficient market exists. It is unclear how the AESO can conclude that an inefficient market</p>

	Questions	Stakeholder Comments
		<p>exists without first reviewing all applicable factors that might explain the observed results.</p> <p>Secondly, the AESO stated in its presentation that historical Standby Offer Clearing Prices were greater than Energy Prices but provided no actual data or analysis supporting this conclusion; and instead referenced MSA content without making the supporting data available. URICA requests that the AESO provide historical pricing information, on an hourly basis, to support its conclusions for the 2020 and 2021 years.</p> <p>URICA would also appreciate insight and historical data regarding how the AESO has directed assets in the OR market. URICA is of the view that it is important to understand, through the presentation of historical data, the directives issued by the AESO, by asset type, as well as the volume of each asset type that was sold at the time of the directive.</p> <p>Finally, URICA would appreciate a breakdown of the OR costs for 2021 by category. Given that the AESO has indicated that the market is showing no ill effects from the transfer of the hydro PPA's back to the Owners, it would be beneficial to understand what the breakdown of costs looks like for the past year, so that we can understand how the scope of the AESO's proposed changes might affect the cost of OR to the market moving forward. If possible, we would appreciate seeing the costs broken down to a daily level such that the information can be referenced against market conditions at both the time of trading and settlement.</p> <p>2021 Daily OR Costs by Category</p> <ul style="list-style-type: none"> • RR Active • RR Standby • SR Active • SR Standby • Supp Active

	Questions	Stakeholder Comments
		<ul style="list-style-type: none"> • Supp Standby
2	<p>Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.</p>	<p>The AESO’s stated purpose is to “Assess opportunities to enhance competition and price fidelity in the existing Operating Reserve (OR) markets to improve efficiency.” URICA is of the view that the purpose and scope of the engagement are not really being addressed with the proposed changes; and furthermore, the analyses used by the AESO to reach the conclusions in the presentation are lacking both in depth and in detail.</p> <p>After reviewing the slides, attending the engagement session and listening to the comments from the AESO, it appears that the actual issue at hand here is the rising costs in the OR market. While URICA understands the AESO’s concern with this outcome, given the current state of the Energy Market as well as the marginal costs associated with generator offers, this result may be inevitable in our current energy market environment.</p> <p>It is also unclear how the AESO has taken a ten month sample of the market post-hydro PPA return and is extrapolating this into the future in order to suggest that there should be no market power concerns. URICA feels that this needs to stay on the radar of both the AESO, and perhaps the MSA, in order to ensure that competition, price fidelity and market efficiency are being fulfilled.</p>
<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>		

	Questions	Stakeholder Comments
3	Equilibrium pricing & AESO bid price	URICA is amenable to this change. The new methodology is likely to reduce confusion and make the process easier to understand.
4	Standing offers	<p>URICA agrees with the stakeholder comments that the introduction of standing offers in the OR market is both unnecessary and likely has the chance to result in unintended consequences. The AESO seems to have suggested that standing offers would be used by smaller entities but provides no supporting evidence. Standing offers in a ‘must offer’ market (such as the Energy Market) make sense in that the asset must participate in the market. The same does not hold true for a ‘may offer’ market and undersells the complexity and penalty structure inherent with the OR market.</p> <p>URICA does not agree with the rationale or agree that there is a need for standing offers in the Operating Reserves market - especially if we do end up moving to a Sealed Bid process. The AESO presented no real benefits associated with the change to a Standing Offer and URICA is of the view that an OR Standing Offer is not analogous to the existing Standing Offer methodology in the energy market; and further, does not promote an increase in market efficiency.</p>
5	Offer transparency	<p>URICA does not agree that the move to a Sealed Bid is a beneficial offer structure.</p> <p>URICA submits that not all entities offer at the last second, and if there are latency issues, that is a risk associated with submitting a last second offer. With most Offers being received in the last minute or even the last ten seconds, it is hard to understand how this is considered to be “fully transparent” offer information. It is also hard to understand how this change will lead to greater market efficiency given that participants under the Sealed Bid format would only be able to consider their own costs in their offers and would have reduced transparency to competitive forces in the market. In this situation, there is no visibility of competitive forces at play, and in fact, the Sealed Bid methodology could lead to a less efficient</p>

