

Stakeholder Comments and AESO Replies Matrix



Proposed New Section 207.1 of the ISO Rules, *Gross Minimum Procurement Volume*

Date of Request for Comment: October 26, 2018
Period of Comment: October 26, 2018 through November 14, 2018

Stakeholder Comments and/or Proposed Alternative Rule Wording	AESO Replies
<p><u>Capital Power Corporation (“Capital Power”)</u> Capital Power believes that the term “normalized expected unserved energy (“NEUE”)” should be a defined term, see proposed definition to the left.</p> <p><i>New definition: “normalized expected unserved energy (“NEUE”)” means the metric that represents the allowable expected percentage of total gross interconnected electric system load in percentage terms that is not served in a given 12-month period as a result of non-interruptible demand exceeding the available capacity once contingency reserves are depleted but regulating reserves are maintained. The NEUE level is established by Government of Alberta in regulation.</i></p>	<p>The AESO expects “normalized expected unserved energy” to be defined by the Government of Alberta in regulation. The AESO will align its definitions in the <i>Consolidated Authoritative Document Glossary</i> with any statutory definitions as appropriate.</p>
<p><u>Capital Power Corporation (“Capital Power”)</u> Capital Power believes that the term “expected unserved energy (“EUE”)” should be a defined term, see proposed definition to the left. This definition clarifies the translation of the Government of Alberta’s established resource adequacy standard set in NEUE to modeling the gross minimum procurement volume in practice.</p> <p><i>New definition “expected unserved energy (“EUE”)” means the metric that represents the allowable expected energy of total gross interconnected electric system load in megawatt-hours, consistent with the established NEUE, that is not served in a given 12-month period as a result of non-interruptible demand exceeding the available capacity once contingency reserves are depleted but regulating reserves are maintained. The EUE metric is used in the probabilistic model to determine the gross minimum procurement volume.</i></p>	<p>The AESO expects “expected unserved energy” to be defined by the Government of Alberta in regulation. The AESO will align its definitions in the <i>Consolidated Authoritative Document Glossary</i> with any statutory definitions as appropriate.</p>
<p><u>Capital Power Corporation (“Capital Power”)</u> The AESO must define the load that the Government of Alberta has established to define the resource</p>	<p>Please see the AESO’s reply to Capital Power’s comment on subsection 4(1) below.</p>

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<p>adequacy standard and how it relates to actual load information reported by the AESO.</p> <p>On October 1, 2018, the Department of Energy (DoE), issued “Stakeholder Paper no.3 – Revised Regulatory Concepts”, where the DoE revises the resource adequacy standard of normalized expected unserved energy to be “...the expected percentage of total load (in megawatt hours) on the interconnected electric system that is not served in a given 12-month period as a result of demand exceeding the available capacity.”</p> <p><i>New definition: “Alberta interconnected electric system load or AIES load” means load used to define Alberta’s resource adequacy standard. AIES load is load on the interconnected electric system, which excludes load that is served on-site by Medicine Hat and electric energy generated by a person and consumed by the same person behind-the-fence. AIES load corresponds to the sum of all sources reported in the metered volumes of the AESO’s historical reports, gross up for demand response if demand response is not included in the metered volumes as a source.</i></p>	
<p><u>Capital Power Corporation (“Capital Power”)</u></p> <p>The AESO must define the intended measure of its demand forecast and how it relates to reported actual load information. This aspect becomes more important with the advent and participation in the capacity market of small generating units and demand resources, including energy efficiency. See proposed definition for “load data” to the left.</p> <p><i>New definition: “load data” means gross load as a measure of load for the ISO’s load forecast that corresponds to Alberta Internal Load as reported by the AESO in its Current Supply Demand Report, gross up by demand response and qualified resources of less than 5 MW.</i></p>	<p>Proposed Section 207.1 does not reference the term “load data”. However, the AESO agrees in substance with Capital Power’s comment and will consider other ways to define the measure of the demand forecast.</p>
<p>Gross Minimum Procurement Volume</p> <p>Subsection 2</p>	
<p><u>Capital Power Corporation (“Capital Power”)</u></p> <p>For clarity, Capital Power believes that the term “gross minimum procurement volume” should be a defined term, see proposed definition to the left.</p> <p><i>New definition: “gross minimum procurement volume” means the level of gross capacity required</i></p>	<p>The AESO uses defined terms to provide a consistent meaning to terms that are industry specific or not commonly understood across the AESO’s Authoritative Documents. The AESO is of the view that “gross minimum procurement volume” does not require a definition because it is a specific numerical value that is defined by the application of the resource adequacy model methodology in Proposed Section 207.1</p>

