

ISO Rules

Part 200 Markets

Division 206 Capacity Market

Section 206.8 Obligation Period Performance Assessment



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Applicability

- 1 Section 206.8 applies to:
- the **ISO**.

Requirements

Availability Hours for an Obligation Period

- 2(1) The **ISO** must select 250 **settlement intervals** from each **obligation period** as follows:
- calculate the supply cushion for every **settlement interval** in an **obligation period** in accordance with the following formula:

$$\text{supply cushion} = \sum_{i=1}^n (\text{time weighted available volume}_t - \text{time weighted dispatched volume}_t - \text{time weighted dispatched TMR}_t)$$

where:

- n is the number of **operating blocks** in the energy market **merit order** during settlement interval t ;
 - $\text{time weighted available volume}_t$ is the amount of MW of an **operating block** in the **energy market merit order** during hour t with the weight being proportional to the duration of the **available** volume within **settlement interval** t ;
 - $\text{time weighted dispatched volume}_t$ is the amount of MW of an **operating block** in the energy market **merit order** that was subject to a **dispatch** in **settlement interval** t with the weight being proportional to the time the **dispatch** was in effect within **settlement interval** t ; and
 - $\text{time weighted dispatched TMR}_t$ is the amount of MW of an out-of-merit **operating block** subject to a **dispatch** for **transmission must-run** in **settlement interval** t with the weight being proportional to the time the **dispatch** was in effect within **settlement interval** t .
- rank all **settlement intervals** based on the supply cushion calculated in subsection 2(1)(a) in ascending order;
 - within the order referred to in subsection 2(1)(b), rank **settlement intervals** with equivalent supply cushion in ascending order from the most recent to the most distant in time;
 - remove any **settlement intervals** in which there was a state of markets suspension or limited markets operations; and
 - select the first 250 **settlement intervals** after ranking and removing hours in accordance with subsections 2(1)(b) through 2(1)(d).

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(2) The **ISO** must establish the availability hours for an **obligation period** for each asset subject to a **capacity commitment** as the **settlement intervals** identified in subsection 2(1)(e) less the **settlement intervals** that the **ISO** determines that the asset is affected by war, invasion, armed conflict, blockade, act of public enemy, riot, revolution, insurrection, act of terrorism, sabotage, act of vandalism, fire or explosion that does not originate at the asset, lightning, earthquake or flooding.

Delivery Hours for a Settlement Period

3(1) The **ISO** must select hours to assess delivery for a **settlement period** by:

- (a) identifying any **settlement intervals** or portions of **settlement intervals** in which supply shortfall has occurred and the **ISO** has declared an energy emergency event in accordance with **ISO rules** or **reliability standards**; and
- (b) removing **settlement intervals** from the **settlement intervals** identified in subsection 3(1)(a) in which there was a state of markets suspension or limited markets operations.

(2) The **ISO** must establish the delivery hours for an asset subject to a **capacity commitment** as the **settlement intervals** identified in subsection 3(1) less **settlement intervals** that the **ISO** determines that the asset was affected by war, invasion, armed conflict, blockade, act of public enemy, riot, revolution, insurrection, act of terrorism, sabotage, act of vandalism, fire or explosion that does not originate at the asset, lightning, earthquake or flooding.

Look-back Baseline for a Load Asset Providing a Firm Consumption Level

4(1) The **ISO** must, for each availability hour established in subsection 2(2), identify the **settlement intervals** for a load asset providing a **firm consumption level** that is subject to a **capacity commitment** as follows:

- (a) identify the **days** in:
 - (i) the 15 most recent **business days** prior to the **day** with the availability hour that are not **days** identified in subsection 4(1)(b), if the availability hour falls on a **business day**;
 - (ii) the 10 most recent weekend **days** or holidays prior to the **day** with the availability hour that are not **days** identified in subsection 4(1)(b), if the availability hour falls on a weekend **day** or a holiday; or
 - (iii) the **days** the **ISO** specifies if, in the 45 **day** period prior to the **day** with the availability hour, there are less than 15 **business days** or 10 weekend **days** that are not **days** identified in subsection 4(1)(b);
- (b) identify if any of the **days** in the 45 **day** period prior to the **day** with the availability hour are **days** in which the following occurred:
 - (i) another availability hour established in subsection 2(2); or
 - (ii) a delivery hour established in subsection 3(2);and
- (c) identify the **settlement intervals** with the same **hour ending** as the availability hour in each of the **days** identified in subsections 4(1)(a).

