

## Proposed New ISO Rule – Section 207.1, *Gross Minimum Procurement Volume*

**Period of Comment:** September 7, 2018 through September 28, 2018

**Comments From:** Utilities Consumer Advocate

**Date [yyyy/mm/dd]:** 2018/09/28

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***Please provide comments relating to the subsection of the proposed rule in the corresponding box. Please include any views on whether the language clearly articulates the requirement for either the AESO or a market participant, and provide any proposed alternative wording by blacklining the proposed language below.***

Section	Subsection	Proposed language	Stakeholder comments
		<b>Applicability</b>	
1		Section 207.1 applies to: (a) the <b>ISO</b> .	
		<b>Requirements</b> <b>Gross Minimum Procurement Volume</b>	
2		The <b>ISO</b> must, for each <b>base auction</b> and <b>rebalancing auction</b> , establish the gross minimum procurement volume that meets the <b>resource adequacy standard</b> in accordance with subsections 3 and 4 below.	
		<b>Base Auction Gross Minimum Procurement Volumes for 2021/2022 and 2022/2023 Obligation Periods</b>	
3		The <b>ISO</b> must establish the gross minimum procurement volumes as follows: (a) 18,516 MW of <b>maximum capability</b> for the <b>base auction</b> for the 2021/2022 <b>obligation period</b> based on the assets listed in Appendix A; and (b) 18,597 MW of <b>maximum capability</b> for the <b>base auction</b> for the 2022/2023 <b>obligation period</b> based on the assets listed in Appendix B.	The UCA is not confident with these numbers and fears that procurement of these volumes may result in over-procurement. This may result in prices that are too low in the energy market and too low in the capacity market.  According to the AESO CSD page we currently have 16110 MW of installed capacity. The AESO plans on procuring 18,516 MW in the first auction, an increase of 2400 MW.  The load is currently under 10,000 MW but even if we consider a peak of 12,000 MW, an

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			additional 2400 MW represents a load increase of 20% in just three years. The market right now is not under-supplied and adding 2400 MW in three years will not be necessary.
		<b>Probabilistic Model</b>	
4	(1)	<p>The <b>ISO</b> must perform a probabilistic model of resource adequacy that considers the following characteristics:</p> <ul style="list-style-type: none"> <li>(a) the load forecast referred to in subsection 5;</li> <li>(b) the <b>available capability</b> or available generation from all individual <b>generating units</b> and <b>aggregated generating facilities</b> in Alberta that the <b>ISO</b> anticipates will have, for the <b>obligation period</b>, a: <ul style="list-style-type: none"> <li>(i) <b>maximum capability</b> greater than or equal to 5 MW; or</li> <li>(ii) <b>uniform capacity value</b> that is greater than or equal to 1 MW.</li> </ul> </li> <li>(c) historical outages of thermal assets, including <b>automatic forced outages</b>, <b>delayed forced outages</b>, <b>planned outages</b> and ambient temperature derates, and any projected changes as applicable;</li> <li>(d) historical performance of existing intermittent resources, including wind and solar, and any projected changes;</li> <li>(e) anticipated performance of new intermittent resources, including wind and solar;</li> <li>(f) historical performance of hydroelectric generation and any projected changes;</li> <li>(g) historical performance of cogeneration sites in Alberta and any projected changes;</li> <li>(h) the correlation of load and generation at cogeneration sites in Alberta, as applicable;</li> <li>(i) the <b>available transfer capability</b> and gross import <b>offers</b> on the <b>interties</b>; and</li> <li>(j) <b>capacity</b> to maintain <b>regulating reserve</b>.</li> </ul>	The AESO needs to consider that there is likely to be an increase in the amount of distributed generation on the system. This should be factored in to the resource adequacy model because not doing so could lead to over-procurement of capacity.
4	(2)	The <b>ISO</b> must, as applicable, make assumptions about the model characteristics identified in subsection 4(1) in order to minimize model error and the risk of over procuring or under	See previous two comments.

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		procuring <b>capacity</b> to the extent practicable.	
4	(3)	The <b>ISO</b> must add or subtract <b>capacity</b> from the probabilistic model referred to in subsection 4(1) to determine the gross minimum procurement volume that meets the <b>resource adequacy standard</b> .	
		<b>Load Forecast</b>	
5		<p>The <b>ISO</b> must, for the purpose of performing the probabilistic model in subsection 4, complete a forecast of Alberta gross load for a 5-year forward looking period, considering the following variables:</p> <ul style="list-style-type: none"> <li>(a) economic growth indicators in Alberta including real gross domestic product, population, employment, and natural resource production;</li> <li>(b) weather and temperature data selected from multiple locations across Alberta;</li> <li>(c) load variations in Alberta based on calendar variables, including month of the year, day of the week, hour of the day, daylight savings, and holidays;</li> <li>(d) historical load behaviour in Alberta and any projected changes;</li> <li>(e) performance data from load assets that are qualified to participate in the capacity market to provide demand response;</li> <li>(f) load forecast uncertainty reflecting variability in the load forecast due to weather and economic forecasts; and</li> <li>(g) any other variables that, in the <b>ISO's</b> determination, may maximize the performance of the load forecast model.</li> </ul>	
		<b>Filing of Base Auction Gross Minimum Procurement Volume</b>	
6		The <b>ISO</b> must file the gross minimum procurement volume for a <b>base auction</b> determined in accordance with this section 207.1 with the <b>Commission</b> for approval a minimum of 6 months prior to the publication of the <i>Capacity Market Auction Guidelines</i> for the applicable <b>base auction</b> .	
		<b>Applicable Auctions</b>	