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<p><i>to meet the resource adequacy standard according to ISO Rule Section 207.1</i></p>	<p>that also varies from auction to auction. The AESO will add details about the concept of the gross minimum procurement volume in the associated Information Document.</p>
<p><u>Capital Power Corporation (“Capital Power”)</u></p> <p>Capital Power believes that the term “net minimum procurement volume” should be a defined term, see proposed definition to the left. This definition helps understand the translation of the gross minimum procurement volume to the final demand curve.</p> <p><i>New definition: “net minimum procurement volume” means the gross minimum procurement volume adjusted according to fungible uniform capacity value. The net minimum procurement volume is used in the demand curve.</i></p>	<p>Please see the AESO’s reply to Capital Power’s comment on subsection 2 above.</p>
<p><u>Solas Energy Consulting on behalf of the Renewable Energy Coalition (“Solas”)</u></p> <p>The Coalition requests the following analyses be performed to justify calculation of the Gross Minimum Procurement Volume:</p> <p>Analysis #1: Gross minimum procurement volume calculation with a different distribution of economic scenarios. With reference to Information Document – Capacity Market Load Forecast, which relates to Section 207.1 – Gross Minimum Procurement Volume, section 4.2 describes the methodology for assessing economic uncertainty. The first paragraph states “The AESO created the scenarios by looking at the minimum and maximum growth rates that have been observed on the economic index in the last 20 years”. Table 4: Scenario probability distribution indicates a probability of 10% for the Minimum and Maximum scenarios. Because 20 years of data were used, the appropriate weight for the maximum and minimum scenario is 5%. The appropriate weight for the Reference Scenario is 50%. CanSIA also requests the AESO release the dataset of 20 economic index growth rates so that the shape of the AESO Scenario probability distribution can be compared to the shape of the actual distribution.</p> <p>Analysis #2: Model calibration for additional years. The AESO has performed a calibration of the model against 2017 data. However unserved energy is a rare phenomenon and one year of calibration is insufficient to determine Reliability model accuracy. CanSIA requests the calibration analysis be performed for at least ten years of historical data.</p> <p>Analysis #3: Future Wind Generation Profile. The Renewable Energy Program is expected to add 1,300 MW of new renewable energy by the 2021/2022 delivery period. The AESO has developed a</p>	<p>Please note that AESO has revised the gross minimum procurement volumes for the 2021/2022 and 2022/2023 obligation periods. Please see the AESO’s November 28, 2018 Letter of Notice – Proposed New Section 207.2 of the ISO rules, <i>Gross Minimum Procurement Volume</i>. Stakeholders have until December 13, 2018 to provide comments on the new gross minimum procurement volumes.</p> <p>Notwithstanding, please see the following responses to Solas’ requests for additional analysis:</p> <ul style="list-style-type: none"> • Request for Analysis #1 – During the capacity market design process, the AESO consulted with the Adequacy and Demand Curve Working Group in 2017 and the Demand Curve Working Group in 2018 on economic scenarios early in the capacity market design process. The AESO determined that grouping the outcomes of the historic data into five categories was sufficient to cover economic uncertainty while keeping computational requirements reasonable. The AESO presented this finding at the April 6, 2018 Demand Curve Working Group session. The AESO is of the view that Solas’ proposal will not result in any material or meaningful change to the resource adequacy model. • Request for Analysis #2 – As noted in the AESO’s November 28, 2018 consultation material, the AESO reviewed key inputs in the model and a 2018 calibration against 2018 YTD actuals. The AESO is of the view that performing additional calibrations for other years has limited benefits compared to the time and resources it requires. • Request for Analysis #3 – Aggregated profiles for five different regions were created by

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<p>methodology to estimate generation for the new assets based on existing, nearby wind generation assets. Though resourceful, the methodology results in correlations between wind generating facilities that are too high and subsequently underestimates the capacity value of the new facilities. The current AESO methodology contributes to the risk of over-procurement of capacity and the consequent decrease in energy market prices. CanSIA requests the AESO acquire wind data and engage a respected Wind Resource Assessment consultant to generate appropriate generation data for new renewable energy facilities.</p> <p>Analysis #4: Historical Estimation of Gross Minimum Procurement Volume. Historically, market participants have observed the electric system Reserve Margin as an investment signal to determine if the market is over or under supplied. The Reserve Margin is defined as the percentage of peak load by which installed capacity exceeds peak load. With the increase in variable renewables and the introduction of the Capacity Market the historical Reserve Margin calculation is no longer valuable. Instead, market participants will observe the Gross Minimum Procurement Volume as express in MW of Uniform Capacity Value. The provide historical context for the new measure, CanSIA requests an analysis of the Gross Minimum Procurement Volume in historical years, which is the System installed capacity and UCV that would have delivered the regulated Expected Unserved Energy threshold of 0.0011%. To perform the analysis, the Reliability Assessment Model (RAM) will be run for 10 past years. For each year, the model is run with steadily decreasing installed capacity until the reliability threshold is reached. The historical installed capacity and system Uniform Capacity Values (UCV) results will provide context to understanding of the RAM model's performance compared to historical reliability.</p> <p>Analysis #5: Sensitivity analysis of the RAM to the modelled forced outage rates. The AESO indicated during the Straw Alberta Model (SAM) process that data in the Electric Trading System (ETS) relating to outages does not reliably differentiate between planned and forced outages. The AESO has made assumptions about the planned and forced outage rates for each generation unit. Multiple stakeholders have stated that the gross minimum procurement volumes are too high. Performing a sensitivity analysis on the forced outage rate would provide clarity on the impact of these assumptions.</p>	<p>averaging the outputs of all sites in the area. While the correlations between existing and future wind sites may differ, the AESO does not anticipate the difference to significantly affect total system reliability values. For the straight average profiles used for the future projects, the profiles were scaled up by 12.5% to represent potential higher capacity factors. This represents an increase in the Average Capacity Factor (%) from 35% to 40%.</p> <ul style="list-style-type: none"> • Request for Analysis #4 – Please refer above to the AESO’s reply to “Request for Analysis #2”. • Request for Analysis #5 – The forced outage rates used within the resource adequacy model were discussed with the Demand Curve Working Group on August 17, 2018. Please see the AESO’s August 17, 2018 “CONE Update, EAS Offset Methodology, CONE Reference Technology Selection” presentation. The forced outage rates were shown to be comparable to v NERC’s values for forced outage factors. The 2018 calibration results indicated that the simulated availability of thermal units was similar to actuals in 2018, providing further validation on the reasonableness of the input forced outage rates.
<p>Base Auction Gross Minimum Procurement Volumes for 2021/2022 and 2022/2023 Obligation Periods</p> <p>Subsection 3</p>	
<p><u>Solas Energy Consulting on behalf of the Renewable Energy Coalition (“Solas”)</u></p> <p>There is further analysis required to gain stakeholder confidence in the Gross Minimum Procurement</p>	<p>The AESO does not agree with the changes proposed by Solas. Please see the AESO’s reply to Solas’</p>

