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Restructured Energy Market ISO Rules

Posted: March 12, 2026

Restructured Energy Market ISO Rules

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Restructured Energy Market (REM) ISO Rules

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Restructured Energy Market (REM) ISO Rules

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ISO Rules
Part 100 General
Division 103 Administration
Section 103.3 Financial Security Requirements

Applicability

1 Section 103.3 applies to:

(a) a **market participant** with any **financial obligation** to the **ISO**, except where the **market participant** is the **legal owner** of a **transmission facility** where the **person** that is eligible to apply for the construction and operation of the **transmission facility** was determined by a competitive process developed by the **ISO** in accordance with the **Act**; and

(b) the **ISO**.

Requirements

Provision of Financial Security

2(1) Subject to subsection 2(3), a **market participant** must provide to the **ISO**, or cause its guarantor to provide to the **ISO**, **financial security** equal to or greater than the total dollar amount of all **financial obligations** of the **market participant**, minus any unsecured credit limit granted to the **market participant** as determined in accordance with subsection 6.

(2) A **market participant** must ensure all **financial security** provided or caused to be provided to the **ISO** in accordance with this Section 103.3, remains in force and in effect for so long as the **market participant** has any outstanding **financial obligations** to the **ISO**.

(3) The **ISO:**

(a) may establish a list of **ISO fees** exempt from the requirement set out in subsection 2(1); and

(b) must publish the list referenced in subsection 2(3)(a) on the AESO website.

Refundable ISO Fees

3(1) The **ISO** may, for an **ISO fee** exempt from the provision of **financial security** under subsection 2(3), collect the **ISO fee** from a **market participant** on a refundable basis.

(2) The **ISO** must, for an **ISO fee** that is collected on a refundable basis under subsection 3(1):

(a) publish in advance on the AESO website the terms and conditions upon which the **ISO fee** will be forfeited to the **ISO** or, alternatively, refunded in accordance with subsections 3(2)(b) and (c);

(b) issue a refund of the **ISO fee** to the **market participant** that paid it, or as otherwise directed by the **market participant** that paid it, within 30 **days** of the **ISO** determining that the terms and conditions established under subsection 3(2)(a) are satisfied; and

(c) refund the amount of the **ISO fee**, for which the terms and conditions published by the **ISO** under subsection 3(2)(a) are satisfied, without interest.

(3) The **ISO** must, within 30 **days** of the **ISO** determining that the terms and conditions established under subsection 3(2)(a) are not satisfied, notify the market participant in writing that the **ISO fee** has been forfeited to the **ISO**.

ISO Rules
Part 100 General
Division 103 Administration
Section 103.3 Financial Security Requirements

Determination of Financial Obligations Total Amounts

4(1) The **ISO** must calculate the total dollar amount of all **financial obligations** of a **market participant** to the **ISO**, including:

(a) subject to subsections 4(2) and 4(3), if the **market participant** is a **pool participant**, a dollar amount based upon a determination by the **ISO** of the aggregated amounts calculated for financial settlement by the **ISO** for that **pool participant**, in accordance with Section 216.1 of the **ISO rules**, *Financial Settlement*, for any 2 consecutive **settlement periods** and adjusted for any updated information and estimates;

(b) if the **market participant** is receiving **system access service**, or if the **market participant** has applied for but not yet received **system access service** under any rate in the **ISO tariff**, a dollar amount equal to the estimate of the **ISO** of the charges for 2 consecutive **settlement periods**;

(c) if the **market participant** is required to provide **financial security** as counterparty to a *Construction Commitment Agreement* for a connection project under the **ISO tariff**, a dollar amount equal to the **financial security** as required under any such *Construction Commitment Agreement*;

(d) if a **market participant** is required to provide security as a counterparty to one or more agreements for **ancillary services** with the **ISO**, a dollar amount equal to the **financial security** as required under any such **ancillary services** agreements; and

(e) any other dollar amounts the **ISO** reasonably determines in respect of the requirement for **financial security** for any other services the **ISO** provides to the **market participant**.

(2) A **market participant** must provide to the **ISO**, as a part of its **pool participant** application, an estimate of the net energy that it will consume for 2 consecutive **settlement periods**, using the **months** with the highest level of energy consumption, if a **market participant** is applying to register as a **pool participant** under Section 210.1 of the **ISO rules**, *Pool Participant Registration*.

(3) The **ISO** may determine the dollar amount of a **financial obligation,** for a **market participant** that is applying to register as a **pool participant** under Section 210.1 of the **ISO rules**, *Pool Participant Registration*, based on the net energy consumption estimate provided under subsection 4(2).

(4) The **ISO** may deny an application or terminate any service the **ISO** provides to a **market participant**, if the **market participant** materially misrepresents the estimate of net energy to be consumed in subsection 4(2).

(5) The **ISO** may, for the purposes of calculating the **financial obligations** of a **market participant** to the **ISO** under subsection 4(1), establish a minimum amount that will be deemed to apply if the **financial obligations** calculated under subsection 4(1) otherwise fall below such minimum amount.

Unsecured Credit

5 A **market participant** may request that the **ISO** grant to the **market participant** an unsecured credit limit in accordance with subsection 6.

ISO Rules
Part 100 General
Division 103 Administration
Section 103.3 Financial Security Requirements

Unsecured Credit Limit for Rated Entities

6(1) The **ISO** may:

(a) grant an unsecured credit limit in an amount referred to in subsection 6(3) based on the long-term unsecured credit rating of the **market participant** or its guarantor from an acceptable credit rating agency, as determined by the **ISO**; or

(b) where the **ISO** has previously granted an unsecured credit limit based on a long-term unsecured proxy credit rating, grant twice the amount of such previous unsecured credit limit based on the long-term unsecured proxy credit rating of the **market participant** or its guarantor that the **ISO** issued prior to the effective date of this Section 103.3, which the **ISO** may, from time to time, revise or withdraw in accordance with the former provisions of this Section 103.3 that were in effect prior to the effective date of this Section 103.3.

(2) The **ISO** must establish the unsecured credit limit for the **market participant** based on the lowest credit rating, if the **market participant** or its guarantor has more than 1 credit rating in accordance with subsection 6(1)(a).

(3) The **ISO** may grant an unsecured credit limit to the **market participant** up to the maximum amount specified in the second column of the following Table 1, based on the long term unsecured credit rating for the **market participant** or its guarantor specified in the first column of Table 1, if a **market participant** or its guarantor has a credit rating from an acceptable credit rating agency.

Table 1
Subsection 6 Unsecured Credit Limit

Credit Rating	Unsecured Credit Limit
AA+/AAA	$50,000,000
AA	$45,000,000
AA-	$40,000,000
A+	$35,000,000
A	$30,000,000
A-	$25,000,000
BBB+	$20,000,000
BBB	$15,000,000
BBB-	$10,000,000
<BBB-	$0

(4) The **ISO** may not grant an unsecured credit limit to a **market participant**, its guarantor, or any company that is an **affiliate** of either the **market participant** or its guarantor if the **ISO** has already granted an unsecured credit limit to any of the **market participant**, its guarantor, or an **affiliate** of either of them.