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7		<p>This Section 207.2 is in effect for the following auctions:</p> <ul style="list-style-type: none"> <li>(a) the <b>base auction and rebalancing auction</b> for the 2021/2022 <b>obligation period</b>;</li> <li>(b) the <b>base auction and rebalancing auction</b> for the 2022/2023 <b>obligation period</b>;</li> <li>(c) the <b>base auction and rebalancing auction</b> for the 2023/2024 <b>obligation period</b>; and</li> <li>(d) the <b>base auction and rebalancing auctions</b> for the 2024/2025 <b>obligation period</b>.</li> </ul>	

*Please provide your comments on this rule's appendices:*

**Please provide your comments on the following (as set out in AUC Rule 017 s. 13(b-j)):**

Item #		Stakeholder comments
1	whether you agree that the proposed new ISO Rule – Section 207.1, <i>Gross Minimum Procurement Volume</i> relates to the capacity market and why or why not	Yes, it relates to the capacity market. This volume is an important part of the capacity auctions.
2	whether you agree that the proposed new ISO Rule – Section 207.1, <i>Gross Minimum Procurement Volume</i> should [or should not] be in effect for a fixed term and why or why not	The volume is a number that is subject to a lot of variable factors but it needs to reflect accurately the need for capacity in Alberta so the AESO should be reviewing it regularly which may suggest a fixed term for the rule.
3	whether you understand and agree with the objective or purpose of the proposed new ISO Rule – Section 207.1, <i>Gross Minimum Procurement Volume</i> and whether, in your view, the proposed new ISO Rule – Section 207.1, <i>Gross Minimum Procurement Volume</i> meets the objective or purpose	See the UCA comments on that section of the rule.
4	how, in your view, the proposed new ISO Rule – Section 207.1, <i>Gross Minimum Procurement Volume</i> affects the performance of the capacity market and the electricity market	See the UCA comments on that section of the rule.
5	your views on any analysis conducted or commissioned by the AESO supporting the proposed new ISO Rule – Section 207.1, <i>Gross Minimum Procurement Volume</i>	
6	whether you agree with the proposed new ISO Rule – Section 207.1, <i>Gross Minimum Procurement Volume</i> taken together with all ISO rules and in light of the principle of a fair, efficient and openly competitive market	If capacity is over-procured the electricity market will not be efficient.

Item #		Stakeholder comments
7	whether you would suggest any alternatives to the proposed new ISO Rule – Section 207.1, <i>Gross Minimum Procurement Volume</i>	A reality check is in order. The analysis seems sound, however, procuring an additional 2400 MW does seem very practical given the load growth situation and the current supply picture.
8	whether you agree that the proposed provisional rule supports ensuring a reliable supply of electricity at a reasonable cost to customers and why or why not	If the rule leads to over-procurement then we will pay too much for capacity and suppliers won't be able to make any money in the energy market. This will eventually lead to decreased participation which could impact reliability negatively.
9	whether you agree that the proposed provisional rule supports the public interest and why or why not	No, because we are concerned it will lead to over-procurement.

***Please provide your views on the type of content that should be included in an information document associated with the proposed new ISO Rule – Section 207.1, Gross Minimum Procurement Volume.***



Proposed New ISO Rule – Section 207.2, *Calculation of Net-CONE*

**Period of Comment:** September 7, 2018 through September 28, 2018

**Comments From:** Utilities Consumer Advocate

**Date [yyyy/mm/dd]:** 2018/09/28

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*Please provide comments relating to the subsection of the proposed rule in the corresponding box. Please include any views on whether the language clearly articulates the requirement for either the AESO or a market participant, and provide any proposed alternative wording by blacklining the proposed language below.*

Section	Subsection	Proposed language	Stakeholder comments
		<b>Applicability</b>	
		Section 207.2 applies to: (a) the <b>ISO</b> .	
		<b>Requirements</b> <b>Establish Gross-CONE, Energy and Ancillary Services Offset and Net-CONE</b>	
2		The <b>ISO</b> must establish for each <b>obligation period</b> : (a) a gross-CONE value in \$/kW-year in accordance with subsections 3 and 4, as applicable; (b) an energy and ancillary services offset value in \$/kW-year in accordance with subsection 5; and (c) a net-CONE value in \$/kW-year in accordance with subsection 6.	
		<b>Initial Gross-CONE Value for 2021/2022 Obligation Period</b>	
		The <b>ISO</b> must establish an initial gross-CONE value for the 2021/2022 <b>obligation period</b> of \$244.2/kW-year.	The UCA is concerned that the analysis used to determine the gross-CONE value did not align with the conclusions that were arrived at by the AUC in Proceeding 22570 and