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<p>Volumes calculated by the AESO. Details of the requested analysis are provided below.</p> <p>Setting the procurement volumes a full year ahead of the base auction:</p> <ul style="list-style-type: none"> • Results in increased uncertainty in the load forecast which will increase the Gross Minimum Procurement Volume above the optimal level. • Ignores relevant data that, if it were included, would increase confidence in generator outage, renewable generation and load profiles. • Creates market inefficiency because the information used by the AESO to create the demand curve is not the same as the information used by market participants to create their supply offers. The efficient market theory rests on symmetry of information on both the supply and demand side of the market. As proposed, the AESO is using information up to November 2018, but market participants will be using information up to November 2019. <p><i>Base Auction Gross Minimum Procurement Volumes for 2021/2022 and 2022/2023 Obligation Periods</i></p> <p><i>3 The ISO must establish the gross minimum procurement volumes as follows: (a) 18,516 MW of maximum capability for the base auction for the 2021/2022 obligation period based on the assets listed in Appendix A; and (b) 18,597 MW of maximum capability for the base auction for the 2022/2023 obligation period based on the assets listed in Appendix B following a methodology that has been reviewed and approved by stakeholders and the Alberta Utilities Commission. The ISO will submit preliminary Gross Minimum Procurement Volumes to the Commission during a period between 60 and 90 days before the initiation of the pre-qualification period for the respective base auction.</i></p>	<p>comments on subsection 2 above regarding the revised gross minimum procurement volumes for the 2021/2022 and 2022/2023 obligation periods.</p> <p>The methodology for the resource adequacy model in Proposed Section 207.1 will be subject to the Alberta Utilities Commission’s (“AUC” or “Commission”) provisional 6-month and comprehensive 18-month approval processes pursuant to the <i>Electric Utilities Act</i>. The AESO has consulted on the resource adequacy model and methodology as part of the capacity market design processes and the demand curve rule development. In approving the rule and the gross minimum procurement volumes the Commission, and stakeholders through the rule approval process, will have an opportunity to review the resource adequacy model and methodology used by the AESO in determining the gross minimum procurement volumes.</p> <p>Pursuant to AUC Rule 017, the AESO is required to file the procurement volumes for the first two auctions with the Commission as part of its application for the approval of the proposed provisional rules. The AESO expects future procurement volumes to have the same level of Commission oversight. The intent of the 6-month timeline in subsection 6 of Proposed Section 207.1 is to provide sufficient time for Commission review and approval of subsequent procurement volumes. The AESO is of the view that rebalancing auctions mitigate the risk of changes between when the resource adequacy model is run and the beginning of the obligation period.</p>
<p>Probabilistic Model</p> <p>Subsection 4(1)</p>	
<p><u>Capital Power Corporation (“Capital Power”)</u></p> <p>The AESO must make reasonable assumptions regarding DR for modeling completeness, avoid double counting or omissions and mitigate any risk of under or over procurement. The AESO has indicated during CMD consultations and rule set 3 capacity market rule stakeholder session, that the load forecast incorporates price responsive load impacts. To the extent these resources participate in the capacity market on the supply side, there is a risk of under-procurement. In addition, given their cost structure,</p>	<p>The AESO does not agree with the changes proposed by Capital Power to subsection 4(1)(h) of Proposed Section 207.1. The AESO is of the view that subsection 4(1)(h) as written provides the AESO with the ability to incorporate expected load assets.</p> <p>The AESO does not agree with Capital Power’s proposal for a new subsection 4(4). Pursuant to</p>

