

Section 202.6 of the ISO rules, *Adequacy of Supply*

Proposed Substantive Amendments	Overview of Proposed Changes
<p><b>Applicability</b></p> <p>1 Section 202.6 applies to:</p> <p>(a) the <b>ISO</b>.</p>	<p>No proposed changes</p>
<p><b>Requirements</b></p> <p><u>Supply Adequacy Assessments Forecast</u></p> <p>2 The <b>ISO</b> must, in order to assist in determining whether to cancel a <del>planned outage or unplanned outage</del> of generation <del>outage</del> under section 306.5 of the <b>ISO rules, Generation Outage and Reporting and Coordination, forecast assess the supply adequacy</b> <del>of supply by, at a minimum, completing a supply and load forecast using the peak demand hour of every day for a two (2) year period, calculated as the sum of the following:</del></p> <p>(a) <del>the maximum capability from all generating units in Alberta with a maximum capability equal to or greater than 5 MW;</del></p> <p>plus</p> <p>(b) <del>an estimate of the output from aggregated generating facilities;</del></p> <p>plus</p> <p>(c) <del>import available transfer capability on interconnections with a program that increases available transfer capability;</del></p> <p>minus</p> <p>(d) <del>declared generating unit derates;</del></p>	<p>The AESO currently complies with subsection 2 by using an automated process to perform and publish a supply adequacy forecast<sup>1</sup> on a daily basis. Whereas the AESO may cancel a generation outage in the real-time operational domain on an emergency basis, to date the AESO has not relied on the results of its supply adequacy assessments to cancel a generation outage under Section 306.5 of the ISO rules, <i>Generation Outage Reporting and Coordination</i>. Further, the AESO considers that, in the rare event that a generation outage must be cancelled as a result of a supply adequacy shortfall, the AESO would report on the situation to a level of detail that meets or exceeds the information provided in the daily supply adequacy reports.</p> <p>For the reasons above, the AESO is of the view that the prescriptive forecast methodology in subsection 2 is not necessary. The AESO proposes to retain the core requirement for the AESO to forecast supply adequacy prior to cancelling a generation outage. Notwithstanding this proposed amendment, the AESO plans to continue its practice of publicly posting the results of its supply adequacy forecasts on a daily basis.</p>

<sup>1</sup> Available online at [http://ets.aeso.ca/Market/Reports/Manual/AiesGraphs/24\\_month\\_supply\\_and\\_demand.html](http://ets.aeso.ca/Market/Reports/Manual/AiesGraphs/24_month_supply_and_demand.html)

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<p>minus                      (e) any capacity of <del>generating units</del> which are affected by <del>transmission constraints</del>;                      minus                      (f) anticipated <del>generating unit</del> derates;                      minus                      (g) the daily forecast <del>Alberta internal load</del>;                      minus                      (h) <del>operating reserves</del> requirements;                      plus                      (i) price responsive load;                      plus                      (j) aggregate <del>planned outage, unplanned outage and forced outage</del> records for load;                      plus                      (k) load for <del>demand opportunity service</del>.</p>	
<p><b>Short Term Adequacy Assessments</b>                      3 — The ISO must, every hour, assess the short term <del>adequacy</del> of supply by, at a minimum, completing a real time <del>adequacy</del> assessment for each <del>settlement interval</del> of the current <del>day</del> and for the six (6) remaining <del>days</del> of the <del>forecast scheduling period</del> on the <del>day</del> preceding that current <del>day</del>, calculated as the sum of the following:                      (a) <del>available capability</del> from all generating <del>source assets</del> in Alberta with a <del>maximum capability</del> equal to or greater than 5 MW with a start-up</p>	<p>The methodology in subsection 3 for real-time adequacy assessments is a market indicator and not a reliability indicator, and does not align with how the AESO manages supply shortfall in real-time. Rather, the AESO follows the procedures and requirements set out in Section 202.2 of the ISO rules, <i>Short-Term Adequacy and Supply Shortfall</i>, coupled with the basic requirement for the AESO to be situationally aware at all times with respect to short-term adequacy                      Therefore, and in light of the AESO's overarching legislative duty to safely and</p>