(2) The **ISO** must, for each availability hour established in subsection 2(2), calculate the look-back baseline in MW for a load asset providing a **firm consumption level** that is subject to a **capacity**

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commitment in accordance with the following formula:

$$\text{lookback baseline}_{it} = \frac{(\text{total metered energy}_i + \text{spinning reserve}_i + \text{supplemental reserve}_i + \text{LSSi volume}_i + \text{energy dispatched}_i)}{\text{settlement intervals}}$$

where:

- (a) *total metered energy_i* is the sum of the **metered energy** in the **settlement intervals** referred to in subsection 4(1)(c) for asset *i*;
- (b) *spinning reserve_i* is the sum of the volumes provided in response to **directives** for **spinning reserve** issued pursuant to Section 205.5 of the **ISO rules**, *Spinning Reserve Technical Requirements and Performance Standards* in the **settlement intervals** referred to in subsection 4(1)(c) for asset *i*;
- (c) *supplemental reserve_i* is the sum of the volumes provided in response to **directives** for **supplemental reserve** issued pursuant to Section 205.6 of the **ISO rules**, *Supplemental Reserve Technical Requirements and Performance Standards* in the **settlement intervals** referred to in subsection 4(1)(c) for asset *i*;
- (d) *LSSi volumes_i* is the sum of the volumes provided in response to a trip signal from the **ISO** for **load shed service** in the **settlement intervals** referred to in subsection 4(1)(c) for asset *i*;
- (e) *energy dispatched_i* is the sum of the volumes provide in response to **dispatches** in the energy market in the **settlement intervals** referred to in subsection 4(1)(c) for asset *i*; and
- (f) *settlement intervals* is the number of **settlement intervals** identified in subsection 4(1)(c).

Delivery Baseline for a Load Asset Providing Guaranteed Load Reduction

5(1) The **ISO** must, for each delivery hour established in subsection 3(2), identify the **settlement intervals** for a load asset providing **guaranteed load reduction** that is subject to a **capacity commitment** as follows:

- (a) identify the **days** in:
 - (i) the 10 most recent **business days** prior to the **day** with the delivery hour that are not **days** identified in subsection 5(1)(b), if the delivery hour falls on a **business day**;
 - (ii) the 5 most recent weekend **days** or holidays prior to the **day** with the delivery hour that are not **days** identified in subsection 5(1)(b), if the delivery hour falls on a weekend **day** or a holiday; or
 - (iii) the **days** the **ISO** specifies if, in the 35 **day** period prior to the **day** with the delivery hour, there are fewer than 10 **business days** or 5 weekend **days** that are not **days** identified in subsection 5(1)(b);
- (b) identify if any of the **days** in the 35 **day** period prior to the **day** with the delivery hour are **days** in which the following occurred:
 - (i) the load asset received a **dispatch** in the energy market or responded to a **directive** for **ancillary services** for an amount greater than 0 MW;
 - (ii) another delivery hour established in accordance with subsection 3(2) occurred;

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- (iii) the load asset was subject to a **delayed forced outage** or **automatic forced outage**;
or
- (iv) the load asset was subject to a **planned outage**;
- and
- (c) identify the **settlement intervals** with the same **hour ending** as the delivery hour in each of the **days** identified in accordance with subsections 5(1)(a).

(2) The **ISO** must, for each delivery hour established in subsection 3(2), calculate an adjustment factor for a load asset providing **guaranteed load reduction** that is subject to a **capacity commitment** in accordance with the following formula:

$$adjustment\ factor_{it} = \frac{delivery\ consumption_{it}}{historical\ consumption_i}$$

where:

- (a) *delivery consumption_{it}* is the average **metered energy** in MWh for load asset *i* during the 3 hour window occurring 1 hour before delivery hour *t*; and
- (b) *historical consumption_i* is the average **metered energy** in MWh for load asset *i* during all of the 3 hour windows occurring 1 hour before each **settlement interval** identified in accordance with subsection 5(1)(c).

(3) The **ISO** must calculate the delivery baseline in MW for a load asset providing **guaranteed load reduction** that is subject to a **capacity commitment** in accordance with the following formula:

$$delivery\ baseline = standard\ day\ baseline \times adjustment\ factor_i$$

where:

- (a) *standard day baseline_i* is the average of the **metered energy** for the **settlement intervals** identified in subsection 5(1)(c) for load asset *i*; and
- (b) *adjustment factor_i* is, for load asset *i*:
 - (i) 1.2, if the adjustment factor calculated in accordance with subsection 5(2) is greater than 1.2;
 - (ii) 0.8, if the adjustment factor calculated in accordance with subsection 5(2) is less than 0.8; or
 - (iii) the adjustment factor calculated in accordance with subsection 5(2), in all other cases.