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<p>cryptocurrency mining load is anticipated to participate as DR and like price-responsive load, it must be included as a likely resource on the supply side.</p> <p><i>4.1(h) historical performance of a load asset supplying or <u>expected to supply capacity</u> in the capacity market and any projected changes. ;</i></p> <p>Capital Power believes that increased transparency regarding load forecast and probabilistic modeling assumptions is required. Capital Power requests that the data used in the AESO’s models be shared with stakeholders in advance of the forthcoming AUC proceedings to help accelerate the review and approval process.</p> <p>Firstly, the rule should require that the ISO must make its assumptions publicly available. Secondly, given the importance of certain assumptions, Capital Power requests that some assumptions be mandated directly in the rule while associated information documents (ID) should list more specifics about additional data. Capital Power provided specific data suggestions in the first round of comments to the rule and comments to related IDs.</p> <p><i>New subsection 4(4): Before the release of the gross minimum procurement volume, the AESO will make publicly available the assumption data used to produce the minimum procurement volumes of base and rebalancing auctions.</i></p> <p>On October 1, 2018, the Department of Energy (DoE), issued “Stakeholder Paper no.3 – Revised Regulatory Concepts” , where the DoE revised the resource adequacy standard of normalized expected unserved energy to be “...the expected percentage of total load (in megawatt hours) on the interconnected electric system that is not served in a given 12-month period as a result of demand exceeding the available capacity.” Furthermore, according to the same document, the AESO would be required to report the annual performance against the resource adequacy standard as “the percentage of total load (in megawatt hours) on the interconnected electric system that was not served as a result of demand exceeding the available capacity.” Given that the Government’s definition clarifies that load must be on the interconnected electric system, which excludes load that is served on-site by Medicine Hat or behind-the-fence load supplied by onsite generation, the translation of the resource adequacy standard must be based on interconnected electric system load and the corresponding EUE must be accordingly calculated. Currently the AESO has translated the resource adequacy standard and performed modeling at the gross load level. Additional explanation is needed to conform to the Government’s standard and reporting requirements.</p>	<p>AUC Rule 017, the AESO is required to file the procurement volumes for the first two auctions with the AUC as part of its application for the approval of the proposed provisional rules. The AESO expects future procurement volumes to have the same level of Commission oversight and that the AESO will be required to file modelling data and assumptions in support of the volumes as part of this process.</p> <p>During the capacity market design process, the AESO was transparent with its modelling assumptions with the Demand Curve Working Group. Through the course of consultations, the AESO provided the Demand Curve Working Group with load forecasting and probabilistic modeling information and summary data, all of which is available on the AESO’s website under the Demand Curve Working Group materials.</p> <p>On November 28, 2018, the AESO released updated assumptions relating to biomass units, planned and forced outages, capacity to maintain regulating reserves and intertie distribution that informed refinements to the gross minimum procurement volumes for the 2021/2022 and 2022/2023 obligation periods. Please see the AESO’s November 28, 2018 Attachment 1 – Gross Minimum Procurement Volume Input and Methodology Review.</p> <p>The AESO does not agree with Capital Power’s proposal for a new subsection 4(5). The development and implementation of the final comprehensive market design is consistent with the August 2017 policy direction from the Alberta Government, which requires the AESO to:</p> <ul style="list-style-type: none"> • Procure capacity in a centralized manner; • Ensure that all load, plus a reserve margin, is accounted for during the capacity procurement process; • Allow flexibility for loads to make arrangements to meet their own capacity obligation; and • Determine how much capacity has already been procured through self-supply to ensure that it ‘right sizes’ the procurement of capacity. <p>The AESO will ensure that its design is in compliance with the Government of Alberta’s final regulation.</p> <p>The AESO does not agree with Capital Power’s proposal for a new subsection 4(6). Please see the AESO’s reply to Solas’ comments on subsection 2 above.</p>

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<p><i>New subsection 4(5): For purposes of determining the gross minimum procurement volume, the AESO must translate and present the resource adequacy standard in terms of the Alberta Interconnected Electrical System load.</i></p> <p>The rule must include a backcast requirement of at least three years for the purpose of calibration and ensuring stakeholder confidence. Capital Power is concerned with poor stakeholder confidence in the AESO’s model calibration. As previously stated in Capital Power’s comments during the CMD consultation process, a way to address calibration and confidence issues is by performing robust backcasting of the probabilistic model for a minimum of 3 historical years and ideally incorporate years where the system exhibited significant events.</p> <p><i>New subsection 4(6): The AESO must perform robust backcast testing of the probabilistic model for at least three historical years. The AESO must present its latest results before the filing of base and rebalancing minimum procurement volumes .with commentary that explains how the analysis provides enough confidence on the model forward looking results.</i></p>	
<p><u>TransAlta Corporation (“TransAlta”)</u></p> <p>The AESO should publish modeling results and complete a formal stakeholder consultation process prior to filing with the AUC, as indicated in our recommended changes to the rule language in yellow highlighted text.</p> <p>4(4) The ISO must publish and complete a formal public consultation on its modeling results including a process for accepting and responding to written feedback from stakeholders prior to filing the target procurement volume for the obligation year with the AUC.</p>	<p>The AESO does not agree with TransAlta’s proposal for a new subsection 4(4). Please see the AESO’s reply to Capital Power’s proposal for a new subsection 4(4) in Capital Power’s comments on subsection 4(1) above.</p>
<p>Load Forecast</p> <p>Subsection 5</p>	
<p><u>Capital Power Corporation (“Capital Power”)</u></p> <p>The rule indicates that the AESO will consider performance data from load assets that are qualified to participate in the capacity market to provide demand response. Given that no DR asset has qualified to date, the AESO is not explicitly considering any DR in the load forecast, according to the rule. However, during the CMD consultations and Set 3 capacity market rule stakeholder session, the AESO indicated</p>	<p>The AESO will revise subsection 5(e) of Proposed Section 207.1 to clarify that the load forecast will consider price responsive load that currently participates in the energy market.</p> <p>The AESO does not agree with Capital Power’s proposals for new subsection 5(2) or 5(3). Please see</p>

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<p>that price responsive load has been considered in the preparation of the load forecast. The language in the rule omits this price responsive load, leading to confusion among stakeholders. In subsection 5, the rule must include “price responsive load” as a consideration to perform the load forecast.</p> <p><i>5 (e) performance data from load assets that are qualified to participate in the capacity market to supply capacity;</i></p> <p>The AESO must explain the treatment of price responsive load, whether it is adding or subtracting and how to the forecast based on its historical behavior, to understand its impact on the capacity procurement volumes in the RAM and avoid any risk of over or under procurement.</p> <p><i>New subsection 5(2): The AESO must explain treatment of demand resources in the load forecast, including treatment of historical price responsive load, expected cryptocurrency load response, and how the load forecast and probabilistic modeling do not miss and/or double count these resources.</i></p> <p>The rule should clearly indicate a requirement on the ISO to make a certain level of information publicly available regarding the load forecast inputs and assumptions.</p> <p>Currently, market participants do not have the majority of the information regarding the load forecast used to derive the gross minimum procurement volumes stated in subsection 3 of the rule.</p> <p><i>New subsection 5(3): Before the filing of the minimum procurement volumes, the AESO must provide the assumption data used to derive the load forecast. The AESO must provide at a minimum:</i></p> <ul style="list-style-type: none"> • <i>GDP,</i> • <i>population,</i> • <i>employment,</i> • <i>natural resource production,</i> • <i>any other key macroeconomic variable historical and forecast used for the development of the</i> • <i>model and its results.</i> • <i>Economic forecast uncertainty ranges,</i> • <i>Historical demand,</i> 	<p>the AESO’s reply to Capital Power’s comment on subsection 4(1) above.</p> <p>The AESO does not agree with Capital Power’s proposal for a new subsection 5(4). The 20-year forecast for the AESO’s long term outlook (“LTO”) and the load forecast for the resource adequacy model are two different forecasts for two different purposes. For this reason the AESO does not intend to align the LTO methodology with the resource adequacy model methodology. The AESO is of the view that Capital’s Power’s proposal is outside the scope of the intent for Proposed Section 207.1.</p> <p>The AESO does not agree with Capital Power’s proposal for a new subsection 5(5). Please see the AESO’s reply to Capital Power’s proposal for a new subsection 4(5) above.</p>