	Questions	Stakeholder Comments
		outcome.
6	Minimum qualification & offer size	<p>URICA is supportive of this change from a holistic perspective in that it may allow a larger group of assets (generation and load) to participate in the market. However, under the current market conditions there is very little incentive for smaller generation/load entities to participate in the Supplemental market and the cost/benefit of assets installing the equipment necessary to participate in the Spinning Reserves market is likely not in favor of making that move.</p> <p>In general, the economies of scale and cost/benefits of participation in the market are not supportive of assets making the investments to stay in the OR market over the long term. At the same time, this runs counterintuitively to the recent change in LSSi qualification limits that were increased from 1 MW to 5 MWs in order to allow for easier confirmation of asset compliance.</p>
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	<p>URICA is of the view that deeper analysis (some of which was discussed above) needs to be performed by the AESO and shared with market participants in order to address any market inefficiency that exists. At this point, the AESO appears to be fiddling with the edges of the market, at a cost to consumers, without creating any tangible benefit to either market efficiency, grid reliability, or a reduction in OR costs.</p>
8	Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?	<p>The timing seems appropriate to URICA; however it would be nice to see what the AESO is considering based on the feedback provided by participants, and if additional analysis will be completed and provided to participants in advance of the next session based on the results of the feedback obtained in this current round of consultation.</p>

	Questions	Stakeholder Comments
9	Do you have any additional comments?	<p>As noted, URICA is of the view that that the AESO is really not addressing the actual elements of the market that are the highest risk components to efficiency, price fidelity and competitive outcomes.</p> <p>Also, URICA agrees with TransAlta’s comment regarding the frequency and nature of directives by the System Controller with regard to asset type and asset size. Pending the results of the analysis URICA has requested on this topic, there may the need to address the potential for additional market elements to support directive pricing. The AESO faces the difficult task of marrying the requirements of the System Controller on this front where the focus is on directing assets with the fastest response time and ease of use with the AESO’s corporate concerns regarding cost control. To this end, if faster response is required or necessary then potentially the AESO should look at additional categories of directive pricing/products based on response time. Further, any such assets with the ability to provide near instantaneous response, that are often heavily leaned upon by the System Controller, should be rewarded at a higher price level.</p>

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: Versorium Energy Ltd.</p> <p>Date: 2021 Dec 17</p>	<p>Contact: Murray Hnatyshyn</p> <p>Phone: 403 437 9563</p> <p>Email: murray@versoriumenergy.com</p>
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	Questions	Stakeholder Comments
1	The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.	Versorium does not suggest any further analysis by the AESO at this time.
2	Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.	Yes, the purpose and scope of this initiative are clear.
<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>		

	Questions	Stakeholder Comments
3	Equilibrium pricing & AESO bid price	<p>Versorium supports the approach to settle all OR prices at the last cleared offer price. The current approach of clearing the market at an equilibrium price, even if the bid submission is by the AESO, is unnecessarily complex.</p> <p>Any analysis that has been done to demonstrate a reduction in cost or improved competition that would result from the changed approach should be shared with stakeholders.</p>
4	Standing offers	Versorium has no comments on this initiative at this time.
5	Offer transparency	Versorium supports this initiative.
6	Minimum qualification & offer size	<p>Versorium supports this initiative. Versorium agrees that the operating reserve markets will be more competitive if more resources can participate. Reducing the minimum qualification and offer size will allow more resources to participate.</p> <p>Versorium also supports the AESO’s proposal to align the dispatch tolerance with resource size because it would be more reflective of the commitment volume.</p>
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	<p>Given the number of low frequency load shed events over the last year, the AESO should also consider how new competitively procured products could be designed and added to the daily market to address the system reliability needs. Other jurisdictions have developed fast response products and inertia products that could become an important part of ensuring the reliability of the AIES.</p>

	Questions	Stakeholder Comments
8	Do you have any feedback on the AESO's proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?	In the vein of improving competition and simplifying the market, Versorium would support a quicker review of the standby market. The standby market bifurcates the liquidity of the overall market and adds complexity and additional time burden for participants as to which market they should participate in. The current standby market design seems to be an anachronism and should be aligned with the active market. The AESO should present design alternatives for this market for stakeholders to assess.
9	Do you have any additional comments?	Versorium supports the AESO's initiative to improve the operating reserve markets.