(5) The **ISO** may, notwithstanding subsection 6(4), allocate the previously granted unsecured credit limit of a **market participant**, its guarantor, or any company that is an **affiliate** of either of them amongst those companies in a manner the **ISO** determines but which may not exceed the previously granted unsecured credit limit.

Acceptable Forms of Financial Security

7(1) A **market participant** must provide **financial security** to the **ISO** in the following form:

(a) a letter of credit issued from a Canadian chartered bank, or other comparable financial institution acceptable to the **ISO**, with at least an A minus rating from an acceptable credit rating agency, as determined by the **ISO**, and include provisions to the effect that it is an unconditional and irrevocable standby letter of credit, payable on demand with the **ISO** as beneficiary, and that is otherwise in form and substance satisfactory to the **ISO**;

(b) a cash collateral deposit together with a cash collateral agreement that is in form and substance satisfactory to the **ISO**; or

(c) a parent guarantee from an entity that qualifies for an unsecured rating under subsection 6, and that is in form and substance satisfactory to the **ISO**.

(2) The **ISO** may accept or reject a letter of credit, cash collateral agreement, or parent guarantee, referred to in subsection 7(1).

(3) A **market participant** may request that the **ISO** approve an alternative form of **financial security** to those specified under subsection 7(1).

(4) The **ISO** may accept or reject the alternative form of **financial security** requested in subsection 7(3).

(5) A **market participant** must ensure that the **ISO** is able to register its security interest in any cash collateral deposit the **market participant** provides as a first security interest under the *Personal Property Security Act* or other similar legislation.

(6) A **market participant** must provide the **ISO** with registerable written waivers or postponements in favour of the **ISO** provided by all third parties who have a registerable security interest in priority to the security interest the **ISO** may register, if requested by the **ISO**.

(7) The **ISO** may, at any time after initially approving the creditworthiness of a guarantor of the **market participant** and the maximum dollar amount under any approved form of guarantee, reassess and reduce that creditworthiness regardless of the credit rating of the guarantor.

(8) The **ISO** must notify the **market participant** and its guarantor, in writing, of the reduced creditworthiness following a reassessment and reduction made pursuant to subsection 7(7).

(9) The **market participant** must provide the **ISO** with additional or replacement **financial security,** which the **ISO** must receive no later than the close of business on the 2nd **business day** following the delivery of the notice from the **ISO,** in accordance with subsection 7(8).

(10) The **ISO** may, at its discretion, extend the deadline for the delivery of additional or replacement **financial security** referenced in subsection 7(9).

ISO Rules
Part 100 General
Division 103 Administration
Section 103.3 Financial Security Requirements

ISO Review and Reassessment of Financial Security Adequacy

8(1) The **ISO** may, from time to time, review and reassess any **financial security**, unsecured credit limits, **financial information** and standing, creditworthiness and credit rating, and generally the ability of a **market participant** and its guarantor to meet the **financial obligations** of the **market participant** and other performance obligations to the **ISO**.

(2) The **ISO** may by written notice reduce any unsecured credit limit of the **market participant** or demand that the **market participant** provide replacement or additional **financial security**, upon completion of a review and reassessment.

(3) The **ISO** may demand, in writing, replacement or additional **financial security** from a **market participant** in a dollar amount sufficient to provide security for the calculated difference, if at any one time:

the total dollar amount of all **financial obligations** of the **market participant** calculated under subsection 4

exceeds

any unsecured credit limit granted to the **market participant** under subsection 6, plus the **financial security** the **market participant** or its guarantor provides to the **ISO** pursuant to subsection 2.

(4) A **market participant** must deliver the replacement or additional **financial security**, calculated in subsection 8(3), to the **ISO** no later than the close of business on the 2nd **business day** after the **business day** upon which the **ISO** issued its demand for such replacement or additional **financial security**.

(5) The **ISO** may extend a deadline under subsection 8(4), for the delivery of additional or replacement **financial security**, as the **ISO** may determine.

(6) A **market participant** may request in writing that the **ISO** reduce the **financial security** required from and provided by the **market participant** to the **ISO**.

(7) The **ISO** may reduce the **financial security** of the **market participant**, upon receipt of a request made pursuant to subsection 8(6), if after review and reassessment the **ISO** determines that:

(a) any unsecured credit limit granted to the **market participant** plus the **financial security** the **market participant** provides exceeds all **financial obligations** of the **market participant** for 2 **settlement periods** as the **ISO** estimates; or

(b) the credit rating of the **market participant** or its guarantor, as the case may be, determined in accordance with subsection 6 has been upgraded.

Financial Information and Material Adverse Changes

9(1) A **market participant** must provide, or cause its guarantor to provide, the **ISO** with any **financial information** the **ISO** requests, following a request by the **ISO** for such **financial information**.

(2) A **market participant** must give notice in writing to the **ISO**, or cause its guarantor to give notice in writing to the **ISO,** if the **market participant** or its guarantor experiences a **material adverse change**, or is aware of a likely **material adverse change** occurring, no later than the close of business on the 2nd

business day after the **day** the **market participant** or its guarantor experiences, or becomes aware, of the likely occurrence of the **material adverse change**.

(3) The **ISO** must determine the impact of the **material adverse change** on any unsecured credit limit of the **market participant** and the overall creditworthiness of the **market participant** or its guarantor, upon receiving notice pursuant to subsection 9(1) or otherwise becoming aware of the **material adverse change** or that the **material adverse change** is likely to occur.

(4) The **ISO** may, after determining the impact of the **material adverse change**:

(a) make a written demand on the **market participant** specifying the dollar amount and form of replacement or additional **financial security**, if the **ISO** determines that replacement or additional **financial security** is required; or

(b) if the **ISO** determines that the **market participant** or its guarantor is, or is likely to become, insolvent or unable to pay its debts as they mature:

(i) exercise its rights to terminate or suspend the **market participant** in accordance with subsection 7 of Section 103.7 of the **ISO rules**, *Financial Default and Remedies*; or

(ii) make a written demand on the **market participant** that the **market participant** remit payment in advance to the **ISO** prior to incurring any **financial obligations** in accordance with such terms and conditions as determined by the **ISO**, without limiting any of the other rights or remedies of the **ISO** including the right to terminate or suspend the **market participant**.

(5) The **market participant** must deliver to the **ISO** any specified replacement or additional, **financial security** or prepayment, as applicable, demanded in accordance with subsection 9(4) no later than the close of business on the 2nd **business day** after the **business day** upon which the **ISO** delivered the demand.

(6) The **ISO** may, at its discretion, extend the deadline for the delivery of additional or replacement **financial security** referenced in subsection 9(5).