Availability Penalty Rate for Availability Assessments

6(1) The **ISO** must calculate an availability penalty rate in \$/MWh for an asset subject to a **capacity commitment** in accordance with the following formula:

$$availability\ penalty\ rate_{it} = \frac{capacity\ payment_{it} \times 12}{capacity\ commitment_{it} \times availability\ hours_i}$$

where:

- (a) *capacity payment_{it}* in \$/month is the **capacity payment** for asset *i* calculated in accordance with Section 103.10 of the **ISO rules**, *Capacity Payment Calculation* for **obligation period t**;

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- (b) *capacity commitment_{it}* is the **capacity commitment** associated with asset *i* for **obligation period *t***; and
- (c) *availability hours_i* is the number of availability hours established in accordance with subsection 2(2) for asset *i*.

(2) The **ISO** must establish the availability penalty rate in \$/MWh for an asset subject to a **capacity commitment** as:

- (a) \$133.3333/MWh, if the availability penalty rate calculated in accordance with subsection 6(1) is less than \$133.3333/MWh and the clearing price of the **base auction** was greater than \$33.3333/kW-year;
- (b) \$0/MWh, if the availability penalty rate calculated in accordance with subsection 6(1) is less than \$0/MWh and the clearing price of the **base auction** was less than or equal to \$33.3333/kW-year; or
- (c) the availability penalty rate calculated in accordance with subsection 6(1), in all other cases.

Assessment Volume for Availability

7(1) The **ISO** must, as soon as practicable after the **obligation period**, determine the availability volume in MWh for an asset subject to a **capacity commitment** in each of the availability hours established in subsection 2(2) as follows:

- (a) for an asset with a **uniform capacity value** based on a capacity factor, availability volume is calculated in accordance with the formula:

$$\begin{aligned}
 & \textit{availability volume}_{it} = \\
 & \textit{metered energy}_{it} + \textit{spinning reserve}_{it} + \textit{supplemental reserve}_{it} \\
 & \quad + \textit{regulating reserve}_{it} + \textit{curtailed volume}_{it} + \textit{DDS volume}_{it}
 \end{aligned}$$

where:

- (i) *metered energy_{it}* is the **metered energy** for asset *i* in availability hour *t*;
- (ii) *spinning reserve_{it}* is the volume of **dispatches** for **spinning reserve** issued pursuant to Section 205.5 of the **ISO rules**, *Spinning Reserve Technical Requirements and Performance Standards*, less volumes provided in response to **directives** for **spinning reserve** issued pursuant to Section 205.5 of the **ISO rules**, *Spinning Reserve Technical Requirements and Performance Standards*, for asset *i* in availability hour *t*;
- (iii) *supplemental reserve_{it}* is the volume of **dispatches** for **supplemental reserve** issued pursuant to Section 205.6 of the **ISO rules**, *Supplemental Reserve Technical Requirements and Performance Standards*, less volumes provided in response to **directives** for **supplemental reserve** issued pursuant to Section 205.6 of the **ISO rules**, *Supplemental Reserve Technical Requirements and Performance Standards*, for asset *i* in availability hour *t*;
- (iv) *regulating reserve_{it}* is the volume of **dispatches** for **regulating reserve** issued pursuant to Section 205.4 of the **ISO rules**, *Regulating Reserve Technical Requirements and Performance Standards* that is not captured as **metered energy** for asset *i* in availability hour *t*;

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- (v) *curtailed volume_{it}* is the volume that was curtailed as a result of a **transmission market constraint** for asset *i* in availability hour *t*; and
- (vi) *DDS volume_{it}* is the volume that was reduced in response to a **dispatch for dispatch down service** for asset *i* in availability hour *t*;
- (b) for an asset with a **uniform capacity value** based on availability factor, subject to subsections 7(1)(c), 7(1)(e), and 7(1)(f), availability volume is equal to:
 - (i) the time-weighted **available capability** of the asset, where the electric energy was available for **dispatch** for the availability hour; or
 - (ii) 0, if no electric energy from the asset is available for **dispatch** for the availability hour;
- (c) for a load asset providing **guaranteed load reduction**, availability volume is the **available capability** of the load asset for the availability hour;
- (d) for a load asset providing a **firm consumption level**, availability volume is the difference between the look-back baseline calculated in accordance with subsection 4(2) for the availability hour and the **firm consumption level** of the asset declared in accordance with Section 206.1 of the **ISO rules**, *Qualification of Capacity*;
- (e) for a site with 1 or more **generating units** or **aggregated generating facilities** that supplies electric energy for 1 or more onsite load assets and receives an energy market **dispatch** on a gross-to-grid basis, availability volume is determined through the linear regression set out in Section 206.3 of the **ISO rules**, *Determination of Uniform Capacity Value*; and
- (f) for an import asset, availability volume is the **available capability** of the import asset for the availability hour, capped at the volume of **long term firm transmission** for the asset.