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			<p>hence the number may be too high. We are also concerned that there are gaps in the analysis that need to be filled in before the Brattle work can be accepted. For example, Brattle included both U.S. and Canadian investors in their analysis and the AUC stated they did not believe these jurisdictions to be comparable. Brattle used bankrupt companies and no longer existing companies in their samples; these companies should be excluded from the study.</p> <p>The UCA is concerned about the use of adjusted Fairness Opinions. No detail is provided about how these adjustments were made to account for differences in the risk-free rates between the US and Canadian markets and for changes in the market conditions between the time they were reported and 2021. Then Brattle uses the very top end of the fairness opinions to reflect the higher risk for merchant investors in Alberta. How they got to this level is a gap that needs to be tested. In the GCOC decision, the AUC found that there was no basis to support the idea that there is higher regulatory risk in Alberta. Likewise, Brattle has provided no basis for this conclusion. Simply stating it is so does not make it so.</p> <p>More detail on how the beta range, used by Brattle, was determined needs to be provided.</p>
		<p><b>Calculation of Gross-CONE</b></p>	
<p>4</p>	<p>(1)</p>	<p>The <b>ISO</b> must calculate the gross-CONE value for every <b>obligation period</b> following the 2021/2022 <b>obligation period</b> in accordance with the following formula:</p> $\text{gross-CONE}_t = \text{gross-CONE}_{t=2021/2022} \times \text{Composite Index}_t$ <p>where:</p> <ul style="list-style-type: none"> <li>(i) <math>t</math> equals the <b>obligation period</b> for which the gross-CONE is being determined;</li> <li>(ii) <math>\text{gross-CONE}_t</math> is the gross-CONE value for <b>obligation period</b> <math>t</math>;</li> <li>(iii) <math>\text{gross-CONE}_{t=2021/2022}</math> is the initial gross-CONE value in subsection 3 above; and</li> <li>(iv) <math>\text{Composite Index}_t</math> is the composite index value for <b>obligation period</b> <math>t</math> calculated in accordance with subsection 4(2) below.</li> </ul>	

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4	(2)	<p>The <b>ISO</b> must, in calculating the gross-CONE<sub>t</sub> value under subsection 4(1) above, calculate the Composite Index<sub>t</sub> using the following formula:</p> $\text{Composite Index}_t = 0.25 \times \frac{\text{Labour Index}_t}{60.7} + 0.35 \times \frac{\text{Materials Index}_t}{118.5} + 0.40 \times \frac{\text{Turbine US Cost Index}_t \times \text{Foreign Exchange Rate}_t}{268.7}$ <p>where:</p> <ul style="list-style-type: none"> <li>(i) <i>t</i> equals the <b>obligation period</b> for which the gross-CONE value is being determined;</li> <li>(ii) Composite Index<sub>t</sub> is the composite index value for <b>obligation period t</b>;</li> <li>(iii) Labour Index<sub>t</sub> is the most recent 12 <b>month</b> average of published Statistics Canada Construction Union Wage Rates (Electrician), Monthly for Edmonton Alberta, Table 18-10-0046-01;</li> <li>(iv) Materials Index<sub>t</sub> is the most recently published Statistics Canada Gross National and Gross Domestic Income, Indexes and Related Statistics, Annual, Table 36-10-0105-01;</li> <li>(v) Turbine US Cost Index<sub>t</sub> is the most recent 12 <b>month</b> average of published Federal Reserve Economic Data (St. Louis) Producer Price Index by Industry: Turbine and Turbine Generator Set Units Manufacturing (PCU333611333611); and</li> <li>(vi) USD/CAD Foreign Exchange Rate<sub>t</sub> is the most recent 12 <b>month</b> average of published Statistics Canada Monthly Average Exchange Rates in Canadian Dollars, U.S. Dollar monthly average, Table 33-10-0163-01.</li> </ul>	
		<b>Calculation of Energy and Ancillary Services Offset</b>	
5	(1)	The <b>ISO</b> must, for every <b>obligation period</b> , calculate the energy and ancillary services	