Costs and Expenses Related to Financial Security

10 All costs and expenses of a **market participant** associated with the implementation of any **financial security** and any related obligations of the **market participant** under this Section 103.3 are the responsibility and to the sole account of that **market participant** and the **market participant** must pay the **ISO** for any such costs and expenses incurred by the **ISO**.

ISO Recourse to Section 103.7 Financial Default and Remedies

11 The **ISO** may exercise its rights and have recourse to the remedies under Section 103.7 of the **ISO rules**, *Financial Default and Remedies* where a **market participant** fails:

(a) to comply with its obligations to provide **financial security** under this Section 103.3;

(b) to keep the **financial security** in force and effect; or

(c) to pay in full its **financial obligation** to the **ISO** by the due date,

any of which is deemed to be a default event.

Discretionary Rights

12(1) All rights, powers, and remedies granted to the **ISO** under this Section 103.3 are for the sole benefit and protection of the **ISO** and the **ISO** may exercise any such right, power, or remedy at its option and in its sole and absolute discretion.

(2) The **ISO** may, if it is given 2 or more alternative courses of action, elect any alternative or combination of alternatives, at its option and in its sole and absolute discretion.

Coming into Effect

13 This Section 103.3 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 100 General
Division 103 Administration
Section 103.6 ISO Fees and Charges

Applicability

1 Section 103.6 applies to:

(a) a **market participant**;

(b) a **pool participant**;

(c) a load settlement **agent**; and

(d) the **ISO**.

Requirements

Schedule of ISO Fees

2 The **ISO** must publish the schedule of **ISO fees** on the AESO website.

Records Requests

3(1) A **market participant** may make a request to the **ISO** for a copy of any records of the **market participant** which may be in the **ISO**'s possession.

(2) A **market participant** must pay an **ISO fee** for any request for records made in accordance with subsection 3(1).

ISO Fee for a Digital Certificate

4 A **pool participant** must pay an annual **ISO fee** to obtain a digital certificate that enables the **pool participant** to access the **ISO**'s systems.

Energy Trading Charge Payment

5(1) The **ISO** must calculate, on or before January of each calendar year, an energy trading charge, as follows:

the energy-related costs and expenses for the **ISO** and the **Commission**, and the costs and expenses of the **Market Surveillance Administrator**

divided by

the total estimated number of MWh of energy forecast to be traded in the **real-time market** in the calendar year.

(2) The **ISO** may, notwithstanding the timing requirements in subsection 5(1), amend the energy trading charge during the calendar year.

(3) The **ISO** must notify **market participants** of any amendments pursuant to subsection 5(2) no less than 30 **days** in advance of the amended energy trading charge coming into effect.

(4) A **pool participant** must pay the **ISO** the energy trading charge **ISO fee** for each MWh of energy the **pool participant** purchases or sells through the **real-time market** in a **settlement period**, that is equal to:

the energy trading charge calculated under subsection 5(1)

multiplied by

the total MWh of energy for the **hour ending** for each **pool asset** of the **pool participant**, which is the greater of:

(a) the **metered energy** the **pool participant** exchanged through the **real-time market** for a **settlement period**; and

(b) the volumes of any registered **net settlement instructions** of the **pool participant** in the **real-time market**.

Charge for Energy from a Long Lead Time Asset Net Costs

6(1) A **pool participant** must pay to the **ISO** a pro rata charge to recover any **incremental generation costs**, net of energy receipts revenue paid by the **ISO** in accordance with subsection 4 of Section 216.1 of the **ISO rules**, *Financial Settlement*, if:

(a) the **ISO** paid any **pool participant** for energy produced by a **long lead time asset** in the **real-time market** in accordance with subsection 4 of Section 216.1 of the **ISO rules**, *Financial Settlement*; and

(b) the **pool participant** has energy consumption during the applicable **hour ending** in the **real-time market**.

(2) The **ISO** must, for any **hour ending** where the energy from a **long lead time asset** was actually required, or was forecasted but not actually required, calculate an **incremental generation costs** pro rata charge for every **pool participant** with energy consumption during the applicable **hour ending**, as follows:

the net **incremental generation costs** amount paid in accordance with subsection 4 of Section 216.1 of the **ISO rules**, *Financial Settlement*, to the **pool participant** issued the **directive** for energy from a **long lead time asset**

divided by

the total energy consumption of every **pool participant** during the applicable **hour ending** in the **real-time market** where the energy from a **long lead time asset** was actually required or was forecasted to be required.

Pool Participant Payment Default Charge

7(1) The **ISO** may, if the **ISO** does not receive full payment of any outstanding **financial obligation** amount owed by a **pool participant** by the close of business on the tenth **business day** following the date the **financial obligation** was due, then after realizing on any **financial security** of the **pool participant**, calculate a payment default charge as follows:

the outstanding **financial obligation** amount, net of any realized **financial security** amounts, of the defaulting **pool participant** for the applicable **settlement period**

divided by

the total amount of energy exchanged through the **real-time market** by all **pool participants**

during the applicable **settlement period**.

(2) The **ISO** must allocate the payment default **ISO fee** to all **pool participants** on a pro rata basis to each MWh of energy that **pool participants** exchanged through the **real-time market** during the **settlement period** for which the **ISO** did not receive full **financial obligation** payment from the defaulting **pool participant**, as outlined in subsection 7(1).

(3) The **ISO** must include the payment default **ISO fee** as a payment obligation for the **pool participants** referred to in subsection 7(2) in the next settlement statement the **ISO** publishes following the calculation and allocation of the payment default charge under this subsection 7.

(4) The **ISO** must apply the payment default charge amounts the **ISO** receives from the **pool participants** to settle any outstanding **financial obligation** amount that remains owing from the defaulting **pool participant**.

(5) The **ISO** must credit and refund that recovered amount on a pro rata basis to the **pool participants** that paid the **ISO** as referenced under subsection 7(4), if the **ISO** has received payment default charge amounts from **pool participants** under subsection 7(4) and the **ISO** is successful in recovering any outstanding **financial obligation** amount from the defaulting **pool participant** referred to in subsection 7(1).

(6) The **ISO** must credit the recovered amount to the applicable **pool participants** as a line item in the next successive final settlement statement of those **pool participants** after the date the **ISO** recovers that amount, but the pro rata recovered amount credited and paid to a **pool participant** must not exceed the pro rata amount the **pool participant** originally paid.

(7) The calculation, allocation and payment of payment default charges under this subsection 8 does not release, discharge, limit or otherwise affect any outstanding **financial obligations** of the defaulting **pool participant**, and is in addition to any other legal or equitable remedies available to the **ISO** under Section 103.7 of the **ISO rules**, *Financial Default and Remedies.*

Load Settlement Cost Recovery

8 A load settlement **agent** must pay as a **financial obligation** to the **ISO**, the amount the **ISO** invoices to recover the **ISO**'s costs for administering provincial load settlement, which amount is based on the load settlement **agent**'s percentage share of the aggregate annual load volumes.