(2) The **ISO** must calculate the assessment volume in MWh for an asset subject to a **capacity commitment** in accordance with the following formula:

$$assessment\ volume_{it} = \left[\sum availability\ volume_i \right] - capacity\ commitment_{it} \times availability\ hours$$

where:

- (a) *availability volume* is the sum of the availability volumes in MWh determined in subsection 7(1) for each availability hour established in accordance with subsection 2(2) for asset *i*;
- (b) *capacity commitment_{it}* is the **capacity commitment** associated with asset *i* for **obligation period** *t*; and
- (c) *availability hours* is the number of availability hours established in accordance with subsection 2(2).

Under-availability Adjustment

8(1) The **ISO** must, when the assessment volume calculated in accordance with subsection 7(2) is negative, calculate the under-availability adjustment in dollars for an asset subject to a **capacity commitment** in accordance with the following formula:

$$under-availability\ adjustment_i = adjustment\ rate_{it} \times assessment\ volume_i$$

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where:

- (a) *adjustment rate_{it}* is the adjustment rate in \$/MWh calculated in accordance with subsection 8(2) for asset *i* for **obligation period t**; and
- (b) *assessment volume_i* is the assessment volume in MWh calculated in accordance with subsection 7(2) for asset *i*.

(2) The **ISO** must, in calculating the under-availability adjustment under subsection 8(1), calculate the adjustment rate in \$/MWh for an asset subject to a **capacity commitment** in accordance with the following formula:

$$\text{adjustment rate}_{it} = 0.4 \times 1.3 \times \text{availability penalty rate}_{it}$$

where:

- (a) *availability penalty rate_{it}* is the availability penalty rate in \$/MWh established in accordance with subsection 6(2) for asset *i* for **obligation period t**.

(3) The **ISO** must, for an asset subject to a **capacity commitment**, establish the under-availability adjustment amount in dollars for the **obligation period** as:

- (a) an amount equal to the annual cap determined in accordance with subsection 14(2) or 14(3), as applicable, less the sum of all under-delivery adjustments determined in accordance with subsection 12(3) for the **obligation period**, if the sum of the under-availability adjustment determined in accordance with subsection 8(1) and under-delivery adjustments determined in accordance with subsection 12(3) for the **obligation period** is greater than the annual cap determined in accordance with subsection 14(2) or 14(3), as applicable; or
- (b) the amount calculated in accordance with subsection 8(1), in all other cases.

Over-availability Adjustment

9(1) The **ISO** must, when the assessment volume calculated in accordance with subsection 7(2) is positive, calculate the over-availability adjustment in dollars for an asset subject to a **capacity commitment** in accordance with the following formula:

$$\text{over-availability adjustment}_i = \text{adjustment rate}_t \times \text{assessment volume}_i$$

where:

- (a) *adjustment rate_t* is the adjustment rate in \$/MWh calculated in accordance with subsection 9(2) for **obligation period t**; and
- (b) *assessment volume_i* is the volume in MWh calculated in accordance with subsection 7(2) for asset *i*.

(2) The **ISO** must, in calculating the over-availability adjustment in subsection 9(1), calculate the absolute value of the adjustment rate in \$/MWh in accordance with the following formula:

$$|\text{adjustment rate}_t| = \frac{\sum \text{under-availability adjustments}_t}{\sum \text{positive assessment volumes}_t}$$

where:

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- (a) *under-availability adjustments_t* is the sum of all under-availability adjustments determined in accordance with subsection 8(1) for all assets subject to a **capacity commitment** in **obligation period t**; and
- (b) *positive assessment volumes_t* is the sum of all positive assessment volumes calculated in accordance with subsection 7(2) for all assets subject to a **capacity commitment** in **obligation period t**.

(3) The **ISO** must, for an asset subject to a **capacity commitment**, limit the over-availability adjustment amount for an **obligation period** to an amount in dollars equal to the annual cap determined in accordance with subsection 15(1) or 15(2), as applicable, less the sum of all over-delivery adjustments determined in accordance with subsection 13(3) for the **obligation period**.