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		<p>offset value in accordance with the following formula:</p> $= \frac{\text{EAS Offset}_t (\text{Forward Power Price}_t - \text{Energy Market Expense}_t) \times \text{Forward Product Energy}_t}{\text{Nameplate Capacity} \times 1000}$ <p>where;</p> <ul style="list-style-type: none"> <li>(i) <math>t</math> equals the <b>obligation period</b> for which the energy and ancillary services offset is being determined;</li> <li>(ii) <math>\text{EAS Offset}_t</math> is the energy and ancillary services offset for <b>obligation period <math>t</math></b>;</li> <li>(iii) <math>\text{Forward Power Price}_t</math> is the weighted average of the settlements matching the <b>obligation period <math>t</math></b>, where the settlements are the average over a period determined by the <b>ISO</b>, for the published NGX forward power product in Appendix 1 that yields the highest <math>\text{EAS Offset}_t</math> for <b>obligation period <math>t</math></b>;</li> <li>(iv) <math>\text{Energy Market Expense}_t</math> is the energy market expense value for <b>obligation period <math>t</math></b> calculated in accordance with subsection 5(3) below;</li> <li>(v) <math>\text{Forward Product Energy}_t</math> is the forward product energy value for <b>obligation period <math>t</math></b> calculated in accordance with subsection 5(2) below; and</li> <li>(vi) <math>\text{Nameplate Capacity}</math> is equal to 93 MW.</li> </ul>	
5	(2)	<p>The <b>ISO</b> must, in calculating the <math>\text{EAS Offset}_t</math> under subsection 5(1) above, calculate the <math>\text{Forward Product Energy}_t</math> using the following formula:</p> $\begin{aligned} \text{Forward Product Energy}_t &= \text{Average Capacity} \times (1 - \text{Forced Outage Rate}) \\ &\quad \times \text{Forward Product Hours}_t \end{aligned}$ <p>where:</p> <ul style="list-style-type: none"> <li>(i) <math>t</math> equals the <b>obligation period</b> for which the generation is being determined;</li> </ul>	

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		<ul style="list-style-type: none"> <li>(ii) Average Capacity is equal to 87 MW;</li> <li>(iii) Forced Outage Rate is equal to 3.0%; and</li> <li>(iv) Forward Product Hours <math>t</math> is the number of hours defined in the ICE NGX Contracting Party Agreement for the forward power product associated with the Forward Power Price in subsection 5(1)(iii) above, for <b>obligation period <math>t</math></b>.</li> </ul>	
5	(3)	<p>The <b>ISO</b> must, in calculating the EAS Offset <math>t</math> under subsection 5(1) above, calculate the Energy Market Expense <math>t</math> using the following formula:</p> $\begin{aligned} \text{Energy Market Expense}_t &= [\text{Forward Gas Price}_t + (1 + \text{Commodity Fuel Charge}_t)] \times \text{Heat Rate}_t \\ &+ \text{Variable Operations and Maintenance}_t \\ &+ (\text{Emission Intensity} - \text{Established Benchmark}_t) \times \text{Carbon Price}_t \\ &+ \text{Transmission Losses}_t + \text{Trading Charge}_t \end{aligned}$ <p>where;</p> <ul style="list-style-type: none"> <li>(i) <math>t</math> equals the <b>obligation period</b> for which the energy and ancillary services offset is being determined;</li> <li>(ii) Energy Market Expense <math>t</math> is the energy market expense value for <b>obligation period <math>t</math></b>;</li> <li>(iii) Forward Gas Price <math>t</math> is the weighted average of the settlements matching the <b>obligation period <math>t</math></b>, where the settlements are the average over the period determined by the <b>ISO</b> in subsection 5(1)(iii), of NGX Phys, FP (CA/GJ), AB-NIT;</li> <li>(iv) Commodity Fuel Charge <math>t</math> is the most recent 12 <b>month</b> average of published NOVA Gas Transmission Ltd NGTL Fuel Usage and Measurement Variance;</li> </ul>	

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		<p>(v) Heat Rate is equal to 9.677 GJ/MWh;</p> <p>(vi) Variable Operations and Maintenance <math>_t</math> is the variable operations and maintenance value for <b>obligation period</b> <math>t</math> calculated in accordance with subsection 5(4) below;</p> <p>(vii) Emission Intensity is equal to 0.50 tonnes of CO2/MWh;</p> <p>(viii) Established Benchmark <math>_t</math> is the weighted average of the calendar year values matching <b>obligation period</b> <math>t</math> for an established benchmark for electricity published by a public authority;</p> <p>(ix) Carbon Price <math>_t</math> is the weighted average of the calendar year values matching <b>obligation period</b> <math>t</math> for the carbon price published by a public authority;</p> <p>(x) Transmission Losses <math>_t</math> is the transmission loss value for <b>obligation period</b> <math>t</math> calculated in accordance with subsection 5(5) below; and</p> <p>(xi) Energy Market Trading Charge <math>_t</math> is the most recent energy market trading charge published on the AESO website.</p>	
5	(4)	<p>The <b>ISO</b> must, in calculating the Energy Market Expense <math>_t</math> under subsection 5(3) above, calculate the Variable Operations and Maintenance <math>_t</math> value using the following formula:</p> $\text{Variable Operations and Maintenance}_t = \text{Variable Operations and Maintenance}_{t=2021/2022} \times \frac{\text{Materials Index}_t}{118.5}$ <p>where:</p> <p>(i) <math>t</math> equals the <b>obligation period</b> for which the variable operations and maintenance is being determined;</p> <p>(ii) Variable Operations and Maintenance <math>_{t=2021/2022}</math> is equal to \$4.60/ MWh; and</p> <p>(iii) Materials Index <math>_t</math> for <b>obligation period</b> <math>t</math> is the value in subsection 4(2)(a)(iv) above.</p>	