Settlement Statement

9 The **ISO** must include as a line item in any settlement statement any **ISO fee** set out in this Section 103.6 that is charged to a **pool participant**.

ISO Recourse to Section 103.7 *Financial Default and Remedies*

10 The failure of a **market participant**, or load settlement **agent**, to pay the dollar amount of any **ISO fees** or charges under this Section 103.6 is deemed to be a **financial obligation** default event that will allow the **ISO** to have recourse to the rights and remedies of the **ISO** under Section 103.7 of the **ISO rules**, *Financial Default and Remedies.*

ISO Rules
Part 100 General
Division 103 Administration
Section 103.6 ISO Fees and Charges

Unit Commitment Cost Allocation

11 The **ISO** must recover all costs paid to a **pool participant** under subsection 9 of Section 214.1 of the **ISO rules**, *Reliability Unit Commitment* for a **long lead time asset** through a pro rata **ISO fee** charged to **pool participants** with energy consumption during any **settlement intervals** for which the **unit commitment directive** was issued.

Coming into Effect

12 This Section 103.6 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 100 General
Division 103 Administration
Section 103.15 Restructured Energy Market Transition

Applicability

1 Section 103.15 applies to:

(a) the **ISO**.

Requirements

Coming into Effect of REM ISO Rules

2(1) The **ISO** may bring into effect one or more sections or subsections of the approved **REM ISO rules**, at dates and times that the **ISO** determines are required to facilitate the implementation or operation of the **restructured energy market**.

(2) The **ISO** must provide a minimum of 30 **days**' written notice on the AESO website, setting out the sections or subsections of the approved **REM ISO rules** being brought into effect, prior to taking any of the actions described in subsection 2(1).

ISO Rules Retirement

3(1) The **ISO** may retire one or more sections or subsections of the **ISO rules**, at dates and times that the **ISO** determines are required to facilitate the implementation or operation of the **restructured energy market**.

(2) The **ISO** must provide a minimum of 30 **days**' written notice on the AESO website, setting out the sections or subsections of the **ISO rules** being retired, prior to taking any of the actions described in subsection 3(1).

Market Systems Trials

4(1) The **ISO** may, for the purpose of implementing and operating the **restructured energy market**, require **market participants** to provide information and to participate in market system trials to confirm that:

(a) the software, hardware and communication systems that the **ISO** requires for the operation of the **restructured energy market** are functioning as intended; and

(b) a **market participant** can successfully interact with the **ISO**'s systems.

(2) The **ISO** must, for any market system trial required under subsection 4(1):

(a) establish and define market participation test criteria; and

(b) specify the period or periods of time within which a **market participant** must participate in the market system trial.

(3) The **ISO** must, upon successful completion by a **market participant** of a market system trial required under subsection 4(1), certify that the **market participant** has successfully completed the market system trial.

(4) The **ISO** may treat any certification required under subsection 4(3) as eligibility criteria for the purpose of Section 201.1 or Section 210.1 of the **ISO rules**, *Pool Participant Registration*, whichever may be in effect at the relevant time.

(5) The **ISO** must provide a minimum of 10 **business days'** notice on the AESO website of any market system trial that the **ISO** intends to conduct under subsection 4(1).

(6) The **ISO** must describe in a notice under subsection 4(5) whether the market system trial will be subject to certification.

Consultation on Processes or Inputs

5 The **ISO** must comply with Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures,* for any new or revised process or input, referenced in a **REM ISO rule**, to which Section 103.16 applies, prior to that **REM ISO rule** being brought into effect in accordance with subsection 2(1).

Effective Date and Expiry

6(1) This Section 103.15 is effective immediately upon approval.

(2) This Section 103.15 expires upon repeal of the regulation made under Section 20.01 of the *Electric Utilities Act*.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 100 General
Division 103 Administration
Section 103.16 ISO Manual Consultation Procedures

Applicability

1 Section 103.16 applies to:

(a) a **market participant**; and

(b) the **ISO**,

wherever an **ISO rule** requires the **ISO** to comply with this Section 103.16.

Requirements

ISO Manuals

2 The **ISO** must include any new or revised process or inputs subject to this Section 103.16 in an **ISO manual**.

Standard Consultation Requirements

3(1) Where this Section 103.16 applies, the **ISO** must:

(a) notify **market participants**, in writing, of the **ISO**'s intent to introduce or revise a process or inputs in an **ISO manual**;

(b) provide **market participants** with the proposed new **ISO manual** or revisions to an **ISO manual** and any related explanatory material including, where valuable, comparison copies evidencing any proposed revisions;

(c) provide at least one opportunity for **market participants** to provide written feedback on:

(i) the proposed process or inputs in a new **ISO manual;** or

(ii) the proposed revisions to an existing **ISO manual**;

(d) provide **market participants** with a minimum of 15 **business days**' notice for each opportunity to provide written feedback under subsection 3(1)(c);

(e) publish written feedback received from **market participants** on the AESO website;

(f) respond, in writing, to written feedback that is received by the corresponding deadline; and

(g) publish the **ISO**'s decision on the AESO website, with reasons, to adopt the proposed new or revised process or inputs in an **ISO manual**, including, where applicable, any changes resulting from consultation under this subsection 3(1).

(2) The **ISO** must have regard to the impact on **market participants** of the proposed new or revised process or inputs in an **ISO manual** when determining the extent and length of the consultation under subsection 3(1), including the need for one of more stakeholder engagement sessions.

ISO Rules
Part 100 General
Division 103 Administration
Section 103.16 ISO Manual Consultation Procedures

Administrative Amendments

4(1) Notwithstanding subsection 3, the **ISO** may, as required, make revisions that are administrative in nature to a process or inputs subject to this Section 103.16.

(2) Prior to adopting any revisions in accordance with subsection 4(1), the **ISO** must:

(a) provide at least 15 **business days**' written notice of the **ISO**'s decision to make revisions that are administrative in nature to a process or inputs subject to this Section 103.16;

(b) provide **market participants** with the proposed revisions and any related explanatory material including, where valuable, comparison copies evidencing the proposed revisions; and

(c) provide **market participants** with the opportunity to object to the **ISO**'s decision under subsection 4(1) before the expiry of the notice period established in accordance with subsection 4(2)(a).

(3) A **market participant** may object in writing to the **ISO**'s decision to make a revision under subsection 3(1).

(4) In its objection under subsection 4(3), a **market participant** must provide an explanation as to why the proposed revisions are not administrative in nature.

(5) If the **ISO** is satisfied that the explanation provided under subsection 4(4) is reasonable, the **ISO** must consult on the proposed revisions in accordance with subsection 3.

Market Participant Requests for Clarifying Revisions

5(1) A **market participant** may propose, in the form and manner required by the **ISO,** clarifying revisions to a process or inputs subject to this Section 103.16.