<p>Period of Comment: December 1, 2021 through January 7, 2022</p> <p>Comments From: Voltus Energy Canada</p> <p>Date: 2022/01/07</p>	<p>Contact: Nicole Irwin-Viet</p> <p>Phone: 857-321-0314</p> <p>Email: nirwin@voltus.co</p>
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	Questions	Stakeholder Comments
1	<p>The AESO shared some of its historical observations and analysis that have motivated the purpose and scope of this initiative. Are there other historical market outcomes that are relevant to this review and that warrant further analysis? Please be specific and, to the extent that you suggest further analysis, please provide details regarding the methodology and assumptions that would be applied.</p>	<p>Voltus Energy Canada (“Voltus”) manages commercial and industrial loads for participation in Supplemental and Spinning Reserve programs. From Voltus’s perspective, the Operating Reserve market generally functions well. Compared with other North American markets, AESO has achieved enviable simplicity while providing appropriate incentives for investment and compliance. Voltus agrees that, “Changes to the Operating Reserve market design should only be made with a clear justification to avoid unnecessary disruption to market stability.” While it is always good to review the market design to determine whether market or technological developments justify changing the market, any market reforms should be targeted and evidence-based.</p> <p>On behalf of its customers, Voltus emphasizes the “win-win” benefits of using loads for Operating Reserves. AESO obtains cost-effective reserves. Alberta businesses earn revenue that enables significant value for both those businesses’ financials and the local economy. Many of these customers use Operating Reserve participation as a financial hedge against volatile power prices. Dramatic changes could disrupt not only the market but also the</p>

		provincial economy.
2	Are the purpose and scope of this initiative clear? If not, please provide specific details regarding the type of further information that would help to add clarity.	Voltus understands this is a high-level review of the existing Operating Reserves market structure, with the goals of enhancing competition and price fidelity. Since the market functions well, Voltus favors enhancements that modernize the market but do not modify market fundamentals.
<p>Each of the following four fields includes one of the AESO’s ‘group 1’ market design alternatives. For each design element, please provide any feedback on the AESO’s proposed alternative. Specifically, the AESO would benefit from your responses to the following questions.</p> <p>Are there any considerations regarding the current practice that have not been identified? These considerations may be aspects in which the current design is or is not promoting efficiency.</p> <p>Are there any additional alternatives beyond the AESO’s proposed alternative that warrant further consideration?</p> <p>Are there opportunities for further qualitative and/or quantitative analysis to assess the alternative(s)? Please be specific regarding the methodology and assumptions that would be applied.</p>		
3	Equilibrium pricing & AESO bid price	<p>Voltus supports retaining the equilibrium pricing and the AESO bid price. Voltus agrees with the AESO that the market is generally functioning well, including the current equilibrium pricing for Active Operating Reserve products. There is no evidence that a change would improve market efficiency or price fidelity: sophisticated market participants already account for equilibrium pricing in their offer strategies and would likely adjust accordingly if equilibrium pricing were discontinued.</p> <p>The equilibrium price did not increase the cost of Operating Reserves in 2021. Looking at historical data (see full analysis in Attachment A), since 2015, spend on Active Operating Reserve as a percent of AESO energy revenue (Pool Price x hourly demand across the year) has remained roughly the same: between 3.03% and 4.5%, with an average of 3.71%. In 2021, the percent of revenue spent on Active OR was 3.53%, which is less than the</p>

