# ISO Rules
# Part 200 Markets
# Division 203 Energy Market
# Section 203.5 Energy Market Mitigation

**External Consultation Draft**
**October 22, 2018**

## Applicability

**1** Section 203.5 applies to:

(a) a **pool participant** that submits **offers** in the energy market for a **source asset**;

(b) the **legal owner** of a **generating unit** or **aggregated generating facility**; and

(c) the **ISO**.

## Requirements

### Expected Supply Cushion

**2(1)** The **ISO** must calculate the expected supply cushion in accordance with the following formula:

$$expected\ supply\ cushion_t =$$

$$expected\ supply\ in\ merit\ order_t - expected\ demand\ met\ by\ merit\ order_t$$

where:

(a) $expected\ supply\ in\ merit\ order_t$ is the sum of the expected available MW in the merit order for the forecast **settlement interval** t; and

(b) $expected\ demand\ met\ by\ merit\ order_t$ is the sum of the available MW of each **operating block** of each **source asset** in the merit order that is expected to be dispatched to meet the best available forecast of demand for the forecast **settlement interval** t.

**(2)** The **ISO** must, for each **settlement interval**:

(a) calculate the expected supply cushion in accordance with subsection 2(1);

(b) publish the expected supply cushion on the AESO website no later than 2 hours prior to the **settlement interval**;

(c) update the expected supply cushion as soon as reasonably practicable upon a change to 1 or more of the inputs to the calculation of the expected supply cushion;.

(d) record the value of the expected supply cushion observed as close to as reasonably practicable to the **settlement interval** but no earlier than 2 hours prior to the **settlement interval**; and

(e) publish the value of the expected supply cushion which is selected for each **settlement interval** under subsection 2(2)(d) as soon as reasonably practicable after such selection is made.

### Asset-Specific Cost Information for a Thermal Generating Unit or Aggregated Generating Facility

**3(1)** A **pool participant** must submit to the **ISO** the expected annual average of the following information for a thermal **generating unit** or **aggregated generating facility**:

(a) heat rate in GJ/MWh;

(b) if the thermal **generating unit's or aggregated generating facility's** fuel is not natural gas, fuel cost in $/GJ; and

(c) greenhouse gas emissions exposed to a carbon price levied by a public authority in tonnes

$CO_2$-equivalent/MWh.

**(2)** A **pool participant** must, in relation to the information submitted pursuant to subsection 3(1):

(a) submit the information to the **ISO**:

(i) for a thermal **generating unit** or **aggregated generating facility** that has energized and commissioned**,** on or before a date the **ISO** specifies; or

(ii) for a thermal **generating unit** or **aggregated generating facility** that has not completed energization and **commissioning**, before the energization and **commissioning** of such thermal **generating unit** or **aggregated generating facility**;

(b) determine the values of such cost information assuming that the thermal **generating unit** or **aggregated generating facility** is operating under normal operating conditions at **maximum capability**;

(c) submit updated information to the **ISO** upon becoming aware of more recent information that is greater than 1% different from the information provided in accordance with subsection 3(1), as soon as reasonably practicable; and

(d) submit an attestation by a corporate officer of the **legal owner** the thermal **generating unit** or **aggregated generating facility** that the information provided in accordance with subsection 3(1) is complete and accurate.

**(3)** The **ISO** must request additional information from the **pool participant** concerning the information provided in accordance with subsection 3(1) where such information, in the **ISO**'s determination, appears unreasonable.

**(4)** The **ISO** must select alternate values for the information submitted pursuant to subsection 3(1) if such information is determined by the ISO to be unreasonable, after requesting additional information in accordance with subsection 3(3).

**(5)** The **ISO** must notify the **pool participant** of alternative values selected in accordance with subsection 3(4).

**(6)** The **ISO** must:

(a) identify the current carbon price in \$/tonne $CO_2$-equivalent from the appropriate public authority;

(b) identify the natural gas price in \$/GJ for each **settlement interval** on a day-ahead basis, or as close to a day-ahead basis as reasonably practicable; and

(c) estimate the variable operations and maintenance costs in \$/MWh for a thermal **generating unit** or **aggregated generating facility** on a class-specific basis.