Delivery Penalty Rate for Delivery Assessments

10(1) The **ISO** must calculate a delivery penalty rate in \$/MWh for an asset subject to a **capacity commitment** in accordance with the following formula:

$$\text{delivery penalty rate}_i = \frac{\text{capacity payment}_{it} \times 12}{\text{capacity commitment}_{it} \times \text{delivery hours}}$$

where:

- (a) *capacity payment* is the **capacity payment** in \$/month calculated for asset *i* in accordance with Section 103.10 of the **ISO rules**, *Capacity Payment Calculation* for **obligation period t**;
- (b) *capacity commitment* is the **capacity commitment** associated with asset *i* for **obligation period t**; and
- (c) *delivery hours* is the greater of:
 - (i) 20; or
 - (ii) the forecasted number of energy supply shortfall hours based on the final demand established for the last **rebalancing auction** in accordance with Section 207.4 of the **ISO rules**, *Shape of Demand Curve*, and published by the **ISO**.

(2) The **ISO** must establish the delivery penalty rate in \$/MWh for an asset subject to a **capacity commitment** as:

- (a) 1,666.6667, if the rate calculated in accordance with subsection 10(1) is less than \$1,666.6667/MWh and the clearing price of the **base auction** was greater than \$33.3333/kW-year;
- (b) 0, if the rate calculated in accordance with subsection 10(1) is less than \$0/MWh and the clearing price of the **base auction** was less than or equal to \$33.3333/kW-year; or
- (c) the rate calculated in accordance with subsection 10(1), in all other cases.

Assessment Volume for Delivery

11(1) The **ISO** must, as soon as practicable following the **settlement period** in which a delivery hour established in subsection 3(2) occurred, determine the delivery volume in MWh of an asset subject to a **capacity commitment** in the delivery hour as follows:

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- (a) for an asset with a **uniform capacity value** based on a capacity factor or availability factor, subject to subsections 11(1)(b), 11(1)(d) and 11(1)(e), delivery volume is based on the following formula, taking into account the actual electric energy delivered throughout the duration of the supply shortfall event:

$$\begin{aligned} \text{delivery volume}_i = & \\ & \text{metered energy}_{it} + \text{spinning reserve}_{it} + \text{supplemental reserve}_{it} \\ & + \text{regulating reserve}_{it} + \text{DDS volume}_{it} \end{aligned}$$

where:

- (i) *metered energy_{it}* is **metered energy** less **metered energy** delivered in response to a **directive** for long lead time, for asset *i* in delivery hour *t*
 - (ii) *spinning reserve_{it}* is the volume of **dispatches** for **spinning reserve** issued pursuant to Section 205.5 of the **ISO rules**, *Spinning Reserve Technical Requirements and Performance Standards*, less volumes provided in response to **directives** for **spinning reserve** issued pursuant to Section 205.5 of the **ISO rules**, *Spinning Reserve Technical Requirements and Performance Standards*, for asset *i* in delivery hour *t*;
 - (iii) *supplemental reserve_{it}* is the volume of **dispatches** for **supplemental reserve** issued pursuant to Section 205.6 of the **ISO rules**, *Supplemental Reserve Technical Requirements and Performance Standards*, less volumes provided in response to **directives** for **supplemental reserve** issued pursuant to Section 205.6 of the **ISO rules**, *Supplemental Reserve Technical Requirements and Performance Standards*, for asset *i* in delivery hour *t*;
 - (iv) *regulating reserve_{it}* is the volume of **dispatches** for **regulating reserve** issued pursuant to Section 205.4 of the **ISO rules**, *Regulating Reserve Technical Requirements and Performance Standards* that is not captured as **metered energy** for asset *i* in delivery hour *t*; and
 - (vi) *DDS volume_{it}* is the volume that was reduced in response to a **dispatch** for **dispatch down service** for asset *i* in delivery hour *t*;
- (b) for a load asset providing **guaranteed load reduction**, the delivery volume is:
- (i) if the delivery hour occurred on a **day** in which the load asset was subject to a **planned outage**, **delayed forced outage** or **automatic forced outage**:
 - (A) the volume equal to the delivery baseline in MW calculated in accordance with subsection 5(3) for the first **day** of the **planned outage**, **delayed forced outage** or **automatic forced outage**; and
 - (B) 0, for every **day** of the **planned outage**, **delayed forced outage** or **automatic forced outage** other than the first day of **planned outage**, **delayed forced outage** or **automatic forced outage**;

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or

- (ii) in all other cases, based on the following formula taking into account the actual electric energy delivered throughout the duration of the supply shortfall event:

$$\begin{aligned} & \text{delivery volume}_i = \\ & \text{delivery baseline}_i - \text{metered energy}_{it} + \text{spinning reserve}_{it} \\ & \quad + \text{supplemental reserve}_{it} \end{aligned}$$

where:

- (A) delivery baseline is the delivery baseline in MW calculated in accordance with subsection 5(3) for asset *i*;
 - (B) *metered energy_{it}* is **metered energy** for asset *i* in delivery hour *t*
 - (C) *spinning reserve_{it}* is the volume of **dispatches** for **spinning reserve** issued pursuant to Section 205.5 of the **ISO rules, Spinning Reserve Technical Requirements and Performance Standards**, less volumes provided in response to **directives** for **spinning reserve** issued pursuant to Section 205.5 of the **ISO rules, Spinning Reserve Technical Requirements and Performance Standards**, for asset *i* in delivery hour *t*; and
 - (D) *supplemental reserve_{it}* is the volume of any **dispatches** for **supplemental reserve** issued pursuant to Section 205.6 of the **ISO rules, Supplemental Reserve Technical Requirements and Performance Standards**, less volumes provided in response to **directives** for **supplemental reserve** issued pursuant to Section 205.6 of the **ISO rules, Supplemental Reserve Technical Requirements and Performance Standards**, for asset *i* in delivery hour *t*.
- (c) for a load asset providing a **firm consumption level**, delivery volume is:
- (i) if the delivery hour occurred on a **day** in which the load asset was subject to a **planned outage, delayed forced outage** or **automatic forced outage**:
 - (A) the volume equal to the qualified baseline calculated in accordance with Section 206.3 of the **ISO rules, Determination of Uniform Capacity Value** for the first **day** of the **planned outage, delayed forced outage** or **automatic forced outage**; or
 - (B) 0, for every **day** of the **planned outage, delayed forced outage** or **automatic forced outage** other than the first day of **planned outage, delayed forced outage** or **automatic forced outage**;

or

- (ii) in all other cases, based on the following formula taking into account the actual electric energy delivered throughout the duration of the supply shortfall event:

$$\begin{aligned} & \text{delivery volume}_i = \\ & \text{qualified baseline}_{it} - \text{metered energy}_{it} + \text{spinning reserve}_{it} \\ & \quad + \text{supplemental reserve}_{it} \end{aligned}$$

where:

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- (A) *qualified baseline_{it}* is the qualified baseline determined in accordance with subsection 11(2) for asset *i*;
 - (B) *metered energy_{it}* is **metered energy** for asset *i* in delivery hour *t*;
 - (C) *spinning reserve_{it}* is the volume of **dispatches** for **spinning reserve** issued pursuant to Section 205.5 of the **ISO rules**, *Spinning Reserve Technical Requirements and Performance Standards*, less volumes provided in response to **directives** for **spinning reserve** issued pursuant to Section 205.5 of the **ISO rules**, *Spinning Reserve Technical Requirements and Performance Standards*, for asset *i* in delivery hour *t*; and
 - (D) *supplemental reserve_{it}* is the volume of **dispatches** for **supplemental reserve** issued pursuant to Section 205.6 of the **ISO rules**, *Supplemental Reserve Technical Requirements and Performance Standards*, less volumes provided in response to **directives** for **supplemental reserve** issued pursuant to Section 205.6 of the **ISO rules**, *Supplemental Reserve Technical Requirements and Performance Standards*, for asset *i* in delivery hour *t*;
- (d) for a site with 1 or more **generating units** or **aggregated generating facilities** that supplies electric energy for 1 or more onsite load assets, where the site has excess generation, delivery volume is based on **metered energy**, taking into account the actual electric energy delivered throughout the duration of the supply shortfall event; and
 - (e) for an import asset, delivery volume is the lesser of:
 - (i) the **long term firm transmission** associated with the import asset, or
 - (ii) based on the sum of the following, taking into account the duration of the supply shortfall event:
 - (A) the volume in a validated **e-tag** or multiple **e-tags**; and
 - (B) where the **offer** price is greater than or equal to \$0.01/ MWh and the import asset is subject to the limits referenced in Section 303.2 of the **ISO rules**, *Available Transfer Capability*, the volume in the **offer** during the first 2 **settlement intervals** where the import asset is subject to the limits.
- (2) The **ISO** must determine the qualified baseline for a load asset providing a **firm consumption level** as follows:
- (a) the qualified baseline declared in accordance with Section 206.1 of the **ISO rules**, *Qualification of Capacity* for the load asset, in the case where the **uniform capacity value** for the load asset is based on hours not in the asset's historical data set;
 - (b) the qualified baseline calculated in accordance with Section 206.3 of the **ISO rules**, *Determination of Uniform Capacity Value* for load asset in the last **rebalancing auction**, in the case where the **uniform capacity value** is based on hours in the asset's historical data set; or
 - (c) a qualified baseline derived from the baselines referred to in subsections 11(2)(a) and 11(2)(b) weighed based on the number of hours used for each baseline in the calculation of the **uniform capacity value** for the load asset in the last **rebalancing auction**, in the case where the **uniform capacity value** is based on hours not in the asset's historical data set and hours in the asset's historical data set;