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<ul style="list-style-type: none"> • <i>DR assumptions for assets that have qualified and assets that have not qualified,</i> • <i>Cryptocurrency assumptions given their likelihood to participate as DR,</i> • <i>Annual energy and monthly peak demand forecasts,</i> • <i>The temperature locations and weights applied to each location</i> • <i>High level model specifications and additional data details as listed in the ID related to this subsection.</i> <p>The AESO must ensure consistency across its various demand forecast outlooks. Planning of transmission and capacity resources must be based on the same load forecast.</p> <p><i>New subsection 5(4): The 5-year load forecast should be the same as the AESO’s Long Term Outlook (LTO) and, in general, the same load forecasts used for transmission planning purposes. In the event there are variances with other forecasts produced by the AESO, these variances should be explained together with the issuance of the 5-year capacity market load projections.</i></p> <p>On October 1, 2018, the Department of Energy (DoE), issued “Stakeholder Paper no.3 – Revised Regulatory Concepts” , where the DoE revises the resource adequacy standard of normalized expected unserved energy to be “...the expected percentage of total load (in megawatt hours) on the interconnected electric system that is not served in a given 12-month period as a result of demand exceeding the available capacity.” Furthermore, according to the same document, the AESO would be required to report the annual performance against the resource adequacy standard as “the percentage of total load (in megawatt hours) on the interconnected electric system that was not served as a result of demand exceeding the available capacity.” The AES load forecast is required to meet the Government’s revised regulatory resource adequacy standard concept.</p> <p><i>New subsection 5(5): To comply with the Government’s resource adequacy standard translation and definition, the AESO will publish the interconnected electric system load forecast together with the assumptions used to derive such a forecast from the Alberta internal gross load forecast.</i></p>	
<p><u>TransAlta Corporation (“TransAlta”)</u></p> <p>The term “maximize the performance of the load forecast model” included in part 5(g) is unclear and should be revised, as indicated in our recommended changes to the rule language in yellow highlighted</p>	<p>The AESO agrees with the change proposed by TransAlta and will revise Proposed Section 207.1 accordingly.</p>

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<p>text.</p> <p>It is unclear what “maximizing the performance of the load forecast model” refers to in terms of the AESO’s discretion to include other variables. However, we generally agree with the spirit of the subsection and the AESO should have discretion to consider other variables not listed in subsection 5 that it believes will improve the accuracy of the load forecast model. The rule language should be revised as such.</p> <p>Additionally, subsection 5(d) and (e) requires further development as these deal with dynamically changing behaviours and carefully accounting for load that is included in the forecast and demand response that participate in the market. We are concerned that the load forecasting methodologies used today will need to evolve to ensure the load forecasting and resource adequacy modeling are accurate and reliable as load behaviors change and demand response participation increases.</p> <p>5 The ISO 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"> (a) economic growth indicators in Alberta including real gross domestic product, population, employment, and natural resource production; (b) weather and temperature data selected from multiple locations across Alberta; (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; (d) historical load behaviour in Alberta and any projected changes; (e) performance data from load assets that are qualified to participate in the capacity market to supply capacity; (f) load forecast uncertainty reflecting variability in the load forecast due to weather and economic forecasts; and (g) any other variables that, in the ISO’s determination, may improve maximize the accuracy performance of the load forecast model. 	