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5	(5)	<p>The <b>ISO</b> must, in calculating the Energy Market Expense <math>E_t</math> under subsection 5(2) above, calculate the Transmission Losses <math>T_t</math> value using the following formula:</p> $\text{Transmission Losses}_t = \frac{\sum_{i=1}^n \text{Loss Factor}_i}{n} \times \text{Forward Power Price}_t$ <p>where:</p> <ul style="list-style-type: none"> <li>(i) <math>t</math> equals the <b>obligation period</b> for which the transmission losses is being determined;</li> <li>(ii) <math>i \dots n</math> are facilities located in the Fort Saskatchewan area identified in the most recent Loss Factors published on the AESO website;</li> <li>(iii) Loss Factor <math>L_i</math> is the most recent published loss factor values published on the AESO website; and</li> <li>(iv) Forward Power Price <math>F_t</math> for <b>obligation period</b> <math>t</math> is the value in subsection 5(1)(a)(iii) above.</li> </ul>	
		<b>Calculation of Net-CONE</b>	
6	(1)	<p>The <b>ISO</b> must, subject to subsection 6(2), calculate the net-CONE value for every <b>obligation period</b> in accordance with the following formula:</p> $\text{net-CONE}_t = \text{gross-CONE}_t - \text{EAS Offset}_t$ <p>where:</p> <ul style="list-style-type: none"> <li>(i) <math>t</math> equals the <b>obligation period</b> for which the net-CONE value is being determined;</li> <li>(ii) gross-CONE <math>G_t</math> is the gross-CONE value in subsection 3 above or the gross-CONE value calculated in accordance with subsection 4 above for the <b>obligation period</b> <math>t</math>, as applicable; and</li> <li>(iii) EAS Offset <math>O_t</math> is energy and ancillary services offset value calculated in accordance with subsection 5 above for <b>obligation period</b> <math>t</math>.</li> </ul>	
6	(2)	<p>The <b>ISO</b> must, if the net-CONE value calculated in subsection 6(1) is:</p> <ul style="list-style-type: none"> <li>(a) below zero, set the net-CONE value at zero.</li> </ul>	

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		(b) above the gross-CONE value in subsection 3 or 4, set the net-CONE value at the gross-CONE value	
		<b>Publication of Net-CONE, Data and Indices</b>	
7		<p>The <b>ISO</b> must, publish the net-CONE value determined in accordance with this section 207.2 and the following data and indices in the <i>Capacity Market Auction Guidelines</i> for each <b>base auction</b> and <b>rebalancing auction</b>:</p> <ul style="list-style-type: none"> <li>(a) Composite Index <math>_{t=2021/2022}</math> ;</li> <li>(b) Composite Index <math>_t</math> ;</li> <li>(c) Labour Index <math>_t</math> ;</li> <li>(d) Material Index <math>_t</math> ;</li> <li>(e) Turbine US Cost Index <math>_t</math> ;</li> <li>(f) USD/CAD Foreign Exchange Rate <math>_t</math> ;</li> <li>(g) Energy Market Expense <math>_t</math> ;</li> <li>(h) Forward Power Price <math>_t</math> ;</li> <li>(i) Forward Product Hours <math>_t</math> ;</li> <li>(j) Forward Product Energy <math>_t</math> ;</li> <li>(k) The period determined by <b>ISO</b> refer to in subsections 5(1)(iii), 5(2)(iv) and 5(3)(iii) ;</li> <li>(l) Forward Gas Price <math>_t</math> ;</li> <li>(m) Commodity Fuel Charge <math>_t</math> ;</li> <li>(n) (o) Variable Operations and Maintenance <math>_t</math> ;</li> <li>(o) (p) Emission Intensity;</li> <li>(p) Established Benchmark <math>_t</math> ;</li> </ul>	



Section	Subsection	Proposed language	Stakeholder comments
		(q) Carbon Price $t$ ; (r) Transmission Losses $t$ ; (s) Loss Factor $i$ ; and (t) Trading Charge $t$	
		<b>Substitute Index or Benchmark</b>	
9		The <b>ISO</b> must, if any of the indices or benchmarks referred to in this section 207.2 are unavailable or not applicable for use in the calculation of the net-CONE value, use another comparable industry index or benchmark and publish the index or benchmark in the <i>Capacity Market Auction Guidelines</i> for each <b>base auction</b> and <b>rebalancing auction</b> .	
		<b>Applicable Auctions</b>	
10		This Section 207.2 is in effect for the following auctions: (a) the <b>base auction</b> and <b>rebalancing auction</b> for the 2021/2022 <b>obligation period</b> ; (a) the <b>base auction</b> and <b>rebalancing auction</b> for the 2022/2023 <b>obligation period</b> ; (a) the <b>base auction</b> and <b>rebalancing auction</b> for the 2023/2024 <b>obligation period</b> ; and (a) the <b>base auction</b> and <b>rebalancing auctions</b> for the 2024/2025 <b>obligation period</b> .	The AESO should consider revisiting the CONE and reference technology after it has gained some experience. The UCA suggests revisiting after the 2022/2023 auctions.