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(3) The **ISO** must establish the delivery volume for an asset subject to a **capacity commitment** in a delivery hour as the delivery volume determined in subsection 11(1) adjusted for the following amounts, as applicable:

- (a) in the case of delivery volume substitution approved in accordance with Section 206.9 of the **ISO rules**, *Asset Substitution*, add or subtract the applicable volume;
- (b) in the case of an asset that was impacted by a **transmission market constraint**, add the volume that was curtailed;
- (c) in the case of a load asset that was subject to a **dispatch** and armed for the provision of **load shed service**, add the **dispatch** volume that was armed; or
- (d) in the case of a delivery volume reallocation approved in accordance with Section 206.10 of the **ISO rules**, *Volume Reallocation*, add or subtract the applicable volume.

(4) The **ISO** must calculate the assessment volume in MWh for an asset subject to a **capacity commitment** for each delivery hour established in subsection 3(2) in accordance with the following formula:

$$\text{assessment volume} = \text{delivery volume}_{it} - (\text{capacity commitment}_{it} \times \text{supply shortfall duration}_t \times \text{balancing ratio}_t)$$

where:

- (a) *delivery volume_{it}* is the delivery volume established in subsection 11(3) for asset *i* for delivery hour *t*;
- (b) *capacity commitment_{it}* is the **capacity commitment** associated with asset *i* for **obligation period** *t*;
- (c) *supply shortfall duration_t* is the minutes of the supply shortfall event in delivery hour *t* divided by 60 minutes; and
- (d) *balancing ratio_t* is the balancing ratio calculated in subsection 11(5) for delivery hour *t*.

(5) The **ISO** must, in calculating the assessment volume in subsection 11(4), calculate for each delivery hour established in subsection 3(2), the balancing ratio in accordance with the following formula:

$$\text{balancing ratio}_t = \min \left\{ \frac{\sum \text{delivery volume}_t}{\sum \text{capacity commitment}_t}, 1 \right\}$$

where:

- (a) *delivery volume_t* is the sum of the delivery volumes calculated in subsection 11(3) for all assets subject to a **capacity commitment** for delivery hour *t*; and
- (b) *capacity commitment_t* is the sum of the **capacity commitments** associated with all assets for **obligation period** *t*.

Under-delivery Adjustment

12(1) The **ISO** must, if the assessment volume determined in accordance with subsection 11(4) is negative, calculate the absolute value of the under-delivery adjustment in dollars for an asset subject to a **capacity commitment** in accordance with the following formula:

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$$|under-delivery\ adjustment_i| = adjustment\ rate_{it} \times assessment\ volume_i$$

where:

- (a) *adjustment rate_{it}* is the adjustment rate calculated in subsection 12(2) for asset *i* for **obligation period *t***; and
- (b) *assessment volume_i* is the assessment volume determined in subsection 11(4) for asset *i*.

(2) The **ISO** must, in calculating the under-delivery adjustment in subsection 12(1), calculate the adjustment rate in \$/MWh for an asset subject to a **capacity commitment** in accordance with the following formula:

$$adjustment\ rate_{it} = 0.6 \times 1.3 \times delivery\ penalty\ rate_{it}$$

where:

- (a) *delivery penalty rate_{it}* is the delivery penalty rate established in subsection 10(2) for asset *i* for **obligation period *t***.

(3) The **ISO** must, for an asset subject to a **capacity commitment**, establish the under-delivery adjustment amount in dollars for each **settlement period** at the lesser of:

- (a) the monthly cap determined in accordance with subsection 14(1), as applicable; or
- (b) an amount equal to the annual cap determined in accordance with subsection 14(2) or 14(3), as applicable, less the sum of all under-delivery adjustments calculated in accordance with this subsection 12(3) for the prior **settlement periods** of the **obligation period**.

Over-delivery Adjustment

13(1) The **ISO** must, when the assessment volume determined in accordance with subsection 11(4) is positive, calculate the over-delivery adjustment in dollars for an asset subject to a **capacity commitment** in accordance with the following formula:

$$over-delivery\ adjustment_i = adjustment\ rate_{it} \times assessment\ volume_i$$

where:

- (a) *adjustment rate_{it}* is the adjustment rate in \$/MWh calculated in subsection 13(2) for asset *i* in **obligation period *t***; and
- (b) *assessment volume_i* is the assessment volume determined in subsection 11(4) for asset *i*.