### Asset-Specific Reference Price for a Generating Unit or Aggregated Generating Facility

**4(1)** The **ISO** must, using the information derived in accordance with subsection 3, calculate a simplified short-run marginal cost for each **generating unit** or **aggregated generating facility** for each **settlement interval** in accordance with the following formula:

$$simplified\ short\ run\ marginal\ cost =$$
$$(heat\ rate\ \times fuel\ price) + (greenhouse\ gas\ exposure\ \times carbon\ price)$$
$$+ estimated\ variable\ operations\ and\ maintenance\ costs$$

where:

(a) *simplified short run marginal cost* $_i$ is the short run marginal cost measured in $/MWh for a **settlement interval**;

(b) *heat rate* is:

(i) the heat rate provided in accordance with subsection 3(1)(a) if the **generating unit** or **aggregated generating facility** is thermal; or

(ii) 0 GJ/MWh if the **generating unit** or **aggregated generating facility** is not thermal;

(c) *fuel price* is:

(i) the natural gas price in subsection 3(6)(b), if the thermal **generating unit**'s or **aggregated generating facility**'s fuel is natural gas;

(ii) the price provided in accordance with subsection 3(1)(b), if the thermal **generating unit**'s or **aggregated generating facility**'s fuel type is not natural gas; or

(iii) $0, if the **generating unit** or **aggregated generating facility** is not thermal;

(d) *greenhouse gas exposure* is the greenhouse gas emissions exposed to a carbon price levied by a public authority provided in accordance with subsection 3(1)(c);

(e) *carbon price* is the carbon price identified in accordance with subsection 3(6)(a);

and

(f) *estimated variable operations and maintenance costs* are the estimated variable operations and maintenance costs determined by the **ISO** in accordance with subsection 3(6)(c).

**(2)** The **ISO** must, using the simplified short-run marginal costs calculated in accordance with subsection 4(1), set the asset-specific reference price for each **generating unit** or **aggregated generating facility** for each **settlement interval** as an amount equal to:

(a) the simplified short run marginal cost multiplied by 3, if the expected supply cushion selected for the **settlement interval** under subsection 2(2)(d) is 1,000 MW or greater;

(b) the simplified short run marginal cost multiplied by 6, if the expected supply cushion selected for the **settlement interval** under subsection 2(2)(d) is 250 MW or greater and less than 1,000 MW; and

(c) the maximum permissible price for an **offer** made under Section 203.1 of the **ISO rules**, *Offers and Bids for Energy*, if the expected supply cushion selected for the **settlement interval** under subsection 2(2)(d) is less than 250 MW.

### Asset-Specific Reference Price for a Designated Non-Thermal Generating Source Asset Capable of Storing Fuel

**5(1)** The **ISO** may designate a non-thermal generating **source asset** to which this subsection 5 is applicable, provided that the generating **source asset** is capable of storing its fuel.

**(2)** The **ISO** must, if the **ISO** designates any generating **source assets** in accordance with subsection 5(1), publish on the AESO website:

(a) the list of such designated generating **source assets**; and

(b) the designated reserves quantity for each designated generating **source asset**, based on the minimum quantity of offers in each **ancillary services** market set out in Appendix 1.

**(3)** The **ISO** must, subject to subsection 5(5), set the asset-specific reference price for a generating **source asset** designated in accordance with subsection 5(1) for each **settlement interval** as an amount equal to:

(a) the 30-day rolling average **pool price** most recently published by the **ISO** at the time the **ISO** calculates the expected supply cushion multiplied by 3, if the expected supply cushion selected for the **settlement interval** under subsection 2(2)(d) is 1,000 MW or greater;

(b) the 30-day rolling average **pool price** most recently published by the **ISO** at the time the **ISO** calculates the expected supply cushion multiplied by 6, if the expected supply cushion selected for the **settlement interval** under subsection 2(2)(d) is 250 MW or greater and less than 1,000 MW; and

(c) the maximum permissible price for an **offer** made under Section 203.1 of the **ISO rules**, *Offers and Bids for Energy*, if the expected supply cushion selected for the **settlement interval** under subsection 2(2)( d) is less than 250 MW.

