

ISO Rules

Part 200 Markets

Division 206 Capacity Market

Section 206.3 Uniform Capacity Value Determination



External Consultation Draft
August 31, 2018

Applicability

- 1 Section 206.3 applies to:
- (a) a **capacity market participant**; and
 - (b) the **ISO**.

Requirements

1250 Tightest Supply Cushion Hours

- 2 The **ISO** must select 250 hours from each 12 **month** consecutive period in the historical 60 **month** evaluation period as follows:
- (a) calculate the supply cushion for every hour;
 - (b) rank all hours based on supply cushion in ascending order;
 - (c) within the order referred to in subsection 2(b), rank hours with equivalent supply cushion in ascending order from the most recent to the most distant of time; and
 - (d) select the first 250 hours after ranking in accordance with subsection 2(b) and 2(c).

Asset Specific Hours for Uniform Capacity Value Calculation

3(1) The **ISO** must remove the following hours from the 1250 hours identified in subsection 2 on an asset-specific basis, in order to create an historical data set for each asset listed for a **capacity market participant** on the list:

- (a) hours in which there was a state of markets suspension;
- (b) hours that the **ISO** determines that the asset was affected by:
 - (i) an event of limited markets operations, war, invasion, armed conflict, blockade, act of public enemy, riot, revolution, insurrection, act of terrorism, sabotage, act of vandalism, fire that does not originate at the asset, lightning, explosion, earthquake or flooding; and
 - (ii) a **mothball outage** or temporary economic **delist outage**;
- (c) hours in which the asset had no production or consumption history;
- (d) hours in which the asset was **commissioning**; and
- (e) in the case of an import asset, hours in which the relevant transfer path was unavailable as a result of an issue on the Alberta transmission system.

(2) The **ISO** may, in the case of a **long lead time asset** that was synchronized but had varying start-up times for distinct portions of its MW and which required more than 1 hour to deliver such additional portions of its MW, remove the hours where the **ISO** determines that:

- (a) the **pool participant** reason in the Energy Trading System indicates that the asset was offline for a long lead time configuration; or
- (b) the cost assessment for the asset exceeds the **pool price**;

in order to create an historical data set for each **long lead time asset** listed for a **capacity market**

ISO Rules

Part 200 Markets

Division 206 Capacity Market

Section 206.3 Uniform Capacity Value Determination



participant on the list.

(3) The ISO must, if it determines that the asset was impacted by a **transmission market constraint** during an hour in the asset's historical data set, add the volume that was curtailed to the **metered volume** in that hour for the purposes of calculating the **uniform capacity value** for the asset in accordance with subsection 5(2).

Selection of Methodologies for Uniform Capacity Value Calculation

4 The ISO must, when calculating a **uniform capacity value** for an asset, apply the methodologies as follows:

- (a) if the number of hours in the historical data set determined in accordance with subsection 3 is greater than or equal to 300 hours and less than or equal to 1250 hours then the methodologies in subsection 5 will be applied to the hours in the historical data set;
 - (b) if the number of hours in the historical data set determined in accordance with subsection 3 is greater than or equal 1 hour and less than 300 hours then:
 - (i) the methodologies in subsection 5 will be applied to the hours in the historical data set, as applicable; and
 - (ii) the methodology in subsection 6 will be applied to the number of hours that is 300 hours minus the hours in the historical data set, determined in accordance with subsection 3;
- or
- (c) if the number of hours in the historical data set determined in accordance with subsection 3 is 0 hours then the methodology in subsection 6 will be applied to 300 hours.

Methodologies for Hours in the Historical Data Set

5(1) The ISO must, subject to subsections 5(2) through 5(8) calculate a **uniform capacity value** for an asset as follows:

- (a) calculate the hourly availability factor using the time weighted **available capability** as observed in the Energy Trading System, divided by **maximum capability** observed in each hour in the historical data set;
- (b) calculate the availability factor by averaging the hourly availability factors as calculated in subsection 5(1)(a) over the number of hours in the historical data set; and
- (c) multiply the availability factor calculated in subsection 5(1)(b) by the asset's **maximum capability**.

(2) The ISO must calculate a **uniform capacity value** for a wind or solar **aggregated generating facility** or a run of river hydroelectric **generating unit** or **aggregated generating facility**, or an aggregated asset containing a wind or solar **aggregated generating facility** or a run of river hydroelectric **generating unit** or **aggregated generating facility**, or assets that do not receive a dispatch as follows:

- (a) calculate the hourly capacity factor by adding **metered energy** and applicable **ancillary services** volumes observed in each hour in the historical data set, and dividing by **maximum capability**;
- (b) calculate the capacity factor by averaging each hourly capacity factor in subsection 5(2)(a) over the number of hours in the historical data set; and
- (c) multiply the capacity factor calculated in subsection 5(2)(b) by the asset's **maximum**

ISO Rules

Part 200 Markets

Division 206 Capacity Market

Section 206.3 Uniform Capacity Value Determination



capability.