(2) For each request for clarifying revisions received under subsection 5(1), the **ISO** must:

(a) publish the request for clarifying revisions on the AESO website;

(b) determine whether the request for clarifying revisions requires a revision to a process or inputs subject to this Section 103.16;

(c) notify the **market participant** that made the request for clarifying revisions of the **ISO**'s determination under subsection 5(2)(b); and

(d) publish the **ISO**'s determination under subsection 5(2)(b) on the AESO website.

(3) Prior to making a determination under subsection 5(2)(b), the **ISO** may request additional information from a **market participant** with respect to the request made under subsection 5(1).

(4) If the **ISO** determines that a request made under subsection 5(1) requires the revision to an **ISO manual**, the **ISO** must consult on the proposed revisions in accordance with subsection 3 or subsection 4, as applicable.

ISO Rules
Part 100 General
Division 103 Administration
Section 103.16 ISO Manual Consultation Procedures

Review of ISO Manual Decision

6(1) A **market participant** may dispute a decision of the **ISO** made under subsection 3(1)(g) by following the procedures set out in this subsection 6.

(2) A **market participant** that submits a dispute must do so within 10 **business days** of the publication of the **ISO**'s decision under subsection 3(1)(g).

(3) A **market participant** must ensure a dispute submission:

(a) is in writing;

(b) includes the full legal name of the **market participant** directly affected by the matter and the contact information the **market participant** will use for receipt of all notices and communications;

(c) includes the nature and basis of the dispute, a proposed solution to the dispute and any other material previously submitted to or received from the **ISO**;

(d) is signed by an officer of the **market participant** if it is a corporation, one of its partners if a partnership, or by the **market participant** personally if an individual **person**; and

(e) is submitted to the **ISO** at its head office, attention "ISO General Counsel".

(4) The **ISO** may make a request for clarification or additional information from a **market participant** that submits a dispute under subsection 6(1).

(5) The **ISO** must publish a dispute submitted under subsection 6(1), and completed in accordance with subsections 6(2) and (3), on the AESO website within 10 **business days** of receipt.

(6) Upon receipt of a completed dispute under this subsection 6, the Chief Executive Officer of the **ISO**, the **ISO** general counsel, and the **ISO** vice president accountable for external relations:

(a) must review the dispute and any related materials, including any consultation materials developed as part of the consultation process under subsection 3;

(b) may undertake additional consultation with **market participants**;

(c) may stay the coming into effect of an **ISO manual**, or revisions to an **ISO manual**, pending review of the dispute, having regard to the safe, reliable and economic operation of the **interconnected electric system**; and

(d) must, within 30 **business days** of the publication of a dispute under subsection 6(5), issue a decision, with reasons, to uphold or vary the **ISO**'s decision under subsection 3(1)(g).

(7) The Chief Executive Officer of the **ISO** may designate an alternate vice president of the **ISO** to review and assess the dispute under subsection 6(6) if the Chief Executive Officer of the **ISO**, the **ISO** general counsel, or the **ISO** vice president accountable for external relations is unavailable.

(8) The **ISO** vice president accountable for the **ISO manual** subject to a dispute under this subsection 6 must not participate in the assessment of a dispute under subsection 6(6).

(9) The **ISO** must publish a decision, with reasons, made under subsection 6(6)(d) on the AESO website.

(10) Section 103.2 of the **ISO rules**, *Dispute Resolution,* does not apply to a dispute of an **ISO** decision made under either subsection 3(1)(g) or subsection 6(6)(d).

Effective Date

7 The **ISO** must specify an effective date for any new or revised **ISO manual**.

Version History

8(1) The **ISO** must publish on the AESO website a final clean copy and, where valuable, a comparison copy, of an **ISO manual** following completion of consultation.

(2) The **ISO** must maintain on the AESO website the prior versions of any **ISO manual** that is revised in accordance with this Section 103.16.

Coming into Effect

9 This Section 103.16 is effective immediately upon approval.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 210 General
Section 210.1 Pool Participant Registration

Applicability

1 Section 210.1 applies to:

(a) a **market participant**; and

(b) the **ISO**.

Requirements

Mandatory Registration as a Pool Participant

2 A **market participant** must be registered with the **ISO** as a **pool participant** in order to **exchange** energy or **ancillary services**.

Application by a Market Participant

3(1) A **market participant** seeking to register as a **pool participant** must provide the **ISO** with a completed **pool participant** application, in the form and manner required by the **ISO**.

(2) A **market participant** seeking to register as a **pool participant** must provide the **ISO** with a non-refundable pool participation **ISO fee**, at the time of submitting its **pool participant** application to the **ISO**, in the amount set out in the schedule of **ISO fees**.

Registration Eligibility Criteria

4(1) The **ISO** must process a **pool participant** application from a **market participant** that has submitted a completed **pool participant** application and **ISO fee** referred to in subsection 3 and that has satisfied the following eligibility criteria:

(a) has provided any **financial information** and **financial security**, and has the ability to meet any **financial obligations** under the **ISO rules** as applicable to a **pool participant**;

(b) has an agreement with a meter data manager, load settlement **agent** or any other such **agent** or **person** the **ISO** otherwise approves to provide **metered energy** data to the **ISO** or, if the **market participant** intends to act as an importer, an exporter or both, has a valid **system access service** agreement with the **ISO**;

(c) has satisfied any outstanding **financial obligations** attributable to any previous **pool participant** registration; and

(d) in the case of a **pool participant** application to facilitate the provision of **ancillary services**, has:

(i) if required by the **ISO**, entered into a contract to trade such products, either with the **ISO** or with an approved **agent** of trading services or both; and

(ii) met the technical requirements the **ISO** has set for the provision of **ancillary services**.

ISO Rules
Part 200 Markets
Division 210 General
Section 210.1 Pool Participant Registration

Receipt and Approval or Rejection of a Pool Participant Application

5(1) The **ISO** must acknowledge in writing the receipt of a **pool participant** application, including any supporting documents and the non-refundable pool participation **ISO fee** within 5 **business days** of the **ISO** receiving them.

(2) The **ISO** must review the **pool participant** application and any supporting documents to ensure completeness, and may request additional clarification or information from the **market participant**.

(3) The **ISO** must, within 20 **business days** of receiving a **pool participant** application, process it and provide written notification to the **market participant** of approval or rejection of the **pool participant** application, or of any requested clarification or information deficiencies in the application, including any deficiencies regarding **financial information**, **financial security** or supporting documents.

(4) The **ISO** may extend the 20-**business day** review deadline date while the **ISO** is waiting for the **market participant** to provide any further information or clarification, or to remedy any deficiencies referenced in subsection 5(3), if applicable.

(5) The **ISO** must approve the **pool participant** application if, in the **ISO**'s opinion, the **pool participant** application is complete and the **market participant** has satisfied the eligibility requirements.