**(4)** The **ISO** must set the asset-specific reference price in a **settlement interval** for a generating **source asset** designated in accordance with subsection 5(1) as an amount equal to the maximum permissible price for an **offer** made under Section 203.1 of the **ISO rules**, *Offers and Bids for Energy* if a **pool participant** has made the minimum quantity of offers in each **ancillary services** market published in accordance with subsection 5(2)(b).

### Asset-Specific Reference Price for an Import Source Asset

**6** The **ISO** must set the asset-specific reference price for each import **source asset** for each **settlement interval** as an amount equal to:

(a) $MidC(on\ peak) + min\{100, 3\ x\ MidC(on\ peak)\}$, if the expected supply cushion selected for the **settlement interval** under subsection 2(2)(d) is 1,000 MW or greater;

(b) $MidC(on\ peak) + min\{100, 6\ x\ MidC(on\ peak)\}$, if the expected supply cushion selected for the **settlement interval** under subsection 2(2)(d) is 250 MW or greater and less than 1,000 MW;

where:

(i) *MidC(on peak)* is the day-ahead, on-peak price in the Mid-Columbia market for delivery on the same **day** as the energy market in Alberta;

or

(c) the maximum permissible price for an **offer** made under Section 203.1 of the **ISO rules**, *Offers and Bids for Energy*, if the expected supply cushion selected for the **settlement interval** under subsection 2(1)(d) is less than 250 MW.

### Limitations and Exemptions for Asset-Specific Reference Price

**7(1)** The **ISO** must, notwithstanding subsections 4, 5 and 6 not set the asset-specific reference price for any **source asset** for any **settlement interval** as an amount:

(a) less than $25/MWh; or

(b) greater than the maximum permissible price for an **offer** made under Section 203.1 of the **ISO rules**, *Offers and Bids for Energy*.

**(2)** A **pool participant** may request that the **ISO** provide a variance from any asset-specific reference price determined pursuant to subsections 4, 5 or 6.

**(3)** The **ISO** may, upon receiving a request pursuant to subsection 7(2), calculate for use on a prospective basis a different asset-specific reference price than the asset-specific reference price determined pursuant to subsections 4, 5, 6 or 7, as applicable, if the **ISO** is satisfied that the **pool participant** would not be able to reasonably recover the short run marginal costs and cycling costs of the **source asset** within the scope of the asset-specific reference price determined pursuant to subsections 4, 5, 6 or 7.

### Market Power Screen

**8(1)** The **ISO** must, using the methodology for the calculation of market share offer control described in section 5 of the *Fair, Efficient, and Open Competition Regulation*, identify those **persons** that have offer control over one or more **source assets**.

**(2)** A **person** identified under subsection 8(1) may submit to the **ISO supply obligations** equal to or less than the **person**'s actual **supply obligations** for each **settlement interval**, at least 2 hours prior to the start of the **settlement interval**.

(3) A **person** must, if the **person**'s actual **supply obligations** for a **settlement interval** change prior to 2 hours before the start of the **settlement interval** such that the **supply obligations** submitted in accordance with subsection 8(2) exceed the actual **supply obligations**, re-submit the **supply obligations** in accordance with subsection 8(2).

**(3)** The **ISO** must, for each **person** identified under subsection 8(1) and in the **offer control information** for an **operating block** in respect of a **settlement interval**, calculate a value called the expected residual supply index for each **settlement interval** for the **person** identified under subsection 8(1) in accordance with the following formula:

$$expected\ residual\ supply\ index_{it} = \frac{expected\ supply\ in\ merit\ order_{t} - (expected\ supply\ in\ merit\ order_{it} - supply\ obligations_{it})}{expected\ demand\ met\ by\ merit\ order_{t}}$$

where:

(i) *expected residual supply index* $_{it}$ is the expected residual supply index for **person** *i* for **settlement interval** *t*;

(ii) *expected supply in merit order* $_{t}$ is the sum of the expected available MW of each **operating block** of each **source asset** in the merit order for the forecast **settlement interval** *t*;

(iii) *expected supply in merit order* $_{it}$ is the sum of the part of the expected available MW of each **operating block** of each **source asset** in the merit order that is controlled by **person** *i* as defined by subsection 8(1) for the forecast **settlement interval** *t*;

(iv) *supply obligations* $_{it}$ are the supply obligations for **person** *i* for **settlement interval** *t* submitted in accordance with subsection 8(2); and

(v) *expected demand met by merit order* $_{t}$ is the sum of the available MW of each **operating block** of each **source asset** in the merit order that is expected to be dispatched to meet the best available forecast of demand for the forecast **settlement interval** *t*.