- (3) The **ISO** must calculate a **uniform capacity value** for an import asset as follows:
- (a) calculate the lesser of an asset's **available capability** or an asset's firm transmission over a transfer path observed in each hour in the historical data set, and dividing by an asset's firm transmission capacity over a transfer path;
 - (b) calculate the availability factor by averaging each hourly availability factor in subsection 5(3)(a) over the number of hours in the historical data set; and
 - (c) multiply the availability factor calculated in subsection 5(3)(b) by an asset's firm transmission capacity over a transfer path.
- (4) The **ISO** must calculate a **uniform capacity value** for a site with one or more onsite **generating units** or **aggregated generating facilities** that self-supplies **capacity** and is dispatched gross-to-grid as follows:
- (a) calculate a gross **uniform capacity value** using the availability factor of the asset on the self-supply site as observed in each of the hours in the historical data set; and
 - (b) translate the gross **uniform capacity value** calculated in subsection 5(4)(a) to a net **uniform capacity value** using a linear regression of net-to-grid energy relative to the energy market **dispatches** issued to the asset on the self-supply site.
- (5) The **ISO** must, subject to subsection 7, calculate a **uniform capacity value** for a load asset providing **firm consumption level** as follows:
- (a) identify the **metered energy** for the **settlement intervals** with the same **hour ending** as the hour the historical data set in the following **days**:
 - (i) the 15 most recent **business days** prior to the **day** with the hour in the historical data set if the hour falls on a **business day**;
 - (ii) the 10 most recent weekend **days** or holidays prior to the **day** with the hour in the historical data set if the 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 hour in the historical data set, there are fewer than 15 **business days** and 10 weekend **days** when **days** containing **settlement intervals** identified in subsection 5(5)(b) are excluded;
 - (b) determine if any **settlement intervals** referred to in subsection 5(a) contain any of hours in the historical data set in accordance with subsection 2;
 - (c) calculate the qualified baseline as the average of the **metered energy** for the **settlement intervals** referred to in subsection 5(5)(a) excluding the **metered energy** for the **settlement intervals** identified in subsection 5(5)(b); and
 - (d) minus an asset's declared **firm consumption level** from the qualified baseline calculated in subsection 5(5)(b).
- (6) The **ISO** must calculate a **uniform capacity value** for a load asset providing **guaranteed load reduction** as the **guaranteed load reduction** declared in accordance with Section 206.1, *Qualification of Capacity*.
- (7) The **ISO** must calculate a **uniform capacity value** for an asset with incremental capacity by

ISO Rules

Part 200 Markets

Division 206 Capacity Market

Section 206.3 Uniform Capacity Value Determination



multiplying the performance factor calculated in accordance with subsections 5(1) through 5(6), as applicable, by the sum of the assets **maximum capability** and the amount of incremental capacity.

(8) The **ISO** must calculate a **uniform capacity value** for an asset that undergoes a derate in its **maximum capability** in accordance with subsection 5, as applicable, substituting the **maximum capability** of the asset for its derated **maximum capability**.

(9) Where the **uniform capacity value** for at least 1 asset in an aggregated asset would otherwise be calculated in accordance with subsection 5(2), the **ISO** must calculate the **uniform capacity value** of all assets in the aggregated asset in accordance with subsection 5(2).

Methodologies for Hours not in the Historical Data Set

6(1) The **ISO** must calculate a **uniform capacity value** for an asset in accordance with subsection 4, as follows:

- (a) using a class average performance factor multiplied by **maximum capability**, where the class average performance factor is:
 - (i) for a load asset, 91% unless the **ISO** specifies a class average performance factor based on Alberta load data; or
 - (ii) for all other assets, as specified by the **ISO**;
- (b) if a class average performance factor is not available, using a performance factor based on engineering studies or equivalent engineering documents, or production or load estimates of the asset multiplied by **maximum capability**; or
- (c) if a class average performance factor and production or load estimates are not available, using a performance factor based on a review of similar assets in other jurisdictions multiplied by **maximum capability**.

(2) The **ISO** must calculate a **uniform capacity value** for an import asset where the hours in the historical data set are less than 250 as follows:

- (a) using the value declared, in accordance with Section 206.1, *Qualification of Capacity*, for the import asset; and
- (b) derating the value declared, in accordance with Section 206.1, *Qualification of Capacity*, to reflect the hours in the 1250 hours determined in accordance with subsection 2 where the British Columbia transfer path, Montana transfer path or Saskatchewan transfer path, as applicable, was out of service with an **available transfer capability** of 0 MW.

Test Requirement for Load Asset Providing a Firm Load Consumption

7(1) A **capacity market participant** must, if there were no delivery hours in the **obligation period** prior to **obligation period** that the **ISO** is calculating a **uniform capacity value** for in accordance with subsection 6(5), demonstrate to the **ISO** the ability of a load asset providing a **firm consumption level** to reduce down to the **firm consumption level** declared by the **capacity market participant** and maintain the reduction for 1 hour.

(2) The **ISO** must, in the event that the load asset providing a **firm consumption level** fails the demonstration in subsection 7(1), adjust the **uniform capacity value** calculated in accordance with subsection 6(5) to reflect the observed load reduction.