		<p>average amount spent on Active OR since 2015. Any increased cost of Operating Reserves is due to Alberta’s increased energy costs, not equilibrium pricing.</p> <p>The use of marginal offer market clearing prices rather than equilibrium pricing would increase volatility and eliminate a market signal as to the value of reserves to the AESO system. The equilibrium price calculation averages in the AESO bid price, which narrows the range of discount to Pool Price outcomes. At an AESO bid price of \$40/MW, the discount to Pool Price can range from $(\\$40 - \\$999.99)/2 = -\\$479.99$ to \$40 per MW. The equilibrium pricing thereby mitigates market volatility. If the bid price were not averaged in, the discount to Pool Price could range as low as - \$999.99, and up to the new publicly disclosed price cap. Volatility itself creates market complexity that is a barrier to entry and prevents competitors from entering the market. Alberta already has high and volatile energy costs. While volatility in Operating Reserve payments is attributable to Pool Prices, the equilibrium pricing and buy bid provide valuable price stabilization.</p> <p>Given that market pricing would be a significant change that has not been supported with a “a clear justification” or cost-benefit analysis, Voltus does not support this change at this time and worries it could cause an “unnecessary disruption to market stability.”</p>
4	Standing offers	<p>Voltus does not support the introduction of standing offers. After submitting a standing offer, participants would need to opt out of that offer when unavailable, rather than opting in when they are available under the current practice. This could foreseeably open up the possibility of unavailable capacity remaining inadvertently offered in and clearing the market, resulting in less reliable Operating Reserves. The current administrative burden of offering each time helps ensure that a participant is truly declaring their availability to perform.</p>
5	Offer transparency	<p>Voltus has no comment on offer transparency but does comment in Question 7 regarding bid transparency.</p>
6	Minimum qualification & offer size	<p>Voltus supports lowering the minimum qualification from 10 MW to 1 MW. In the American markets, resources as small as 100 kW</p>

		<p>can generally participate. Much smaller resources (~1kW) can be aggregated to meet that 100 kW threshold. A 10 MW minimum qualification is technologically out of date; much smaller resources can now curtail loads and should be able to participate in markets. Obviously, the high 10 MW threshold is a significant barrier to entry. Voltus notes that as an existing market participant, we will face steeper competition from a lower minimum qualification, yet we support the change because lowering this barrier is important to maintain a competitive, modern market.</p>
7	<p>Are there in-scope elements of the market design that have not been identified in either ‘group 1’ or ‘group 2’ that warrant discussion at a future session? If so, please provide as much detail as possible, including the issues with the current practice, potential alternatives, and any supporting analysis including the methodology and assumptions that would be applied.</p> <p>(The ‘group 2’ design elements were introduced to help Stakeholders gain a high-level understanding of the topics to be covered in subsequent sessions. As such, we believe that further information on the current practice and potential alternatives will need to be shared before collecting fulsome feedback on these design elements.)</p>	<p>Voltus would like AESO to revisit the option of more granular participation options for Operating Reserve suppliers with regards to timing of availability. Ideally, hourly participation rather than the current on-peak / off-peak blocks. This would promote market efficiency: AESO is likely over-paying for many hours in order to procure resources to cover only a few hours within an entire block.</p> <p>In addition to considerations around offer transparency, Voltus suggests that AESO improve transparency around its bid volumes. We recall that in the Q&A session during AESO’s Operating Reserve Market Review Session #1 on November 30, 2021, Akira Yamamoto asked if AESO has considered harm to market participants when they lower bid volumes. Increasing granularity and transparency would modernize the AESO market and improve price fidelity. Such practices are also consistent with AESO’s desire to promote an “information-rich environment.”</p>
8	<p>Do you have any feedback on the AESO’s proposed next steps of engagement? Specifically, are the content and timing of future sessions appropriate?</p>	<p>The content and timing of further sessions are appropriate.</p>
9	<p>Do you have any additional comments?</p>	<p>Voltus continues to support use of a batch load baseline as applicable to certain loads that provide Operating Reserve. When load that would otherwise have ramped up remains offline during an Operating Reserve directive, that on net reduces demand on the system. The current baseline methodology applied to such loads does not reflect the value that such a resource provides. Voltus can share example tariff language from other ISOs that credit batch load demand response.</p>

Attachment A: Cost of Active Operating Reserve as Percentage of AESO Spending

Cost of Active Operating Reserves

Year	Pool Price x Hourly Demand	Total Active OR Spending	% of Spend on OR	Average PP
2015	\$2,743,978,634	\$106,925,931	3.90%	\$33.34
2016	\$1,483,100,854	\$54,520,256	3.68%	\$18.28
2017	\$1,862,779,998	\$68,751,684	3.69%	\$22.19
2018	\$4,397,708,031	\$198,068,114	4.50%	\$50.35
2019	\$4,778,219,854	\$173,729,416	3.64%	\$54.88
2020	\$4,066,445,056	\$123,257,682	3.03%	\$46.72
2021	\$8,978,012,211	\$316,573,005	3.53%	\$101.98