

ISO Rules

Part 200 Markets

Division 202 Non-Routine Conditions in the Markets

Section 202.6 Adequacy of Supply



External Consultation Draft
October 22, 2018

Applicability

- 1 Section 202.6 applies to:
- (a) the ISO.

Requirements

Adequacy Assessments

2 The ISO must, in order to assist in determining whether to cancel a **planned outage** or **unplanned outage** of generation **or delist outage** under section 306.59 of the ISO rules, ~~Generation Outage and Reporting Cancellation~~, assess the **adequacy** of supply by, at a minimum, completing a supply and load forecast using the peak demand hour of every **day** for a ~~two (minimum 2)~~ year period, calculated as the sum of the following:

(a) ~~the maximum capability that is associated with offers in the Alberta energy market, from all generating units in Alberta;~~

~~plus~~

~~with a (b) the maximum capability equal to or greater than 5 MW that is associated with offers in the Alberta energy market, from load sink assets;~~

~~plus~~

~~(c) plus~~

an estimate of the output from **aggregated generating facilities;**

~~plus~~

~~(d) plus~~

import **available transfer capability** on **interconnections** with a program that increases **available transfer capability;**

minus

(e) ~~declared maximum capability derates from a generating unit derates, or load;~~

minus

(f) ~~any capacity of generating units which are affected by transmission market constraints;~~

minus

(g) ~~anticipated maximum capability derates from a generating unit derates or load;~~

minus

(h) ~~the daily forecast Alberta internal load;~~

minus

(i) ~~operating reserves requirements;~~

plus

ISO Rules

Part 200 Markets

Division 202 Non-Routine Conditions in the Markets

Section 202.6 Adequacy of Supply



- (j) price responsive load; excluding the maximum capability of a load sink asset referred to in subsection 2(b);
plus
- (k) aggregate **planned outage**, **unplanned outage** and **forced outage** records for load;
plus
- (l) load for **demand opportunity service**.

Short Term Adequacy Assessments

3 The **ISO** must, every hour, assess the short term **adequacy** of supply by, at a minimum, completing a real time **adequacy** assessment for each **settlement interval** of the current **day** and for the ~~six (6)~~ remaining **days** of the **forecast scheduling period** on the **day** preceding that current **day**, calculated as the sum of the following:

- (a) **available capability** that is associated with offers in the Alberta energy market, from all load sink assets and generating source assets in Alberta with a maximum capability equal to or greater than 5 MW units with a start-up time less than or equal to ~~one (1)~~ hour or with a submitted start time at or before the period being assessed;
plus
- (b) estimated output from **aggregated generating facilities**;
plus
- (c) estimated amount of price responsive load; excluding the available capability of a load sink asset referred to in subsection 3(a);
plus
- (d) estimated amount of **demand opportunity service** load that is to be curtailed;
plus
- (e) on-site generation that supplies behind-the-fence load and submits **available capability** as a net-to-grid value;
plus
- (f) import **available transfer capability** on the **interties**;
minus
- (g) the peak forecast load from the day-ahead forecast of **Alberta internal load**;
minus
- (h) the **ISO's spinning reserve** requirement;
minus
- (i) constrained down generation, with the exception of constrained down **aggregated generation facilities**.

ISO Rules

Part 200 Markets

Division 202 Non-Routine Conditions in the Markets

Section 202.6 Adequacy of Supply



Long Term Resource Adequacy Metrics and Reporting Standard Assessment

~~4(1)~~ The ISO must ~~establish, maintain and report, if the ISO determines that:~~

~~(a) the normalized expected unserved energy in 1 year on long term average exceeds the resource adequacy metrics on a quarterly basis in accordance with this section 202.6 standard; and~~

~~(2) The ISO must make publicly available the following long term adequacy metrics:~~

~~(a) an 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, (b) the MW size of the project and the estimated year of project completion;~~

~~(b) a forecast reserve margin metric, including a reserve margin metric which must have a minimum five (5) year forecast period and be calculated using a methodology that:~~

~~(i) is a measure, expressed in percentage terms, representing the amount of generation capacity at the time of the total load on the interconnected electric system peak in a year in MWh that is in excess of the annual peak demand;~~

~~(ii) utilizes ISO load forecasts;~~

~~(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;~~

~~(iv) accounts for behind the fence load and generation capacity;~~

~~(v) excludes wind and solar generation and adjusts for hydro generation available at the time of system peak;~~

~~(vi) incorporates interconnection capacity; and~~

~~(vii) may reflect more than a single supply and load scenario for the system;~~