***Please provide your comments on this rule's appendices:***

Empty comment box

**Please provide your comments on the following (as set out in AUC Rule 017 s. 13(b-j)):**

Item #		Stakeholder comments
1	whether you agree that the proposed new ISO Rule – Section 207.2, <i>Calculation of Net-CONE</i> relates to the capacity market and why or why not	Yes, it relates. It is a key component in the capacity market.
2	whether you agree that the proposed new ISO Rule – Section 207.2, <i>Calculation of Net-CONE</i> should [or should not] be in effect for a fixed term and why or why not	Yes, see related comments on AESO rule section 10 above
3	whether you understand and agree with the objective or purpose of the proposed new ISO Rule – Section 207.2, <i>Calculation of Net-CONE</i> and whether, in your view, the proposed new ISO Rule – Section 207.2, <i>Calculation of Net-CONE</i> meets the objective or purpose	Yes, we understand and agree with the objective of the rule but we are not convinced that the CONE calculations were done correctly or that the reference technology is the correct one which impacts the gross-CONE value.
4	how, in your view, the proposed new ISO Rule – Section 207.2, <i>Calculation of Net-CONE</i> affects the performance of the capacity market and the electricity market	The AESO chose the most expensive generator as the reference technology. The UCA is concerned that this will set the Net_CONE value too high and result in high costs to consumers.
5	your views on any analysis conducted or commissioned by the AESO supporting the proposed new ISO Rule – Section 207.2, <i>Calculation of Net-CONE</i>	See UCA comments on section 2 above.
6	whether you agree with the proposed new ISO Rule – Section 207.2, <i>Calculation of Net-CONE</i> taken together with all ISO rules and in light of the principle of a fair, efficient and openly competitive market	The structure of the rule is fine but if the CONE numbers are too high it will impact the efficiency and the competitiveness of the market.
7	whether you would suggest any alternatives to the proposed new ISO Rule – Section 207.2, <i>Calculation of Net-CONE</i>	

Item #		Stakeholder comments
8	whether you agree that the proposed provisional rule supports ensuring a reliable supply of electricity at a reasonable cost to customers and why or why not	The cost may not be reasonable for the reasons stated above.
9	whether you agree that the proposed provisional rule supports the public interest and why or why not	If the cost is too high the public interest is not supported.

***Please provide your views on the type of content that should be included in an information document associated with the proposed new ISO Rule – Section 207.2, Calculation of Net-CONE.***

## Proposed New ISO Rule – Section 207.3, *Shape of Demand Curve*

**Period of Comment:** September 7, 2018 through September 28, 2018

**Contact:** Doug Simpson

**Comments From:** Utilities Consumer Advocate

**Phone:** 403 476-4999

**Date [yyyy/mm/dd]:** 2018/09/28

**Email:** Douglas.Simpson@gov.ab.ca

***Please provide comments relating to the subsection of the proposed rule in the corresponding box. Please include any views on whether the language clearly articulates the requirement for either the AESO or a market participant, and provide any proposed alternative wording by blacklining the proposed language below.***

Section	Subsection	Proposed language	Stakeholder comments
		<b>Applicability</b>	
		Section 207.3 applies to: (a) the <b>ISO</b> .	
		<b>Requirements</b> <b>Establish Preliminary Demand Curve</b>	
2	(1)	The ISO must, for the purpose of establishing a preliminary demand curve in accordance with subsection 2(2), estimate the net minimum procurement volume in subsection 3 below based on the most recent uniform capacity values calculated by the ISO in accordance with Section 206.3 of the ISO rules, Uniform Capacity Value Determination	
2	(2)	The <b>ISO</b> must, for each <b>base auction</b> and <b>rebalancing auction</b> , establish a preliminary downward-sloping convex demand curve with the following: (a) a horizontal section from 0 MW to the estimate of the net minimum procurement volume in subsection 2(1), at a price cap that is the greater of: (i) 1.75 times the adjusted net-CONE in subsection 4; or (ii) 0.5 times gross-CONE established in accordance with Section 207.2 of the <b>ISO rules</b> , <i>Calculation of Net-CONE</i> divided by 0.8; (b) a downward-sloping section from the estimate of the net minimum	