(6) The **ISO** must reject a **pool participant** application where it is deemed by the **ISO** to be deficient.

Voluntary Source Asset Registration

6(1) Subject to subsections 6(2) and 6(3), a **pool participant** may elect, at the time of initial registration of a **source asset** with a **maximum capability** greater than or equal to 1 MW and less than 5 MW**,** to register a **source asset** to participate in the **real-time market**.

(2) A **pool participant** with a **source asset** with a **maximum capability** greater than or equal to 1 MW and less than 5 MW must elect to participate in the **real-time market** in order to be qualified by the **ISO** to provide an **operating reserve**.

(3) A **pool participant** must make an election under subsection 6(2) at the time that the **pool participant** submits an application to the **ISO** to qualify a **source asset** to provide an **operating reserve.**

(4) A **pool participant** that elects to participate in the **real-time market** under subsection 6(1) or 6(2) must not subsequently change that election.

(5) Notwithstanding subsection 6(4):

(a) a **pool participant** may change its election under 6(1) at the time of making an election to participate in the **real-time market** under subsection 6(2); and

(b) the **ISO** may, at its discretion, permit a **pool participant** to change its election under subsections 6(1) or 6(2) if the **ISO** determines that a material change to the facilities of the **source asset** has occurred.

(6) The **ISO** must have regard to the extent and impact of a change to the facilities of a **source asset** in making its determination under subsection 6(5)(b).

ISO Rules
Part 200 Markets
Division 210 General
Section 210.1 Pool Participant Registration

ISO Requirement to Maintain Lists

7(1) The **ISO** must assign one **pool ID** per **pool asset**.

(2) The **ISO** must maintain one or more lists containing current **pool participant** information including all **pool assets**, the status of such **pool assets**, the names of the **pool participant** associated with **pool assets** and any **agents**, and must make the lists available on the AESO website.

Pool Participant Registration Updates

8(1) A **pool participant** must provide updated information regarding its **pool participant** registration, its **agents** and its **pool assets** by following the procedures set out on the AESO website.

(2) The **ISO** must process updates to registration information:

(a) within 20 **business days** of receiving such information, if the update is one that requires the **pool participant** to meet additional technical requirements; or

(b) within 10 **business days** of receiving such information if the update is not one that requires the **pool participant** to meet additional technical requirements.

Failure of a Pool Participant to Continue to Meet Eligibility Requirements

9(1) The **ISO** must notify the **pool participant** in writing of the matter and provide the **pool participant** an opportunity to explain the circumstances in writing if the **ISO** has reason to believe that a **pool participant** has ceased to meet any eligibility criteria set out in subsection 4 at any point in time after initial registration.

(2) The **ISO** may suspend or terminate the registration of a **pool participant** if, at any time following initial registration as a **pool participant**, the **ISO** determines that a **pool participant** has failed to continue to meet the eligibility criteria set out in subsection 4.

(3) The **ISO** may suspend or terminate the **pool participant**'s registration and may realize on any **financial security** to the extent of any **ISO** outstanding financial exposure which results from the suspension or termination of the registration if the **ISO** continues to have reason to believe that the **pool participant** has ceased to meet the requirements of subsection 4 after reviewing the explanation.

(4) A **pool participant** that has had its registration suspended or terminated under this subsection 8 may dispute the **ISO**'s decision under the dispute resolution provisions of Section 103.2 of the **ISO rules**, *Dispute Resolution* with ultimate recourse to the **Commission** or the **Market Surveillance Administrator** as provided for in Section 103.2 of the **ISO rules**, *Dispute Resolution*.

(5) Notwithstanding Section 103.2 of the **ISO rules**, *Dispute Resolution*, the initiation of a dispute resolution process will stay the suspension or termination of the **pool participant**'s registration pending the outcome of such dispute resolution process unless the **pool participant** is in default under Section 103.7 of the **ISO rules**, *Financial Default and Remedies*.

Voluntary Termination of Registration by a Pool Participant

10 A **pool participant** may terminate its registration completing all of the following:

(a) notifying the **ISO** in writing that it wishes to terminate its registration;

(b) requesting in writing that the **ISO** retire any of its **pool assets** identified on the **ISO** list of **pool assets**;

(c) specifying in the notice a date upon which it will cease to be a **pool participant**; and

(d) satisfying any outstanding **financial obligations** to the **ISO**.

Effect of Termination

11(1) A **pool participant** that is or may become liable under these **ISO rules** in connection with its activities as a **pool participant** remains liable after the date of termination of its registration and despite ceasing to be a **pool participant**.

(2) After the **ISO** has terminated a **pool participant** registration, it must release any related **financial security** to the **pool participant** no later than 30 **days** after the date the last **financial obligations** of such **pool participant** are satisfied and to the extent there is no additional outstanding **financial obligation** exposure for or to the **ISO**.

Reinstatement of Registration

12 A **market participant** must submit a new **pool participant** application for registration under this Section 210.1 in order to once again become a **pool participant** if:

(a) the **ISO** terminates a **pool participant** registration; or

(b) if a **market participant** previously has voluntarily terminated its registration under subsection 9.

Annual ISO Fee

13(1) A **pool participant** must pay the **ISO**'s non-refundable annual pool participation **ISO fee**, as set out in the schedule of **ISO fees**, once per calendar year.

(2) The **ISO** may suspend or terminate the registration of a **pool participant** if the **pool participant** fails to pay the applicable non-refundable annual **pool participation ISO fee** as invoiced on its December settlement statement.

Coming into Effect

14 This Section 210.1 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 210 General
Section 210.2 Block Allocation

Applicability

1 Section 210.2 applies to:

(a) the **ISO**.

Requirements

Operating Block Allocation

2(1) The **ISO** must allocate to each **source asset**:

(a) that is not an import asset, 10 **operating blocks** for energy; and

(b) that is an import asset, 1 **operating block** for energy.

(2) The **ISO** must allocate to each **sink asset**:

(a) that is not an export asset, 10 **operating blocks** for energy; and

(b) that is an export asset, 1 **operating block** for energy.

(3) The **ISO** must allocate to each **pool asset** that is qualified by the **ISO** to provide **30-minute ramping reserve**, 1 **price block** for **30-minute ramping reserve**.

Coming into Effect

3 This Section 210.2 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 210 General
Section 210.3 Appointment of Agent

Applicability

1 Section 210.3 applies to:

(a) a **pool participant**; and

(b) the **ISO**.

Requirements

Appointment of Agent

2(1) A **pool participant** may, with the approval of the **ISO** in accordance with this Section 210.3, appoint an **agent** to act on behalf of the **pool participant**.

(2) A **pool participant** wishing to appoint an **agent** under subsection 2(1) must complete and submit to the **ISO** a request to appoint an **agent**, in the form and manner required by the **ISO**.