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<p><del>time less than or equal to one (1) hour or with a submitted start time at or before the period being assessed;</del></p> <p>plus</p> <p><del>(b) estimated output from <b>aggregated generating facilities</b>;</del></p> <p>plus</p> <p><del>(c) estimated amount of price responsive load;</del></p> <p>plus</p> <p><del>(d) estimated amount of <b>demand opportunity service</b> load that is to be curtailed;</del></p> <p>plus</p> <p><del>(e) on-site generation that supplies behind the fence load and submits <b>available capability</b> as a net-to-grid value;</del></p> <p>plus</p> <p><del>(f) import <b>available transfer capability</b> on the interties;</del></p> <p>minus</p> <p><del>(g) the peak forecast load from the day-ahead forecast of <b>Alberta internal load</b>;</del></p> <p>minus</p> <p><del>(h) the ISO's <b>spinning reserve</b> requirement;</del></p> <p>minus</p>	<p>reliably operate the Alberta interconnected electric system<sup>2</sup>, the obligation to perform a short-term adequacy assessment as currently contemplated in subsection 3 is not relevant and provides no value. Additional tools and references currently used by the AESO for ensuring the safe and reliable operation of the Alberta interconnected electric system include:</p> <ul style="list-style-type: none"> <li>• Section 305.4, of the ISO rules, <i>System Security</i> to manage “system security”, with “system security” being defined in the <i>AESO Consolidated Authoritative Document Glossary</i> as “[...] the safe scheduling, operation and control of the AIES on a day-to-day basis in accordance with the specified technical, security and operational standards to withstand events such as electric short circuits, unanticipated loss of AIES components and switching operations without experiencing cascading loss of AIES components or uncontrolled loss of load.” (bold font in original omitted)</li> <li>• Section 305.1 of the ISO rules, <i>Energy Emergency Alerts</i>, and the related AESO Information Document #2012-024R, <i>Energy Emergency Alerts</i></li> <li>• Reliability standards, including reliability standard EOP-001-AB-2.1b, <i>Emergency Operations Planning</i>, pertaining to short-term adequacy assessments and which states at Requirement R2, “The ISO must develop, maintain and implement a capacity and energy emergency plan to mitigate insufficient generating capacity.” Notably, the AESO’s emergency plan includes a short-term assessment.</li> </ul> <p>Notwithstanding this proposed amendment, the AESO plans to continue its practice of publicly posting the results of its <i>Supply Adequacy Report</i>.<sup>3</sup></p>

<sup>2</sup> *Electric Utilities Act*, section 17(h)

<sup>3</sup> Available online at [http://ets.aeso.ca/ets\\_web/ip/Market/Reports/SupplyAdequacyReportServlet](http://ets.aeso.ca/ets_web/ip/Market/Reports/SupplyAdequacyReportServlet)

