ISO Rules
Part 200 Markets
Division 206 Capacity Market
Section 206.11 Energy and Ancillary Services Offset for Assets

Draft Version

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Applicability

1 Section 206.11 applies to:

(a) the **ISO**; and

(b) a **capacity market participant** that submitted a request to the **ISO**:

(i) to temporarily delist for economic reasons pursuant to Section 201.15 of the **ISO rules**, *Delisting*; or

(ii) for an asset specific offer price cap pursuant to Section 206.7 of the **ISO rules**, *Capacity Market Mitigation*.

Requirements

Asset-Specific Information for Energy and Ancillary Services Offset Calculation

2(1) A **capacity market participant** must, in accordance with the timelines prescribed in the *Capacity Market Auction Guidelines*, submit the following information to the **ISO** as it relates to the asset subject to the request to temporarily delist for economic reasons or the request for an asset specific offer price cap, as applicable:

(a) the heat rate of the asset in GJ/MWh for the **obligation period** or a portion of the **obligation period**, in the case of a thermal **generating unit** or thermal **aggregated generating facility**, assuming the asset is operating under normal conditions at **maximum capability**;

(b) the expected variable cost of fuel for the asset in $/GJ for the **obligation period** or a portion of the **obligation period**, including variable transportation charges, in the case of a thermal **generating unit** or thermal **aggregated generating facility** that is not fueled by natural gas;

(c) the variable operations and maintenance costs of the asset in $/MWh for the **obligation period** or a portion of the **obligation period**, assuming the asset is operating under normal conditions at **maximum capability**, excluding fuel related costs and amortized or capitalized costs;

(d) the greenhouse gas exposure of the asset to a carbon price levied by a public authority in tonnes of CO_2 equivalent/MWh in the **obligation period** or a portion of the **obligation period**, assuming the asset is operating under normal conditions at **maximum capability**;

(e) the expected energy production in MWh for the **obligation period** or a portion of the **obligation period** with substantiating evidence, including anticipated **forced outages** and derating values expressed as percentages in relation to **maximum capability**, in the case of a thermal **generating unit** or **aggregated generating facility** with expected production hours less than 50%, a wind or solar **aggregated generating facility**, a hydro **generating unit**, or an **energy storage facility**;

(f) for all other assets not specified in subsection 2(1)(e):

(i) seasonal ambient derates expressed as a percentage in relation to the **maximum capability** of the asset for the **obligation period** or a portion of the **obligation period**;

and

(ii) anticipated **planned outages**, **automatic forced outages**, **delayed forced outages** and forced derates, expressed as percentages in relation to the **maximum capability** of the asset for **obligation period** or a portion of the **obligation period**;

(g) the expected revenues in dollars received from other sources outside of the energy market that are directly related to production for the **obligation period** or a portion of the **obligation period**; and

(h) the expected **ancillary services** revenues in dollars for products other than **spinning reserve**, **supplemental reserve** and **regulating reserve** for the **obligation period** or a portion of the **obligation period**.

(2) The **capacity market participant** must submit an attestation from a corporate officer of the **legal owner** of the asset that the information provided pursuant to subsection 2(1) is complete and accurate.

(3) The **ISO** must request additional information from the **capacity market participant** concerning the costs and information submitted in subsection 2(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 2(1), if such information is determined by the **ISO** to be unreasonable after requesting additional information in accordance with subsection 2(3).

(5) The **ISO** must, where it selects alternative values in accordance with subsection 2(4), provide to the **capacity market participant**:

(a) the alternative values selected; and

(b) reasons for why the alternative values were selected.

Calculation of Energy and Ancillary Services Offset for Assets

3(1) The **ISO** must, when required under Section 201.15 of the **ISO rules**, *Delisting* or Section 206.7 of the **ISO rules**, *Capacity Market Mitigation,* calculate the energy and ancillary services offset value for an asset for the **obligation period** or a portion of the **obligation period** in accordance with the following formula:

$$energy\ and\ ancillary\ services\ offset_{it} = \frac{(forward\ power\ price_{it} - energy\ market\ expense_{it}) \times forward\ \ energy_{it} + other\ \ revenue_{it}}{maximum\ capability_{it} \times 1000}$$

where:

(a) *forward power price*$_{it}$ is the forward power price for asset *i* for **obligation period** *t* determined in accordance with subsection 3(2);

(b) *energy market expense*$_{it}$ is the energy market expense for asset *i* for **obligation period** *t* calculated in accordance with subsection 3(4);

(c) *forward energy*$_{it}$ is the forward energy in MWh for asset *i* for **obligation period** *t* as follows:

(i) for a thermal **generating unit** or an **aggregated generating facility** with expected production hours less than 50%, a wind or solar **aggregated generating facility**, hydro **generating unit**, or **energy storage facility**:

(A) the alternate expected energy production selected by the **ISO**, if the **ISO** selected an alternative expected energy production in accordance with subsection 2(4); or

(B) the expected energy production provided in accordance with 2(1)(e), in all other cases;

or

(ii) the value calculated in accordance with subsection 3(2), in all other cases.

