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| Period of Comment: March 1, 2021 through March 31, 2021 | Contact: Megan Gill |
| Comments From: The Office of the Utilities Consumer Advocate (UCA) | Phone: 403.819.5383 |
| Date: 2021/03/31 | Email: Megan.Gill@gov.ab.ca |

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments, if any. Blank boxes will be interpreted as favourable comments.

The AESO is seeking Stakeholder comments regarding the following questions related to the development of proposed amendments to ISO rules to enable energy storage (“Energy Storage ISO Rule Amendments”):

| | Development of a Proposed ISO Rule | Stakeholder Comments |
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| 1. | Do you agree or disagree that the issue identified in the letter of notice requires the proposed Energy Storage ISO Rule Amendments? Why or why not? Please comment. | Agree. The current ISO rules did not contemplate the integration of energy storage devices that could function as either energy sources or sinks, particularly when used in combination with variable energy sources. The ISO rules should clearly define Energy Storage Resources. The ISO Rule amendments should also consider the possibility of Energy Storage owned by distribution or transmission companies for the purpose of providing ancillary services, and the treatment thereof, to ensure all options are evaluated, and the lowest cost overall solution is selected. |
| 2. | Do you agree or disagree with the potential purpose of the proposed Energy Storage ISO Rule Amendments? Why or why not? Please comment. | Agree. Amendments and clarifications are required to maximize participation in a FEOC market, encourage optimal asset developments and ensure reliable system operation. |
| 3. | Do you agree or disagree with the proposed consultation activities? Why or why not? Please comment. | Agree. The consultation allowed a thorough and open exploration of the issues raised by energy storage developments, including potential market and system benefits and challenges, as well as the connections and overlap with related issues such as ancillary services and transmission tariff amendments. |
| 4. | Do you have any comments in relation to the prioritization of the development of the proposed Energy Storage ISO Rule Amendments or the related timeline? Please comment. | It is the UCA's view that the proposed timeline is reasonable. |
| 5. | Do you agree or disagree with the AESO's recommendation regarding hybrid asset participation? Why or why not? Please comment. | <p>Agree. Allowing hybrid assets will significantly improve supply flexibility and increase market participation. The rules can be designed to accommodate hybrid assets while maintaining dispatch visibility and reliability. It is the UCA's view that the administrative costs of additional ISO rule complexity and IT upgrades incurred by the AESO should be fully recovered from the market participants.</p> <p>Also, the UCA submits that for those assets with the capacity of 1 to 5 MW that participate in the energy market voluntarily and follow the "must offer, must comply" rule, either as an independent asset or hybrid, the AESO must carefully consider how and if these assets are allowed to opt-out. The opt-in could be a one-time mechanism that signals to the market that a new entrant will be added to the supply stack. Opting out provisions may cause an unlevelled playing field to other market participants and potentially greater price volatility in the energy market, with the fluctuation of the available supply stack.</p> |

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| 6. | Do you agree or disagree with the AESO's recommendation regarding full-range participation? Why or why not? Please comment. | <p>Agree. Optional full range participation rather than half-range operation is important for dispatch visibility, supply adequacy, marginal price forecasting, and management of regulating reserve costs. Mandatory participation would restrict flexibility, but when not bidding, energy storage charging levels must be communicated to prevent problems associated with unpredictable supply/demand responses.</p> <p>As full-range participation will drive significant IT costs, it is important to ensure that these incremental costs are recovered from energy storage market participants.</p> |
| 7. | Do you agree or disagree with the AESO's recommendation regarding energy storage state of charge requirements? Why or why not? Please comment. | <p>Agree. The state of energy charge is a critical art of dispatch visibility required to ensure stable system operation and price forecasts.</p> |
| 8. | Do you agree or disagree with the AESO's recommendation regarding energy storage commissioning requirements? Why or why not? Please comment. | <p>Agree. Yes, special arrangements are necessary for testing bi-directional energy storage capabilities as current rules recognize only discrete generators and loads.</p> |
| 9. | Do you have any additional comments? | <p>None.</p> |