**(4)** The **ISO** must select the expected residual supply index referenced in subsection 8(1) as close to as reasonably practicable to the **settlement interval** but no earlier than 2 hours prior to the **settlement interval**.

**(5)** The **ISO** must identify a **person** with an expected residual supply index of less than 1 in a **settlement interval**.

**(6)** The **ISO** must not reconsider the conclusion drawn under subsection 8(5) if market conditions change at any time after the expected residual supply index is selected for the **settlement interval** under subsection 8(4).

### Mitigation of Market Power

**9(1)** The **ISO** must, for each **settlement interval**, identify each **operating block** associated with a **source asset** under the offer control of a **person** identified under subsection 8(5) that has an **offer** price that is greater than the asset-specific reference price of the related **source asset** which was determined pursuant to subsections 4, 5, 6 or 7, as applicable.

**(2)** The **ISO** must, subject to subsection 9(3), change the **offer** price of an **operating block** identified under subsection 9(1) to the asset-specific reference price of the associated **source asset** as determined under subsection 4, 5, 6 or 7, as applicable, if the **operating block** is:

(a) controlled by a single **person** that has been identified under subsection 8(5);

(b) controlled by 2 or more **persons** which have all been identified under subsection 8(5); or

(c) declared to be inflexible in accordance with Section 203.1 of the **ISO rules**, *Offers and Bids for Energy*, and is partially controlled by a **person** that has been identified under subsection 8(5).

**(3)** The **ISO** must, if an **operating block** identified under subsection 9(1) is declared to be flexible under Section 203.1 of the **ISO rules**, *Offers and Bids for Energy*, and is partially controlled by 1 or more **persons** identified under subsection 8(5), split the existing **operating block** into 2 **operating blocks** as follows:

(a) create a new **operating block** that contains the quantity of the existing **operating block** that is controlled by the **person** identified under subsection 8(5) and select an **offer** price equal to the asset-specific reference price of the associated **source asset** as determined under subsection 4, 5, 6 or 7, as applicable; and

(b) reduce the quantity of the existing **operating block** by the quantity of the newly created **operating block**, with no associated change made to the **offer** price of the **operating block**.

[*Note to draft: The AESO is considering an exemption from the energy market mitigation scheme for portfolio sizes that are less than 250 MW in response to industry feedback.*]

### Timely Information from Legal Owner

**10** A **legal owner** of a **generating unit** or **aggregated generating facility** must, if such **legal owner** is not the **pool participant** for that **generating unit** or **aggregated generating facility**:

(a) provide such timely and complete information to the **pool participant** for such **source asset** to enable the **pool participant** to comply with its obligations under subsection 3; and

(b) provide an attestation to the **pool participant** from a corporate officer of the **legal owner** of such **generating unit** or **aggregated generating facility** to enable the **pool participant** to comply with its obligations under subsection 3(2)(d).

## Revision History

| Date | Description |
|---|---|
| yyyy-mm-dd | Initial release. |

## Appendix 1

| Predetermined ancillary services product | Minimum quantity of offers |
|---|---|
| Active Regulating Reserves | The lesser of the asset's maximum qualified capacity to provide regulating reserve and its **maximum capability** to produce regulating reserves in the **settlement interval** at the time of the **ancillary services** auction. |
| Active Spinning Reserve | The lesser of the asset's maximum qualified capacity to provide spinning reserve and its **maximum capability** to produce spinning reserves in the **settlement interval** at the time of the **ancillary services** auction<br>*less*<br>the volume of cleared active regulating reserve to be provided by the asset in the same **settlement interval**. |
| Active Supplemental Reserve | The lesser of the asset's maximum qualified capacity to provide supplemental reserve and its **maximum capability** to produce supplemental reserves in the **settlement interval** at the time of the **ancillary services** auction<br>*less*<br>the volume of cleared active regulating reserve to be provided by the asset in the same **settlement interval**<br>*less*<br>the volume of cleared active spinning reserve to be provided by the asset in the same **settlement interval**. |