Section	Subsection	Proposed language	Stakeholder comments
		<p>procurement volume in subsection 2(1) at the price cap in subsection 2(2)(a) to an inflection point set at a multiplier of 0.875 times the adjusted net-CONE in subsection 4 below at a quantity 7% above the estimate of the net minimum procurement volume; and</p> <p>(c) a downward sloping section from the inflection point in 2(1)(b) to a price floor of zero dollars at a quantity 18% above the estimate of the net minimum procurement volume.</p>	
2	(3)	The ISO must publish the preliminary demand curve in the <i>Capacity Market Auction Guidelines</i> for the relevant <b>base auction</b> or <b>rebalancing auction</b> .	
		<b>Net Minimum Procurement Volume</b>	
3		<p>The ISO must, after <b>uniform capacity values</b> are assigned in accordance with Section 206.3 of the <b>ISO rules</b>, <i>Uniform Capacity Value Determination</i>, adjust the gross minimum procurement volume established for each <b>base auction</b> or <b>rebalancing auction</b> in accordance with Section 207.1 of the <b>ISO rules</b>, <i>Gross Minimum Procurement Volume</i> to a net minimum procurement volume using the following formula:</p> $Net\ minimum\ procurement\ volume_t = \sum_i^n UCAP_{Actual(i)}$ <p>where:</p> <ul style="list-style-type: none"> <li>(i) <i>t</i> is the obligation period for the <b>base auction</b> or <b>rebalancing auction</b> that the gross minimum procurement volume was established for;</li> <li>(ii) <i>i...n</i> are all the assets modelled in the probabilistic model that established the gross minimum procurement volume for the <b>obligation period</b>;</li> <li>(iii) <math>UCAP_{Actual(i)}</math> is the final <b>uniform capacity value</b> determined in accordance with Section 206.3 of the <b>ISO rules</b>, <i>Uniform Capacity Value Determination</i> for such asset or the most recent estimate of the <b>uniform capacity value</b> for such asset;</li> </ul>	
		<b>Adjusted Net-CONE</b>	
		The ISO must, using the following formula, adjust the net-CONE established for each <b>obligation period</b> in accordance with Section 207.2 of the <b>ISO rules</b> , <i>Calculation of Net-</i>	

Section	Subsection	Proposed language	Stakeholder comments
		<p><i>CONE</i>:</p> $\text{Adjusted net-CONE}_t = \frac{\text{net-CONE}_t}{0.8}$ <p>where;</p> <ul style="list-style-type: none"> <li>(i) <i>t</i> equals the <b>obligation period</b> for which the adjusted net-CONE value is being determined; and</li> <li>(ii) net-CONE <sub><i>t</i></sub> is net-CONE value established in accordance with Section 207.2 of the <b>ISO rules</b>, <i>Calculation of Net-CONE</i> in \$/kW-year.</li> </ul>	
		<p><b>Establish Final Demand Curve for Base Auction and Rebalancing Auction</b></p>	
5	(1)	<p>The <b>ISO</b> must, for each <b>base auction</b> and <b>rebalancing auction</b>, establish a final downward-sloping convex demand curve with the following:</p> <ul style="list-style-type: none"> <li>(a) a horizontal section from 0 MW to the net minimum procurement volume in subsection 3, at a price cap that is the greater of: <ul style="list-style-type: none"> <li>(i) 1.75 times the adjusted net-CONE in subsection 4; or</li> <li>(j) 0.5 times gross-CONE established in accordance with Section 207.2 of the <b>ISO rules</b>, <i>Calculation of Net-CONE</i> divided by 0.8;</li> </ul> </li> <li>(b) a downward-sloping section from the net minimum procurement volume in subsection 3 at the price cap in subsection 5(1)(a) to an inflection point set at a multiplier of 0.875 times the adjusted net-CONE in subsection 4 below at a quantity 7% above the net minimum procurement volume; and</li> <li>(c) a downward sloping section from the inflection point in 5(1)(b) to a price floor of zero dollars at a quantity 18% above the net minimum procurement volume in subsection 3 below.</li> </ul>	
5	(2)	<p>The <b>ISO</b> must publish the final demand curve prior to the opening of the offering window for each <b>base auction</b> or <b>rebalancing auction</b>.</p>	
		<p><b>Applicable Auctions</b></p>	
6		<p>This Section 207.2 is in effect for the following auctions:</p>	<p>The AESO should revisit section 207.2 and the underlying assumptions after the second</p>



Section	Subsection	Proposed language	Stakeholder comments
		<ul style="list-style-type: none"> <li data-bbox="505 332 1451 394">(a) the <b>base auction</b> and <b>rebalancing auction</b> for the 2021/2022 <b>obligation period</b>;</li> <li data-bbox="505 407 1451 469">(b) the <b>base auction</b> and <b>rebalancing auction</b> for the 2022/2023 <b>obligation period</b>;</li> <li data-bbox="505 482 1451 544">(c) the <b>base auction</b> and <b>rebalancing auction</b> for the 2023/2024 <b>obligation period</b>; and</li> <li data-bbox="505 557 1451 618">(d) the <b>base auction</b> and <b>rebalancing auctions</b> for the 2024/2025 <b>obligation period</b>.</li> </ul>	<p data-bbox="1545 321 1733 345">set of auctions.</p>