(3) In its completed request to appoint an **agent**, a **pool participant** must include a representation and warranty by the **pool participant** that all information provided is true and correct to the best of its knowledge, and that the **pool participant** will be bound by and fully responsible for all acts or omissions of the **agent**.

(4) Subject to the other provisions of this Section 210.3, the **ISO** must approve the request to appoint an **agent** made under subsection 2(2) if the **ISO** is satisfied that the **agent** appointment is duly authorized and that the authority of the **agent** to act on behalf of and bind the **pool participant** is clearly approved of by the **pool participant**.

(5) The **ISO** must not approve a request to appointment an **agent** made under subsection 2(2) if the subject matter of the agency extends, in whole or in part, to the preferential sharing of records in violation of or noncompliance with the provisions of section 3(1) of the *Fair, Efficient and Open Competition Regulation,* unless there is an exception to the prohibition against the sharing of records as specified in section 3(2) of that Regulation.

(6) The **ISO** must post on the AESO website a list of all **agents** appointed under this Section 210.3.

Coming into Effect

3 This Section 210.3 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 210 General
Section 210.4 Automated Dispatch and Messaging System

Applicability

1 Section 210.4 applies to:

(a) a **pool participant** that submits **offers** or **bids** for a **pool asset**, excluding import assets and export assets, for:

(i) energy; or

(ii) **ancillary services** for which the **ISO** issues **dispatches** or **directives** through the **ISO**'s Automated Dispatch and Messaging System.

Requirements

2 A **pool participant** must access and operate the **ISO**'s Automated Dispatch and Messaging System application to receive **dispatches** or **directives** for each **pool asset** for which a **pool participant** submits **offers** or **bids**.

3 A **pool participant** must be available 24 hours a **day**, 7 **days** a week to respond to **dispatches** or **directives** the **ISO** issues through:

(a) the **ISO**'s Automated Dispatch and Messaging System; and

(b) telephone calls from the **ISO** using a direct telephone number that the **pool participant** has provided to the **ISO**.

Coming into Effect

4 This Section 210.4 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Effective Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 210 General
Section 210.5 Offer Control Information

Applicability

1 Section 210.5 applies to a **pool participant** that submits**:**

(a) an **offer** for energy;

(b) an **offer** for **30-minute ramping reserve**;

(c) an **offer** for **operating reserve** which the **ISO** accepts; or

(d) a **bid** for an export **interchange transaction.**

Requirements

Offer Control Information

2 A **pool participant** must submit **offer control information** to the **ISO** for a final effective **offer** or **bid**, subsequent to any restatements or **pool asset** substitutions, that has a quantity greater than 0 MW.

Deadline for Submitting Offer Control Information

3 A **pool participant** must submit **offer control information** to the **ISO** no later than 30 **days** after the **hour ending** to which the **offer control information** applies.

Coming into Effect

4 This Section 210.5 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 210 General
Section 210.6 Submission Methods and Coordination of Submissions

Applicability

1 Section 210.6 applies to:

(a) a **pool participant**; and

(b) the **ISO**.

Requirements

Submit through the ISO's Systems

2(1) With the exception of **e-tags**, and unless otherwise set out in the **ISO rules**, a **pool participant** must submit any information required under Part 200 of the **ISO rules**, *Markets*, through the **ISO**'s systems in the form and manner required by the **ISO**, including the submission of **offers**, **bids**, operating constraints, and **acceptable operational reasons**.

(2) The **ISO** must post submission and restatement procedures for the **ISO**'s systems on the AESO website.

(3) The **ISO** must give reasonable notice on the AESO website regarding any changes to submission and restatement procedures for the **ISO**'s systems.

Unable to Access the ISO's Systems

3 A **pool participant** must, if it is unable to submit or restate information through the **ISO**'s systems in accordance with subsection 2 due to the **pool participant**'s hardware, software, or communications systems being unavailable:

(a) notify the **ISO** by telephone that it is unable to submit information through the **ISO**'s systems; and

(b) make best efforts to restore the **pool participant**'s access to the **ISO**'s systems in a timely manner.

Coordination of Submissions

4 A **pool participant** must coordinate its submissions and restatements in a manner that ensures the **pool participant** is able to comply with all **dispatches** related to those submissions and restatements.

Coming into Effect

5 This Section 210.6 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

ISO Rules
Part 200 Markets
Division 210 General
Section 210.6 Submission Methods and Coordination of Submissions

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 210 General
Section 210.7 Requirements for the Balancing Pool

Applicability

1 Section 210.7 applies to:

(a) the Balancing Pool, established by section 75(1) of the **Act**, when:

(i) the Balancing Pool holds a **power purchase arrangement** for a **generating unit** that is subject to a **power purchase arrangement** for which the Balancing Pool has verified termination and, as a result, is held by the Balancing Pool in the capacity of a buyer in accordance with section 96(3) of the **Act**; and

(ii) the Balancing Pool does not have an agreement for **system access service** for the **generating unit**; and

(b) the **ISO**.

Requirements

Compliance with Pool Participant and Market Participant Obligations

2 The Balancing Pool must, for a **generating unit** that is subject to a **power purchase arrangement** for which the Balancing Pool has verified termination and, as a result, is held by the Balancing Pool in the capacity of a buyer in accordance with section 96(3) of the **Act** and for which the Balancing Pool does not have an agreement for **system access service**, comply with all obligations arising from being a **pool participant** and **market participant**, as if the Balancing Pool had an agreement for **system access service** for the **generating unit**.

Financial Settlement Matters Related to the Balancing Pool

3 The **ISO** must, for a **generating unit** that is subject to a **power purchase arrangement** for which the Balancing Pool has verified termination and, as a result, is held by the Balancing Pool in the capacity of a buyer in accordance with section 96(3) of the **Act** and for which the Balancing Pool does not have an agreement for **system access service**, pay or charge the Balancing Pool for the following amounts arising from the first of the **month** in which the Balancing Pool has verified the termination of the **power purchase arrangement**:

(a) all amounts arising under the **ISO tariff**, as if the Balancing Pool were receiving **system access service** under Rate STS of the **ISO tariff**, *Supply Transmission Service*, at the **point of supply** for the **generating unit**; and

(b) all amounts arising from the Balancing Pool being a **pool participant** and **market participant**, as if the Balancing Pool had an agreement for **system access service** in respect of the **generating unit**.

Coming into Effect

4 This Section 210.7 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

ISO Rules
Part 200 Markets
Division 210 General
Section 210.7 Requirements for the Balancing Pool

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 210 General
Section 210.8 Requirements for a Generating Unit Subject to a Power Purchase Arrangement

Applicability

1 Section 210.8 applies to:

(a) the **legal owner** of a **generating unit** that was subject to a **power purchase arrangement**, which has been terminated by the Balancing Pool, when the **legal owner** does not have an agreement for **system access service** for the **generating unit**; and

(b) the **ISO**.