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<p>Filing of Base Auction Gross Minimum Procurement Volume</p> <p>Subsection 6</p>	
<p><u>Capital Power Corporation (“Capital Power”)</u></p> <p>The rule must specify when procurement volumes for the rebalancing auctions will be filed. Together or before the minimum rebalancing auction volumes, the assumptions and results of the load forecast, as well as, any updates to the probabilistic model assumption should be released as stated in proposed subsection 4(4) above.</p> <p><i>New subsection 6(2): The ISO must file the gross minimum procurement volume for a rebalancing auction determined in accordance with this section 207.1 with the Commission for approval a minimum of 5 months prior to the publication of the Capacity Market Auction Guidelines for the applicable rebalancing auction.</i></p>	<p>The AESO agrees that Proposed Section 207.1 should specify when the gross minimum procurement volume for a rebalancing auction will be filed with the Commission. The AESO will assess whether 5 months, as proposed by Capital Power, is appropriate.</p>
<p><u>Solas Energy Consulting on behalf of the Renewable Energy Coalition (“Solas”)</u></p> <p>Filing of Base Auction Gross Minimum Procurement Volume</p> <p>6 The ISO must, no later than 6 months 60 days prior to the publication of the Capacity Market Auction Guidelines for a base auction, file the gross minimum procurement volume for such base auction that is determined in accordance with this section 207.1 with the Commission for approval.</p>	<p>Please see the AESO’s reply to Solas’ comment on subsection 3 above.</p>
<p><u>TransAlta Corporation (“TransAlta”)</u></p> <p>The reference to the date the Capacity Market Auction Guidelines is published should be removed and replaced with a specific minimum timeframe (12 months) before the base auction, as indicated in our recommended changes to the rule language in yellow highlighted text.</p> <p>The Capacity Market Auction Guidelines includes timelines for prequalification which are anticipated to occur 11 months prior to the base auction date. The timeline of 6 months prior to the base auction provides insufficient notice to capacity market participants about key dates and compliance requirements.</p> <p>6 The ISO must, no later than 12 6 months prior to the publication of the Capacity Market Auction Guidelines for a base auction, file the gross minimum procurement volume for such</p>	<p>To provide additional certainty, the AESO will revise Proposed Section 206.6, <i>Base and Rebalancing Auctions</i> to require the publication of the <i>Capacity Market Auction Guidelines</i> at least one month before the commencement of the qualification process. The AESO considers that this provides enough time for market participants to make business decisions and submit the relevant materials to the AESO. Please see the AESO’s reply to ATCO’s comment on subsection 4 of the AESO’s Replies to Proposed Section 206.6, <i>Base and Rebalancing Auctions</i> matrix.</p> <p>As described in the AESO’s reply to Solas’ comment on subsection 3 above, the AESO is required, pursuant to AUC Rule 017, to file the procurement volumes for the first two auctions with the AUC as part of its application for the approval of the proposed provisional rules. The AESO expects future procurement</p>

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<p>base auction that is determined in accordance with this section 207.1 with the Commission for approval.</p>	<p>volumes to have the same level of Commission oversight. The timeline in subsection 6 of Proposed Section 207.1 is intended to provide sufficient time for Commission review and approval of subsequent procurement volumes, while allowing the AESO to generate the procurement volume as close as possible to the auction. Therefore, the AESO does not agree with the change proposed by TransAlta.</p>
<p>Applicable Auctions Subsection 7</p>	
<p><u>Capital Power Corporation (“Capital Power”)</u></p> <p>Subject to the AUC’s further consultation and amendments to AUC Rule 017 on application of ISO rules that pertain to the demand curve and related elements of the capacity market, the ISO rule should provide the governance framework and stakeholder consultation process including timelines that the AESO will follow to develop the subsequent set of rules.</p> <p>Also, subject to the AUC Rule 017 amendments, the ISO rules should specify the requirements and process that the AESO will follow to update the load forecast, reliability requirement, net-CONE and demand curve between each of the obligation periods described in this Section 7. The timelines, information to be disclosed by the AESO and engagement process should be specified for both base and rebalancing auctions.</p>	<p>The Commission must approve subsequent demand curve rules in accordance with the governance framework under the <i>Electric Utilities Act</i>. AUC Rule 017 will govern the consultation process for such rules.</p>
<p><u>TransAlta Corporation (“TransAlta”)</u></p> <p>Section 207.1 should be a permanent rule and should not be specified to only apply for the first four obligation periods – therefore, this section should be removed, as indicated in our recommended changes to the rule language in yellow highlighted text.</p> <p>The content of Section 207.1 should be a permanent ISO Rule and should not be applied as a fixed period rule. We note that this applicability language was likely included because the rule language originally included the AESO’s actual proposed numerical gross minimum procurement volumes as well as appendices to the ISO Rule that detail additional periodically changing numerical values. However, if the entire ISO Rule is periodically reopened to update changing variables, the CMD will lack the necessary permanency to remove regulatory uncertainty and enable private investment, which would increase investment risk and, in turn, raise costs to consumers.</p> <p>7 This Section 207.1 is in effect for the following auctions:</p>	<p>The AESO does not agree with the change proposed by TransAlta. The AESO is proposing to revisit the demand curve rules on a regular cycle to ensure that the methodologies underlying the establishment of the demand curve account for changes in the market and remain appropriate. Therefore, the AESO has specified that the demand curve rules will only apply to the auctions for the first four obligation periods.</p>

Stakeholder Comments and/or Proposed Alternative Rule Wording	AESO Replies
<p>(a) the base auction and rebalancing auction for the 2021/2022 obligation period; (b) the base auction and rebalancing auction for the 2022/2023 obligation period; (c) the base auction and rebalancing auction for the 2023/2024 obligation period; and (d) the base auction and rebalancing auctions for the 2024/2025 obligation period.</p>	

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

Item #		Stakeholder comments	AESO Replies
1	whether you agree that Section 207.1 of the ISO Rules, <i>Gross Minimum Procurement Volume</i> relates to the capacity market and why or why not	<p><u>Capital Power Corporation (“Capital Power”)</u> Capital Power agrees that the proposed rule relates to the capacity market and is, generally, necessary to establish the requirements to meet the reliability standard as legislated by the Government of Alberta.</p> <p><u>TransAlta Corporation (“TransAlta”)</u> Please see Appendix 1 of TransAlta’s submission.</p> <p><u>Utilities Consumer Advocate (“UCA”)</u> Yes, the UCA believes that the Gross Minimum Procurement Volume relates to the capacity market due to its relationship with the demand curve.</p>	<p>The AESO acknowledges Capital Power’s comment.</p> <p>Please see the AESO’s replies to Appendix 1 of TransAlta’s November 14, 2018 submission in the AESO Replies to TransAlta’s Appendix 1 matrix.</p> <p>The AESO acknowledges the UCA’s comment.</p>
2	whether you agree that Section 207.1 of the ISO Rules, <i>Gross Minimum Procurement Volume</i> should or should not be in effect for a fixed term and why or why not	<p><u>Capital Power Corporation (“Capital Power”)</u> Capital Power understands that the AESO’s reliability modeling is in early stages and that, as a matter of common practice, demand curves should generally be re-set every 3 or 4 years and therefore agrees with the rationale for prescribing a fixed term for the proposed rule as proposed in subsection 7.</p> <p><u>TransAlta Corporation (“TransAlta”)</u> Please see Appendix 1 of TransAlta’s submission.</p> <p><u>Utilities Consumer Advocate (“UCA”)</u> Considering the many unknowns that will affect the market and the uncertainty inherent in any new design, a short fixed-term would be</p>	<p>The AESO acknowledges Capital Power’s comment.</p> <p>Please see the AESO’s replies to Appendix 1 of TransAlta’s November 14, 2018 submission in the AESO Replies to TransAlta’s Appendix 1 matrix.</p> <p>The AESO acknowledges the UCA’s comment.</p>