(d) *other revenue*$_{it}$ is for asset *i* in **obligation period** *t*:

(i) the alternate revenues selected by the **ISO**, if the **ISO** selected alternative revenues in accordance with subsection 2(3); or

(ii) the revenues provided in accordance with subsection 2(1)(g) and 2(1)(h), in all other cases;

and

(e) *maximum capability*$_{it}$ is the **maximum capability** of asset *i* for **obligation period** *t*.

(2) The **ISO** must, in calculating the energy and ancillary services offset in subsection 3(1), determine the forward power price in $/MWh as follows:

(a) for a thermal **generating unit** or thermal **aggregated generating facility** with expected production hours less than 50% of the hours in **obligation period** *t,* a wind or solar **aggregated generating facility**, a hydro **generating unit**, or an **energy storage facility,** forward power price is:

(i) the NGX Fin FUT FF, FP for AESO Flat multiplied by the forward power price adjustment factor calculated in subsection 3(3); or

(ii) if the NGX Fin FUT FF, FP for AESO Flat is unavailable or not applicable for use in the calculation of the energy and ancillary services offset, another comparable industry standard multiplied by the forward power price adjustment factor calculated in subsection 3(3);

or

(b) for all other assets, forward power price is the weighted average of the settlements matching the **obligation period** *t*, where the settlements are the average over a period determined by the **ISO** from either:

(i) the published NGX forward power products in Appendix 1 that yields the highest energy and ancillary services offset for **obligation period** *t*; or

(ii) if the NGX forward power product is unavailable or not applicable for use in the calculation of the energy and ancillary services offset, another comparable industry standard that yields the highest energy and ancillary services offset for **obligation period** *t*;

(3) The **ISO** must, in determining the forward power price in subsection 3(2)(a), establish the forward power price adjustment factor for an asset:

(a) in accordance with the following formula:

$$forward\ power\ price\ adjustment\ factor = \left(\frac{\sum\ (metered\ energy_i\ \times pool\ price)}{\sum metered\ energy_i}\right) \div annual\ average\ pool\ price$$

where:

(i) *metered energy* is the **metered energy** of asset *i* in MWh from each hour in:

(A) the most recent **obligation period**; or

(B) an equivalent period from November 1 through to and including October 31 if an **obligation period** has not yet occurred, occurring most recently to the point in time at which the energy and ancillary services offset is calculated;

(ii) *pool price* is the pool price for each hour in the most recent **obligation period** or equivalent period referred to in subsection 3(3)(i)(B); and

(iii) *annual average pool price* is the average of all pool prices from the most recent **obligation period** or equivalent period referred to in subsection 3(3)(i)(B);

or

(b) as 1, if there is no **metered energy** for the asset in all of the hours during:

(i) the most recent **obligation period**; or

(ii) an equivalent period from November 1 through to and including October 31 if an **obligation period** has not yet occurred, occurring most recently to the point in time at which the energy and ancillary services offset is calculated.

(4) The **ISO** must, in calculating the energy and ancillary services offset in subsection 3(1) above, calculate energy market expense$_t$ in $/MWh in accordance with the following formula:

$$energy\ market\ expense_{it} =$$

$$[forward\ fuel\ price_{it} \times (1 + commodity\ fuel\ charge_{it})] \times heat\ rate_{it} + variable\ operations\ and\ maintenance_{it} + grenhouse\ gas\ exposure_{it} \times carbon\ price_t + transmission\ losses_{it} + trading\ charge_t$$

where:

(a) *forward fuel price*$_{it}$ in $/GJ for asset *i* for obligation period *t* is:

(i) for a thermal **generating unit** or **aggregated generating facility** that is fueled by natural gas, the weighted average of the settlement corresponding to **obligation period** *t*, where such settlement is selected by the **ISO** from either:

(A) the published NGX Phys, FP (CA/GJ), AB-NIT; or

(B) if the NGX Phys, FP (CA/GJ), AB-NIT is unavailable or not applicable for use in the calculation of the forward fuel price, another comparable industry standard natural gas benchmark for **obligation period** *t*;

(ii) for a thermal **generating unit** or thermal **aggregated generating facility** that is not fueled by natural gas:

(A) the alternate variable cost of fuel selected by the **ISO**, if the **ISO** selected an alternative variable cost of fuel in accordance with subsection 2(4); or

(B) the expected variable cost of fuel during the **obligation period** *t* provided in subsection 2(1)(b), in all other cases;

and

(iii) 0, for all other assets.

(b) *commodity fuel charge*$_{it}$ is, for asset *i* for **obligation period** *t*:

(i) the commodity fuel charge in Section 207.3 of the ISO rules, *Calculation of Net-CONE* for a thermal **generating unit** or thermal **aggregated generating facility** that is fueled by natural gas; and

(ii) 0, for all other assets;

(c) *heat rate*$_{it}$ is, for asset *i* for **obligation period** *t*:

(i) for a thermal **generating unit** or thermal **aggregated generating facility**:

(A) the alternate heat rate selected by the **ISO**, if the **ISO** selected an alternate heat rate in accordance with subsection 2(4); or

(B) the heat rate provided in subsection 2(1)(a), in all other cases;

or

(ii) 0, for all other assets;

(d) *variable operations and maintenance*$_{it}$ is, for asset *i* for **obligation period** *t*:

(i) the alternate variable operations and maintenance costs selected by the **ISO**, if the **ISO** selected alternative variable operations and maintenance in accordance with subsection 2(4); or

(ii) the costs provided in subsection 2(1)(c), in all other cases;

(e) *greenhouse gas exposure*$_{it}$ is, for asset *i* for **obligation period** *t*:

(i) the alternate greenhouse gas exposure selected by the **ISO**, if the **ISO** selected alternative variable operations and maintenance in accordance with subsection 2(4);

(ii) the value provided in subsection 2(1)(d), in all other cases;

(f) *carbon price*$_{t}$ is the weighted average of the calendar year values matching **obligation period** *t* for the carbon price published by a public authority for carbon emissions in Alberta;

(g) *transmission losses*$_{it}$ is the transmission loss value in $/MWh for **obligation period** *t* calculated as the **loss factor** of the asset *i* multiplied by the forward power price where:

(i) the **loss factor** is:

(A) the most recent published **loss factor** for asset *i* published on the AESO website; or

(B) the average loss factor of all assets in Alberta, if a **loss factor** for asset *i* is not available;

and

(ii) forward power price is the value calculated in accordance with subsection 3(4) for asset *i* for **obligation period** *t*;

and

(h) *trading charge*$_t$ is the most recent energy market trading charge in $/MWh published on the AESO website.

(5) The **ISO** must, in calculating the energy and ancillary services offset in subsection 3(1), calculate forward energy in MWh in accordance with the following formula:

$$forward\ \ energy_{it} = maximum\ capability_{it} \times (1 - outage\ and\ derating\ values_{it}) \times forward\ power\ product\ hours_i$$

where:

(a) *maximum capability*$_{it}$ is the **maximum capability** of asset *i* for **obligation period** *t*;

(b) *outage and derating values*$_{it}$ is, for asset *i* in **obligation period** *t*:

(i) the alternate outage and derate value selected by the **ISO**, if the **ISO** selected an alternative outage and derate value in accordance with subsection 2(4); or

(ii) the outages and derates provided in subsection 2(1)(f), in all other cases;

and

(c) *forward power product hours*$_i$ is the number of hours in the forward power product that is selected by the **ISO** in accordance with subsection 3(2) for asset *i*.

Appendices

Appendix 1 – *List of Forward Power Products*

Revision History

Date	Description
yyyy-mm-dd	

Appendix 1 – List of Forward Power Products

Forward Power Product Names on NGX:

- NGX Fin FUT FF, FP for AESO Flat
- NGX Fin FUT FF, FP for AESO Ext Off Peak
- NGX Fin FUT FF, FP for AESO Ext Peak
- NGX Fin FUT FF, FP for AESO Off Peak
- NGX Fin FUT FF, FP for AESO On Peak
- NGX Fin FUT FF, FP for AESO Super Peak
- NGX Fin FUT FF, FP for AESO Hourly