

# ISO Rules

## Part 200 Markets

### Division 202 Non-Routine Conditions in the Markets

#### Section 202.6 Adequacy of Supply



**External Consultation Draft**  
**August 31, 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, delayed forced outage of generation, automatic forced outage, 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 ~~minimum two (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 capability from all generating units and aggregated generating facilities, excluding wind and solar aggregated generating facilities~~ in Alberta with a **maximum capability** equal to or greater than 5 MW;  
plus
- (b) the **maximum capability** that is associated with **offers** in the Alberta energy market, from **load sink assets**;  
plus
- (c) an estimate of the output from **wind or solar aggregated generating facilities**;  
plus
- (d) import **available transfer capability** on **interconnections** with a program that increases **available transfer capability**;  
minus
- (e) declared **generating unit, aggregated generating facility, and load maximum capability** derates;  
minus
- (f) any capacity of **generating units and aggregated generating facilities** which are affected by **transmission market constraints**;  
minus
- (g) anticipated **generating unit, aggregated generating facility, and load maximum capability** derates;  
minus
- (h) the daily forecast **Alberta internal load**;  
minus
- (i) **operating reserves** requirements;

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- plus
- (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** ~~from all generating source assets in Alberta with a maximum capability equal to or greater than 5 MW that is associated with offers in the Alberta energy market, from all load sink assets, generating units, and aggregated generating facilities, excluding wind and solar aggregated generating facilities~~ 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 wind or solar 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 wind or solar aggregated ~~generation~~ generating facilities.

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#### Long Term Resource Adequacy Metrics and Reporting Standard Assessment

~~4(1) The ISO must, if the ISO determines that: establish, maintain and report on long term adequacy metrics on a quarterly basis in accordance with this section 202.6.~~

- ~~(a) the normalized expected unserved energy in 1 year on average exceeds the resource adequacy standard; and~~
- ~~(b) the percentage of the total load on the interconnected electric system in a year in MWh that is not expected to be served indicates a need for the ISO to consider taking preventative action,~~

~~undertake further studies to verify the likely cause, magnitude and timing of the potential adequacy issue.~~

~~(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, 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 system peak 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~~~~

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- ~~(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 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);~~
- ~~(c) — being the level which, if exceeded, would indicate 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.

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#### Procurement of Long-Term Resource Adequacy Standard Threshold Actions

**76** The ISO must procure long-term resource adequacy standard threshold actions using 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 <b>spinning reserve</b> requirement.   |
| 2013-12-20        | Initial release  |