		appropriate to allow a revision if necessary. This is fundamental to the market design and therefore it should be reviewed to ensure that it is correct.	
3	whether you understand and agree with the objective or purpose of Section 207.1 of the ISO Rules, <i>Gross Minimum Procurement Volume</i> and whether, in your view, Section 207.1 of the ISO Rules, <i>Gross Minimum Procurement Volume</i> meets the objective or purpose	<u>Capital Power Corporation (“Capital Power”)</u> Capital Power agrees with the objective or purpose of the proposed rule which it understands as defining the gross minimum procurement volume for the base auctions of the capacity market.	The AESO acknowledges the Capital Power’s comment.
		<u>Solas Energy Consulting on behalf of the Renewable Energy Coalition (“Solas”)</u> The Coalition does not agree with the objective of submitting Minimum Procurement Volumes to the AUC one year ahead of the start of the Base Auction Prequalification process.	Please see the AESO’s reply to Solas’ comment on subsection 3 above.
		<u>TransAlta Corporation (“TransAlta”)</u> Please see Appendix 1 of TransAlta’s submission.	Please see the AESO’s replies to Appendix 1 of TransAlta’s November 14, 2018 submission in the AESO Replies to TransAlta’s Appendix 1 matrix.
		<u>Utilities Consumer Advocate (“UCA”)</u> The UCA understands and agrees with the objective proposed in Section 207.1.	The AESO acknowledges the UCA’s comment.
4	how, in your view, Section 207.1 of the ISO Rules, <i>Gross Minimum Procurement Volume</i> affects the performance of the capacity market and the electricity market	<u>Capital Power Corporation (“Capital Power”)</u> Capital Power has no comments at this time.	
		<u>Solas Energy Consulting on behalf of the Renewable Energy Coalition (“Solas”)</u> The Gross Minimum Procurement Volume as proposed will negative impact the performance of the electricity market due to the risk of over procurement.	Please see the AESO’s reply to Solas’ comment on subsection 2 above.

		<p><u>TransAlta Corporation (“TransAlta”)</u> Please see Appendix 1 of TransAlta’s submission.</p>	<p>Please see the AESO’s replies to Appendix 1 of TransAlta’s November 14, 2018 submission in the AESO Replies to TransAlta’s Appendix 1 matrix.</p>
		<p><u>Utilities Consumer Advocate (“UCA”)</u> If the <i>Gross Minimum Procured Volume</i> 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. Over-procurement will also cost consumers more with no additional value.</p>	<p>The AESO acknowledges the UCA’s comment.</p>
5	your views on any analysis conducted or commissioned by the AESO supporting Section 207.1 of the ISO Rules, <i>Gross Minimum Procurement Volume</i>	<p><u>Capital Power Corporation (“Capital Power”)</u> Greater transparency and analysis around price responsive load and potential future DR is missing.</p>	<p>Please see the AESO’s reply to Capital Power’s comment on subsection 5 above.</p>
		<p><u>Solas Energy Consulting on behalf of the Renewable Energy Coalition (“Solas”)</u> Further analysis is required to understand the reliability model and reliability results. Details recommendations have been included below.</p>	<p>Please see the AESO’s reply to Solas’ comment on subsection 2 above.</p>
		<p><u>TransAlta Corporation (“TransAlta”)</u> Please see Appendix 1 of TransAlta’s submission.</p>	<p>Please see the AESO’s replies to Appendix 1 of TransAlta’s November 14, 2018 submission in the AESO Replies to TransAlta’s Appendix 1 matrix.</p>
		<p><u>Utilities Consumer Advocate (“UCA”)</u> The UCA believes that the analysis performed has resulted in a <i>Gross Minimum Procurement Volume</i> that is too high. The AESO also 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. Over procurement will</p>	<p>Please note that AESO has revised the gross minimum procurement volumes for the 2021/2022 and 2022/2023 obligation periods. Please see the AESO’s November 28, 2018 Letter of Notice – Proposed New Section 207.2 of the ISO rules, <i>Gross Minimum Procurement Volume</i>. Stakeholders have until December 13, 2018 to provide comments on the new gross minimum procurement volumes</p>