~~(c) a supply cushion metric which provides a two (2) year forecast of available daily generation capacity and peak demand both measured in MW which must be calculated using a methodology that:~~

~~(i) incorporates generating unit capacity information such as the maximum capability of generating units;~~

~~(ii) utilizes ISO load forecasts;~~

~~(iii) incorporates daily average planned outages and derates as reported by pool participants in their planned outage scheduling submissions as well as a nominal average unplanned outage and forced outage rate;~~

~~(iv) accounts for behind the fence load and generation capacity;~~

~~(v) excludes wind and solar generation and adjusts for hydro generation available at the time of daily system peak;~~

~~(vi) excludes interconnection capacity; and~~

~~(vii) excludes existing generation that is contractually available but that does not participate in the energy market;~~

~~(d) a two (2) year probability of supply adequacy shortfall metric which provides a probabilistic~~

ISO Rules

Part 200 Markets

Division 202 Non-Routine Conditions in the Markets

Section 202.6 Adequacy of Supply



~~assessment of a state of **supply shortfall** over the next two (2) years and which must be calculated using a methodology that:~~

- ~~(i) — utilizes **ISO** load forecasts;~~
- ~~(ii) — utilizes existing **generating unit** capacity information such as **maximum capability** and the generation metric capacity published as part of the Alberta electrical generation and retirements metric;~~
- ~~(iii) — incorporates hourly **planned outages** and derates as reported by **pool participants** in their **planned outage** scheduling submissions;~~
- ~~(iv) — incorporates **interconnection** capacity estimates; and~~
- ~~(v) — utilizes a distribution of outcomes for the following inputs:
 - ~~(A) — intermittent or energy limited resources; and~~
 - ~~(B) — **unplanned outages** and **forced outages**.~~~~

~~Long Term Adequacy Threshold Determination and Use~~

~~**5(1)** — The **ISO** must, for the two (2) year probability of supply **adequacy** shortfall metric model set out in subsection 4(2)(d), use a **long term adequacy** threshold which:~~

- ~~(a) — represents the equivalent impact of the probability of having a system supply shortfall occur once every ten (10) years; and~~
- ~~(b) — is calculated as the one (1) hour average **Alberta internal load** for a year divided by five (5); being the level which, if exceeded, would indicate expected to be served indicates a need for the **ISO** to consider taking preventative action.~~

~~**(2)** — The **ISO** must, using the two (2) year probability of supply **adequacy** shortfall metric, estimate on a quarterly basis the expected total system MWh not served in a subsequent two (2) year period.~~

~~**(3)** — The **ISO** must, if the estimated total system MWh not served exceeds the **long term adequacy** threshold established at the time, undertake further studies to verify the likely cause, magnitude and timing of the potential **adequacy** issue.~~

~~Long Term Resource Adequacy Standard Threshold Actions~~

~~**65** The **ISO** may, if the **long term resource adequacy standard** threshold is exceeded and the **ISO** deems that a potential **adequacy** issue requires preventative action, procure any ~~one (1)~~ or more of the following services:~~

- ~~(a) load shed;~~
- ~~(b) self-supply and back-up generation that would not otherwise be available to participate in the energy market; and~~
- ~~(c) emergency portable generation;~~

being long term resource adequacy standard threshold actions.

~~Procurement of Long Term Resource Adequacy Standard Threshold Actions~~

~~**76** The **ISO** must procure **long term resource adequacy standard** threshold actions using~~

ISO Rules

Part 200 Markets

Division 202 Non-Routine Conditions in the Markets

Section 202.6 Adequacy of Supply



established **ISO** procurement procedures and, where possible and practical, in a manner that encourages competition.

Recovery of **Long-Term Resource Adequacy Standard** Threshold Actions Costs

87(1) The **ISO** must, if it procures **long-term resource adequacy standard** threshold actions, establish a methodology that results in the recovery of the costs of **long-term resource adequacy standard** threshold actions.

(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 resource adequacy standard** threshold actions.

Revision History

Date	Description
<u>xxxx-xx-xx</u>	<u>Revised to accommodate load that offers, replaced “long term adequacy” with “resource adequacy standard”, removed long term adequacy reporting requirements.</u>
2018-09-01	Revised references to “wind aggregated generating facilities” to “aggregated generating facilities”; replaced “wind” with “wind and solar generation”; administrative revisions.
2014-10-01	Amendment to the short term adequacy assessments calculation to include the ISO’s spinning reserve requirement.
2013-12-20	Initial release