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<p><del>(i) constrained down generation, with the exception of constrained down aggregated generation facilities.</del></p>	
<p><b>Long Term Adequacy Metrics and Reporting</b></p> <p><del>34(1) The ISO must establish, maintain and report on long term adequacy metrics on a quarterly basis in accordance with this section 202.6.</del></p> <p><del>(2) The ISO must make report on publicly available the following long term adequacy metrics publicly available on a quarterly basis:</del></p> <p>(a) <del>a list of Alberta electrical generation projects and retirements metric which is a non-confidential project list indicating such relevant information as the project name, the project proponents, the MW size of the project and the estimated year of project completion;</del></p> <p>(b) a forecast reserve margin <del>metric</del>, including a reserve margin metric which must have a minimum five (5) year forecast period and be calculated using a methodology that:</p> <p><del>(i) is a measure, expressed in percentage terms, representing the amount of generation capacity at the time of system peak that is in excess of the annual peak demand;</del></p> <p><del>(ii) utilizes ISO load forecasts;</del></p> <p><del>(iii) utilizes existing generating unit capacity information such as maximum capability and the generation metric forecast capacity published as part of the Alberta electrical generation projects and retirements metric;</del></p> <p><del>(iv) accounts for behind the fence load and generation capacity;</del></p> <p><del>(v) excludes wind and solar generation and adjusts for hydro generation available at the time of system peak;</del></p>	<p>The AESO is of the view that this provision should be maintained, with amendments, given that long-term adequacy metrics provide the market with valuable information about the long-term adequacy of generation capacity, which in turn acts as an investment signal for market participants and the development of new generation.</p> <p>The AESO proposes to maintain the requirement for current long-term adequacy assessments and corresponding reporting obligations under the current subsection 4 where they do not overlap with the AESO's other legislative forecasting obligations and where the development of these metrics derive from substantial industry consultation and input.</p> <p>The AESO considers that the prescriptive assessment methodology in current subsection 4 contributes to unnecessary red tape and therefore proposes the removal of the prescriptive calculation methodologies, the prescriptive requirements for the supply adequacy shortfall metric, and the non-confidential project list criteria. These specific details, formulated so as to minimize red tape, would be more appropriately reflected in a supporting AESO information document. A supporting information document would maintain transparency while promoting flexibility for the AESO to update the methodology to account for a dynamic energy mix.</p> <p>The AESO plans to continue providing the metrics in a format similar to the current format.</p>

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<p><del>(vi) incorporates <b>interconnection</b> capacity; and</del></p> <p><del>(vii) may reflect more than a single supply and load scenario for the system;</del></p> <p>(c) a supply cushion metric which provides a <del>two (2)</del> year forecast of available daily generation capacity and peak demand; <del>both measured in MW which must be calculated using a methodology that:</del></p> <p><del>(i) incorporates <b>generating unit</b> capacity information such as the <b>maximum capability of generating units</b>;</del></p> <p><del>(ii) utilizes <b>ISO</b> load forecasts;</del></p> <p><del>(iii) incorporates daily average <b>planned outages</b> and derates as reported by <b>pool participants</b> in their <b>planned outage</b> scheduling submissions as well as a nominal average <b>unplanned outage</b> and <b>forced outage</b> rate;</del></p> <p><del>(iv) accounts for behind the fence load and generation capacity;</del></p> <p><del>(v) excludes wind and solar generation and adjusts for hydro generation available at the time of daily system peak;</del></p> <p><del>(vi) excludes <b>interconnection</b> capacity; and</del></p> <p><del>(vii) excludes existing generation that is contractually available but that does not participate in the energy market;</del></p> <p><u>and</u></p> <p>(d) a <del>two (2)</del> year probability of supply <b>adequacy</b> shortfall metric <del>which provides a probabilistic assessment of a state of <b>supply shortfall</b> over the next two (2) years, and which must be calculated using a methodology that:</del></p> <p><del>(i) utilizes <b>ISO</b> load forecasts;</del></p> <p><del>(ii) utilizes existing <b>generating unit</b> capacity information such as <b>maximum capability</b> and the generation metric capacity published</del></p>	

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<p><del>as part of the Alberta electrical generation and retirements metric;</del></p> <p><del>(iii) incorporates hourly <b>planned outages</b> and derates as reported by <b>pool participants</b> in their <b>planned outage</b> scheduling submissions;</del></p> <p><del>(iv) incorporates <b>interconnection</b> capacity estimates; and</del></p> <p><del>(v) utilizes a distribution of outcomes for the following inputs:</del></p> <p><del>(A) intermittent or energy limited resources; and</del></p> <p><del>(B) <b>unplanned outages</b> and <b>forced outages</b>.</del></p>	
<p><b>Long Term Adequacy Threshold Determination and Use</b></p> <p><b>45(1)</b> The ISO must, for the <del>two (2)</del> year probability of supply <b>adequacy</b> shortfall metric model set out in subsection <del>43(2)(d)</del>, use a <b>long term adequacy</b> threshold which:</p> <p>(a) represents the equivalent impact of the probability of having a system supply shortfall occur once every <del>ten (10)</del> years; and</p> <p>(b) is calculated as the <del>one (1)</del> hour average <b>Alberta internal load</b> for a year divided by <del>five (5)</del>;</p> <p>being the level which, if exceeded, would indicate a need for the ISO to consider taking preventative action.</p> <p><b>(2)</b> The ISO must, using the <del>two (2)</del> year probability of supply <b>adequacy</b> shortfall metric, estimate on a quarterly basis the expected total system MWh not served in a subsequent <del>two (2)</del> year period.</p> <p><b>(3)</b> The ISO must, if the estimated total system MWh not served exceeds the <b>long term adequacy</b> threshold established at the time, undertake further studies to verify the likely cause, magnitude and timing of the potential <b>adequacy</b> issue.</p>	<p>No proposed substantive changes</p> <p>The AESO is of the view that this provision should be maintained given that a long term adequacy threshold informs the potential need for the AESO to take preventative action to avoid supply shortfall.</p> <p>The AESO's long term adequacy threshold is not defined elsewhere. It is an accepted practice for ISOs to document their generation adequacy standards, and the AESO is of the view that this information appropriately rests in an AESO authoritative document like Section 202.6.</p>