		lead to increased costs to consumers.	Distributed generation resources with a maximum capability greater than or equal to 5 MW, or with a uniform capacity value greater than or equal to 1 MW will be considered in the resources adequacy model in accordance with subsection 4(1)(b) of Proposed Section 207.1.
6	whether you agree with Section 207.1 of the ISO Rules, <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	<u>Capital Power Corporation (“Capital Power”)</u> Greater requirements for transparency, disclosure of assumptions and data as well as backcast information needs to be mandated in the rule for stakeholder to determine if the gross minimum procurement volume supports the principle of a fair, efficient and openly competitive market.	Please see the AESO’s reply to Solas’ comments on subsection 2 above.
		<u>Solas Energy Consulting on behalf of the Renewable Energy Coalition (“Solas”)</u> The proposed Minimum Procurement Volumes present a risk to the efficiency and competitiveness of the market. There risk of over procurement will lead to depressed energy market prices which is not economically efficient and will hurt the ability for generators to compete.	Please see the AESO’s reply to Solas’ comments on subsection 2 above.
		<u>TransAlta Corporation (“TransAlta”)</u> Please see Appendix 1 of TransAlta’s submission.	Please see the AESO’s replies to Appendix 1 of TransAlta’s November 14, 2018 submission in the AESO Replies to TransAlta’s Appendix 1 matrix.
		<u>Utilities Consumer Advocate (“UCA”)</u> If this section results in over procurement, it won’t promote efficient market outcomes.	The AESO acknowledges the UCA’s comment.
7	whether you would suggest any alternatives to Section 207.1 of the ISO Rules, <i>Gross Minimum Procurement Volume</i>	<u>Capital Power Corporation (“Capital Power”)</u> See suggested subsection additions in comments to the rule above. In addition, for clarity key elements of the load forecast and minimum procurement volume must be defined in the rule. Capital Power provides above six key term definitions above.	Please see the AESO’s reply to Capital Power’s comment on definitions under subsection 2 above.

		<p><u>Solas Energy Consulting on behalf of the Renewable Energy Coalition (“Solas”)</u></p> <p>Minimum Procurement Volumes should be submitted to the AUC for approval approximately two months of the start of the Base Auction Prequalification process. The AESO and AUC should develop rules to facilitate Minimum Procurement Volume approval within that timeframe.</p>	<p>Please see the AESO’s reply to Solas’ comment on subsection 3 above.</p>
		<p><u>TransAlta Corporation (“TransAlta”)</u></p> <p>Please see Appendix 1 of TransAlta’s submission.</p>	<p>Please see the AESO’s replies to Appendix 1 of TransAlta’s November 14, 2018 submission in the AESO Replies to TransAlta’s Appendix 1 matrix.</p>
		<p><u>Utilities Consumer Advocate (“UCA”)</u></p> <p>Refer to comments.</p>	
<p>8</p>	<p>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</p>	<p><u>Capital Power Corporation (“Capital Power”)</u></p> <p>To ensure reliable supply of electricity as well as reasonable costs to customers, the rule must reflect the proper treatment of and accounting for DR including likely DR. However, these aspects are missing from the currently proposed rule. In addition, market participants need more transparency and assumptions information to assess the reliability and reasonable costs principles. Capital Power strongly recommends that the rule be revised as proposed above. Capital Power encourages the AESO to develop presentation of detailed assumption data in associated information document as noted in Capital Power’s comments to IDs.</p>	<p>Please see the AESO’s reply to Capital Power’s comments on subsections 4(1) and 5 above.</p>
		<p><u>Solas Energy Consulting on behalf of the Renewable Energy Coalition (“Solas”)</u></p> <p>The Minimum Procurement Volumes as proposed will result in elevated Capacity Market costs to customers due to the high likelihood of over procurement. Over procurement may lead to depressed energy market prices, but this balance is not in customers interests. Customers can control their Energy Market costs, but not</p>	<p>Please see the AESO’s reply to Solas’ comments on subsection 2 above.</p>

		<p>their Capacity Market costs. It is in the customers interest to minimize the risk of over procurement</p>	
		<p><u>TransAlta Corporation (“TransAlta”)</u> Please see Appendix 1 of TransAlta's submission.</p>	<p>Please see the AESO's replies to Appendix 1 of TransAlta's November 14, 2018 submission in the AESO Replies to TransAlta's Appendix 1 matrix.</p>
		<p><u>Utilities Consumer Advocate (“UCA”)</u> If the Gross Minimum Procured Volume 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. This will not result in reasonable costs to consumers.</p>	<p>The AESO acknowledges the UCA's comment.</p>
9	whether you agree that the proposed provisional rule supports the public interest and why or why not	<p><u>Capital Power Corporation (“Capital Power”)</u> Capital Power has no comments at this time.</p>	
		<p><u>Solas Energy Consulting on behalf of the Renewable Energy Coalition (“Solas”)</u> The proposed Minimum Procurement Volumes are not in the public interest. Over procurement will lead to higher than necessary Capacity Market costs and depressed Energy Market prices that will reduce investor confidence and lead to higher cost volatility and higher overall costs in the long run.</p>	<p>Please see the AESO's reply to Solas' comments on subsection 2 above.</p>
		<p><u>TransAlta Corporation (“TransAlta”)</u> Please see Appendix 1 of TransAlta's submission.</p>	<p>Please see the AESO's replies to Appendix 1 of TransAlta's November 14, 2018 submission in the AESO Replies to TransAlta's Appendix 1 matrix.</p>
		<p><u>Utilities Consumer Advocate (“UCA”)</u> If the costs are too high the public interest is not supported.</p>	

10	whether you have any additional comments	<u>Capital Power Corporation (“Capital Power”)</u> Capital Power has no comments at this time.	
		<u>TransAlta Corporation (“TransAlta”)</u> Please see Appendix 1 of TransAlta's submission.	Please see the AESO's replies to Appendix 1 of TransAlta's submission in the AESO Replies to TransAlta's Appendix 1 matrix.
		<u>Utilities Consumer Advocate (“UCA”)</u> No.	