ISO Rules

Part 200 Markets

Division 206 Capacity Market

Section 206.3 Uniform Capacity Value Determination



Calculation of Ranges for a Uniform Capacity Value

8(1) The **ISO** must, subject to subsection 8(2), calculate 3 ranges for a **uniform capacity value** on an asset-specific basis as follows:

- (a) the 5% range, as follows:
 - (i) calculate the upper limit, as follows:
 - (A) remove 5% of the hours identified in the historical data set, in which the asset's availability factor or capacity factor, as applicable, was the lowest;
 - (B) average the asset's remaining availability factor or capacity factor, as applicable; and
 - (C) multiply the average remaining availability factor or capacity factor, as applicable, by the asset's **maximum capability**; and
 - (ii) calculate the lower limit, as follows:
 - (A) remove 5% of the hours identified in the historical data set, in which the asset's availability factor or capacity factor, as applicable, was the highest;
 - (B) average the asset's remaining availability factor or capacity factor, as applicable; and
 - (C) multiply the average remaining availability factor or capacity factor, as applicable, by the asset's **maximum capability**;
- (b) the +/- 2% range, as follows:
 - (i) calculate the upper limit, as follows:
 - (A) 2% multiplied by the **maximum capability**;
 - (B) added to the **uniform capacity value**; and
 - (ii) calculate the lower limit, as follows:
 - (A) 2% multiplied by the **maximum capability**;
 - (B) subtracted from the **uniform capacity value**; and
- (c) the +/- 1 MW range, as follows:
 - (i) calculate the upper limit by adding 1 MW to the **uniform capacity value**; and
 - (ii) calculate the lower limit by subtracting 1 MW to the **uniform capacity value**.

(2) The **ISO** must not calculate the **uniform capacity value** ranges in subsection 7(1) for:

- (a) assets with **new capacity** or refurbished capacity;
- (b) incremental capacity;
- (c) a load asset; and
- (d) an import asset.

Notification of Tightest Supply Cushion Hours and Preliminary Uniform Capacity Values

9(1) The **ISO** must publish on the AESO website:

- (a) the 1250 tightest supply cushion hours identified in accordance with subsection 2; and
- (b) the class averages referred to in subsection 6(a).

ISO Rules

Part 200 Markets

Division 206 Capacity Market

Section 206.3 Uniform Capacity Value Determination



- (2) The **ISO** must provide the following information to a **capacity market participant** on an asset-specific basis:
- (a) the hours in the historical data set, referred to in subsection 3;
 - (b) the **uniform capacity value** calculated in accordance with subsections 4, 5 and 6, as applicable;
 - (c) the methodology used to calculate the **uniform capacity value**;
 - (d) the greatest of the upper limits calculated in accordance with subsections 8(1)(a)(i), 8(1)(b)(i) and 8(1)(c)(i) to a maximum of the asset's **maximum capability**; and
 - (e) the lowest of the lower limits calculated in accordance with subsection 8(1)(a)(ii), 8(1)(b)(ii) and 8(1)(c)(ii) to a minimum of 1 MW.

Uniform Capacity Value Variances

10(1) A **capacity market participant** may, within the timelines prescribed by the *Capacity Market Auction Guidelines* and in the manner specified by the **ISO**, submit to the **ISO**:

- (a) a request to vary the **uniform capacity value** of an asset for a reason set out in subsection 10(2); and
 - (b) detailed information in support of the request, including, as applicable:
 - (i) metering or Energy Trading System data;
 - (ii) information regarding a planned or completed physical change to the asset demonstrating that the **maximum capability** will increase or decrease by at least 1 MW;
 - (iii) the characteristics, selection criteria and rationale for comparable assets, for class average and jurisdictional assessment requests, including:
 - (A) **maximum capability**; and
 - (B) available production and load data, and
 - (iv) engineering studies or equivalent engineering documents, or production or load estimates which are specific to the asset at its location, completed by a qualified professional engineer.
- (2) The **ISO** may accept a request made in accordance with subsection 10(1) on the following:
- (a) the metering or Energy Trading System data during the historical data set evaluated by the **ISO** did not accurately reflect the **available capability** of the asset;
 - (b) the asset has or will undergo a physical change before the start of the **obligation period** that will increase or decrease the **maximum capability** of the asset by at least 1 MW; or
 - (c) where the class average data, production or load estimates, or jurisdictional assessment used in calculating the **uniform capacity value**, in accordance with subsections 6(1)(a)(ii), 6(1)(b) or 6(1)(c), does not create a comparable representation of the asset's future performance.

(3) The **ISO** must notify the **capacity market participant** of its decision.

Declaration and Assignment of Final Uniform Capacity Value

11(1) A **capacity market participant** must, in accordance with the timelines specified in the *Capacity Market Auction Guidelines* declare to the **ISO**, as applicable, the **uniform capacity value** within the range identified in subsection 8(1) that it will use for the auction.

ISO Rules

Part 200 Markets

Division 206 Capacity Market

Section 206.3 Uniform Capacity Value Determination



(2) The **ISO** must, in accordance with the timelines specified in the *Capacity Market Auction Guidelines*, notify the **capacity market participant** of its assigned **uniform capacity value**.

Revision History

Date	Description
xxxx-xx-xx	Initial release