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<p><b>Long Term Adequacy Threshold Actions</b></p> <p><del>56</del> The ISO may, if the <b>long term adequacy</b> threshold is exceeded and the ISO deems that a potential <b>adequacy</b> issue requires preventative action, procure <del>any one (1) or more of the following</del> services <u>to address the potential adequacy issue, including:</u></p> <ul style="list-style-type: none"> <li>(a) load shed;</li> <li>(b) self-supply and back-up generation that would not otherwise be available to participate in the energy market; <del>and or</del></li> <li>(c) emergency portable generation;</li> </ul> <p><del>being long term adequacy threshold actions.</del></p>	<p>No proposed substantive changes</p> <p>To date, the AESO has not taken the preventative actions contemplated in this provision. However, the AESO is of the view that this provision should be maintained because it provides transparency about the potential steps the AESO may take to prevent supply shortfall. The AESO considers that these preventative actions remain effective solutions to bridge a temporary adequacy gap without impacting investor confidence in the market.</p>
<p><b>Procurement of Long Term Adequacy Threshold Actions</b></p> <p><del>7</del> <del>The ISO must procure long term adequacy threshold actions using established ISO procurement procedures and, where possible and practical, in a manner that encourages competition.</del></p>	<p>The AESO considers that this provision can be removed in its entirety for the following reasons:</p> <ul style="list-style-type: none"> <li>(i) a requirement for the AESO to follow its own procedures is not necessary; and</li> <li>(ii) the reference to “a manner that encourages competition” is redundant considering the AESO’s legislative duties to exercise its powers and carry out its duties, responsibilities, and functions in a manner that provides for the economic operation of the interconnected electric system, and to promote a fair, efficient and openly competitive electricity market for electricity.<sup>4</sup></li> </ul>
<p><b>Recovery of Long Term Adequacy Threshold Actions Costs</b></p> <p><del>8(1)</del> <del>The ISO must, if it procures long term adequacy threshold actions, establish a methodology that results in the recovery of the costs of long term</del></p>	<p>The AESO considers that this provision duplicates the <i>Electric Utilities Act (EUA)</i> and can be removed in its entirety:</p> <ul style="list-style-type: none"> <li>(i) <u>Subsection 8(1)</u>: The AESO must recover the costs of long-term</li> </ul>

<sup>4</sup> EUA, section 16

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<p><del>adequacy threshold actions:</del></p> <p><del>(2) — The ISO must institute a charge to load, primarily directed to the pool participants who consume energy during higher priced hours, which recovers the costs of long term adequacy threshold actions.</del></p>	<p>adequacy threshold actions pursuant to legislation (see the AESO's duty under section 14(3) of the <i>EUA</i>), to not carry a profit or loss, on an annual basis, from its operation).</p> <p>(ii) <u>Subsection 8(2)</u>: The AESO is required to manage and recover the costs of ancillary services through the ISO tariff or an ISO fee (see the AESO's duties under <i>EUA</i>, sections 17(f) and 30(4)).</p>