**Please provide your comments on the following (as set out in AUC Rule 017 s. 13(b-j)):**

Item #		Stakeholder comments
1	whether you agree that the proposed new ISO Rule – Section 207.3, <i>Shape of Demand Curve</i> relates to the capacity market and why or why not	Yes, the demand curve is a key part of the capacity market and procurement of capacity.
2	whether you agree that the proposed new ISO Rule – Section 207.3, <i>Shape of Demand Curve</i> should [or should not] be in effect for a fixed term and why or why not	See comments on section 6 above.
3	whether you understand and agree with the objective or purpose of the proposed new ISO Rule – Section 207.3, <i>Shape of Demand Curve</i> and whether, in your view, the proposed new ISO Rule – Section 207.3, <i>Shape of Demand Curve</i> meets the objective or purpose	The UCA understands and agrees with the objective and purpose of this rule and we feel it meets the purpose and objective.
4	how, in your view, the proposed new ISO Rule – Section 207.3, <i>Shape of Demand Curve</i> affects the performance of the capacity market and the electricity market	It remains to be seen but the AESO followed a rigorous process and solid analysis to establish the demand curve. The assumptions and analysis should be checked after the second auction.
5	your views on any analysis conducted or commissioned by the AESO supporting the proposed new ISO Rule – Section 207.3, <i>Shape of Demand Curve</i>	See comments in 4 above.
6	whether you agree with the proposed new ISO Rule – Section 207.3, <i>Shape of Demand Curve</i> taken together with all ISO rules and in light of the principle of a fair, efficient and openly competitive market	The UCA agrees.
7	whether you would suggest any alternatives to the proposed new ISO Rule – Section 207.3, <i>Shape of Demand Curve</i>	None.
8	whether you agree that the proposed provisional rule supports ensuring a reliable supply of electricity at a reasonable cost to customers and why or why not	Yes, we generally agree but it should be checked after the AESO gains some experience in the capacity market.

Item #		Stakeholder comments
9	whether you agree that the proposed provisional rule supports the public interest and why or why not	Yes, the rule should provide a reasonable demand curve which is a key component in making the capacity market function properly.

***Please provide your views on the type of content that should be included in an information document associated with the proposed new ISO Rule – Section 207.3, Shape of Demand Curve.***

**AESO Cost of New Entry Analysis – Comment Matrix**

**Period of Comment:** September 28 2018

**Contact:** Utilities Consumer Advocate

**Comments From:** Nola Ruzycki

**Phone:** 403-476-4998

**Date [yyyy/mm/dd]:** September 28, 2018

**Email:** Nola.Ruzycki@gov.ab.ca

*Please provide comments relating to the proposed term and definition in the corresponding box. Please include any views on whether the language clearly articulates the purpose of the term and provide any proposed alternative wording by blacklining the proposed language below.*

Proposed Terms and definitions

Stakeholder comments

Proposed Terms and definitions	Stakeholder comments
<p>The Cost of New Entry Analysis report issued by the Brattle Group provides a comprehensive bottom-up analysis of the capital costs, financing details, and reference technology assumptions to build a new plant assuming a November 1, 2021 commissioning date.</p> <p>This section of the comment matrix is being used to record any concerns/questions regarding the analysis presented in Brattle's CONE Analysis.</p>	<p><u>Fairness Opinions</u> – The UCA has concerns over the use of fairness opinions being used by financial analysts regarding the determination of discount rates. Rather than these being considered/used in conjunction with the Canadian and US Generation sample groups presented in Figure 3, the UCA believes these highly subjective opinions should be removed from consideration when determining the discount rate.</p> <p><u>20 year vs. 30 year Government of Canada Bonds</u> – It is believed that the use of the yields associated with long-term Government of Canada bonds in this analysis are used to represent risk-free yields over the life of asset. The UCA is wondering why the CONE report is using a 10 year bond yield (3.2%) and adjusting upwards (0.4%) to represent the average maturity premium for 20 year bond yields as opposed to just using yields for 20 year bonds?</p> <p><u>Cost of Capital (8.5%)</u> –Brattle's recommended cost of capital of 8.5% is higher than the top end of the range of results for Canadian generation companies. While citing that this is to account for the above average risk new entrants would face in the Alberta capacity market, Brattle failed to provide sufficient detail as to how they reached the final 8.5% number (vs. 8.0% or 9.0%). The UCA is requesting further details regarding Brattle's analysis, in particular their weighting structure regarding the importance of each of the variables considered in the analysis.</p> <p><u>3 year forward capacity payments (Risk Mitigation)</u> – The Brattle Group believes that the proposed Alberta capacity markets may be more risky than larger well-established capacity markets in other jurisdictions. As a result, they are recommending the AESO adopt a 3 year forward nature of capacity payments in an effort to mitigate risk.</p> <p>The UCA would like some clarity regarding the 3 year forward looking payment plan structure and if this only applies to new entrants or already established generators in the Alberta market.</p>