(2) The **ISO** must, in calculating the over-delivery adjustment in subsection 13(1), calculate the adjustment rate in \$/MWh in accordance with the following formula:

$$|adjustment\ rate_t| = \frac{\sum under-delivery\ adjustments_t}{\sum positive\ assessment\ volumes_t}$$

where:

- (a) *under-delivery adjustments_t* is the sum of the under-delivery adjustments in dollars determined in accordance with 12(3) for all assets subject to a **capacity commitment** in **obligation period *t***; and

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(b) *positive assessment volumes*, is the sum of all positive assessment volumes calculated in accordance with subsection 11(4) for all assets subject to a **capacity commitment** in obligation period *t*.

(3) The **ISO** must, for each asset, limit the over-delivery adjustment amount in dollars for a **settlement period** to an amount equal to the annual cap determined in accordance with subsection 15 less the sum of all over-delivery adjustments determined in accordance with this subsection 13(3) for the prior **settlement periods** of the **obligation period**.

Maximum Payment Adjustments for Under-availability and Under-delivery

14(1) The **ISO** must cap under-delivery adjustments for an asset subject a **capacity commitment** during a **settlement period** at:

- (a) 3 times the **capacity payment** in \$/month calculated in accordance with Section 103.10 of the **ISO rules**, *Capacity Payment Calculation*; or
- (b) an amount calculated in accordance with the following formula, if the delivery penalty rate for an asset is established at \$1,666.6667/MWh in accordance with subsection 10(2)(a):

$$\text{monthly under delivery payment adjustment cap}_i = ((\text{default rate} \times \text{capacity commitment}_{it}) \div 12) \times 3$$

where:

- (i) *default rate* is \$33.3333/kW-year multiplied by 1000; and
- (ii) *capacity commitment_{it}* is the **capacity commitment** associated with asset *i* for **obligation period t**.

(2) The **ISO** must, subject to subsection 14(3), cap the sum of any under-availability adjustments and under-delivery adjustments for an asset subject a **capacity commitment** in the **obligation period** at an amount in dollars calculated in accordance with the following formula:

$$\text{annual under performance cap}_i = \text{capacity payment}_{it} \times 12 \times 1.3$$

where:

- (a) *capacity payment_{it}* is the **capacity payment** for asset *i* calculated in accordance with Section 103.10 of the **ISO rules**, *Capacity Payment Calculation* for **obligation period t**.

(3) The **ISO** must, if the availability penalty rate for an asset would have been established at \$133.3333/MWh in accordance with subsection 6(2)(a) assuming that the number of availability hours used in the calculation in subsection 6(1) is 250, or if the delivery penalty rate for an asset is established at \$1,666.6667/MWh in accordance with subsection 10(2)(a), cap the sum of any under-availability adjustments and under-delivery adjustments for the asset subject a **capacity commitment** in the **obligation period** at an amount in dollars calculated in accordance with the following formula:

$$\text{annual under performance cap}_i = \text{default rate} \times \text{capacity commitment}_{it} \times 1.3$$

where:

- (a) *default rate* is \$33.3333/kw-year multiplied by 1000; and
- (b) *capacity commitment_{it}* is the **capacity commitment** associated with asset *i* for **obligation period t**.

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Maximum Payment Adjustments for Over-availability and Over-delivery

15(1) The ISO must, subject to subsection 15(2), cap the sum of any over-availability adjustments and over-delivery adjustments for the **obligation period** at an amount in dollars for an asset subject to a **capacity commitment** in accordance with the following formula:

$$\text{annual over performance cap}_i = \text{capacity payment}_{it} \times 12$$

where:

(a) *capacity payment_{it}* is the **capacity payment** for asset *i* calculated in accordance with Section 103.10 of the ISO rules, *Capacity Payment Calculation* for **obligation period t**.

(2) The ISO must, if the availability penalty rate for an asset would have been established at \$133.3333/MWh in accordance with subsection 6(2)(a) assuming that the number of availability hours used in the calculation in subsection 6(1) is 250, or if the delivery penalty rate for an asset is established at \$1,666.6667/MWh in accordance with subsection 10(2)(a), cap the sum of any over-availability adjustments and over-delivery adjustments for the **obligation period** at an amount in dollars for an asset subject a **capacity commitment** in accordance with the following formula:

$$\text{annual over performance cap}_i = \text{default rate} \times \text{capacity commitment}_{it}$$

where:

(a) *default rate* is \$33.3333/kw-year multiplied by 1000; and

(b) *capacity commitment_{it}* is the **capacity commitment** associated with asset *i* for **obligation period t**.

Revision History

Date	Description
xxxx-xx-xx	Initial release