Requirements

Compliance with Pool Participant and Market Participant Obligations

2 The **legal owner** of a **generating unit** that was subject to a **power purchase arrangement**, which has been terminated by the Balancing Pool, and for which the **legal owner** does not have an agreement for **system access service**, must comply with all obligations arising from being a **pool participant** and **market participant**, as if the **legal owner** had an agreement for **system access service** for the **generating unit**.

Financial Settlement Matters Related to the Legal Owner

3 The **ISO** must, for a **generating unit** that was subject to a **power purchase arrangement**, which has been terminated by the Balancing Pool, and for which the **legal owner** does not have an agreement for **system access service**, pay or charge the **legal owner** for the following amounts arising from the first **day** of the **month** following the **month** in which the Balancing Pool terminated the **power purchase agreement**:

(a) all amounts arising under the **ISO tariff**, as if the **legal owner** were receiving **system access service** under Rate STS of the **ISO tariff**, *Supply Transmission Service*, at the **point of supply** for the **generating unit**; and

(b) all amounts arising from the **legal owner** being a **pool participant** and **market participant**, as if the **legal owner** had an agreement for **system access service** in respect of the **generating unit**.

Coming into Effect

4 This Section 210.8 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 211 State of Supply
Section 211.1 Adequacy of Supply

Applicability

1 Section 211.1 applies to:

(a) the **ISO**.

Requirements

Supply Adequacy Forecast

2 The **ISO** must forecast supply **adequacy** in accordance with a prescribed methodology.

Real-time Adequacy Assessments

3 The **ISO** must assess and report on the short-term **adequacy** of supply by, at a minimum, completing a real-time **adequacy** assessment.

Long Term Adequacy Metrics and Reporting

4 The **ISO** must report on the following **long term adequacy** metrics on a quarterly basis:

(a) a metric listing Alberta electrical generation projects and retirements;

(b) a 5-year forecast reserve margin metric;

(c) a supply cushion metric which provides a 2-year forecast of available daily generation capacity and peak demand; and

(d) a 2-year probability of supply **adequacy** shortfall metric.

Publication and Consultation Requirements

5(1) The **ISO** must publish on the AESO website:

(a) the forecasts and reports set out in subsections 2, 3, and 4; and

(b) details of the calculations and methodologies underlying the forecasts and reports referenced in subsection 5(1)(a).

(2) The **ISO** must comply with Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures*, before revising the calculations or methodologies referenced in subsection 5(1)(b).

Long Term Adequacy Threshold Determination and Use

6(1) The **ISO** must, for the 2-year probability of supply **adequacy** shortfall metric model set out in subsection 4(d), use a **long term adequacy** threshold which:

(a) represents the equivalent impact of the probability of having a system supply shortfall occur once every 10 years; and

(b) is calculated as the 1-hour average **Alberta internal load** for a year divided by 5,

being the level which, if exceeded, would indicate a need for the **ISO** to consider taking preventative action.

(2) The **ISO** must, using the 2-year probability of supply **adequacy** shortfall metric, estimate on a quarterly basis the expected total system MWh not served in a subsequent 2-year period.

(3) The **ISO** must, if the estimated total system MWh not served exceeds the **long term adequacy** threshold established at the time, undertake further studies to verify the likely cause, magnitude, and timing of the potential **adequacy** issue.

Long Term Adequacy Threshold Actions

7(1) The **ISO** may, if the **long term adequacy** threshold is exceeded and the **ISO** deems that a potential **adequacy** issue requires preventative action, procure services to address the potential **adequacy** issue, including:

(a) load shed;

(b) self-supply, back-up generation, and back-up energy storage that would not otherwise be available to participate in the **real-time marke**t; or

(c) emergency portable generation or emergency portable energy storage.

(2) The **ISO** must, prior to procuring services in accordance with subsection 7(1), publish a report on the potential **adequacy** issues requiring preventative action.

Coming into Effect

8 This Section 211.1 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 General
Division 211 State of Supply
Section 211.2 Short-Term Adequacy and Supply Shortfall

Applicability

1 Section 211.2 applies to:

(a) a **pool participant**;

(b) the **legal owner** of an **electric distribution system**; and

(b) the **ISO**.

Requirements

Short-Term Adequacy Determinations and Supply Shortfall

2 If the **ISO** forecasts that the **interconnected electric system** will experience a state of supply shortfall, as evidenced by the **firm load** and minimum **regulating reserves** requirement exceeding the available supply and curtailable demand, and determined in accordance with the real-time **adequacy** assessment conducted pursuant to Section 211.1 of the **ISO rules**, *Adequacy of Supply*, then the **ISO** must manage the state of supply shortfall in accordance with the provisions set out in subsections 3, 4 and 5 below.

Managing Supply Shortfall

3(1) The **ISO** must, if it forecasts a state of supply shortfall, issue a message to **pool participants** warning of an upcoming state of supply shortfall.

(2) The **ISO** must, if a state of supply shortfall persists after issuing the message in subsection 3(1), attempt to manage the state of supply shortfall by issuing **directives** which may include **directives**:

(a) instructing available **source assets**, including **long lead time assets** but excluding import assets, to deliver energy;

(b) curtailing demand opportunity service provided under Rate DOS of the **ISO tariff**, *Demand Opportunity Service*; and

(c) maximizing the import capability of the **interties**.

(3) The **ISO** must not issue a **directive** instructing a **long lead time asset** to start if the **initial start-up time** of the **long lead time asset** is greater than the time the supply shortfall condition is expected to last.

(4) The **ISO** must, once the short-term **adequacy** assessment referred to in subsection 2 indicates there is an adequate supply of energy or curtailable demand to meet **firm load** and minimum **regulating reserves** in subsequent **hours ending**, cancel **directives** that instructed **long lead time assets** to start.

Operating Exceptions During Supply Shortfall

4(1) The **ISO** may, during a state of supply shortfall, issue a **directive** to a **pool participant** instructing it to provide energy in excess of the **maximum capability** of the **source asset**.

(2) The **ISO** must cancel a **directive** issued under subsection 4(1) when the energy provided above **maximum capability** is no longer required.

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Section 211.2 Short-Term Adequacy and Supply Shortfall

(3) The **ISO** may, notwithstanding any other provision of the **ISO rules** or **reliability standards**, if required to manage a state of supply shortfall, approve valid **e-tags** submitted for the current or next **hour ending** for import energy that do not have a corresponding **offer**, up to the posted **available transfer capability** limit.

Firm Load Shed

5(1) The **ISO** may, if:

(a) a state of supply shortfall persists; and

(b) **firm load** and minimum **regulating reserve** cannot be met after completing the procedures in subsection 3(2),

issue **directives** to some or all **legal owners** of an **electric distribution system** instructing them to shed **firm load**.

(2) The **ISO** must allocate the shedding of **firm load** among the **legal owners** of **electric distribution systems** on a pro rata basis.

(3) The **legal owner** of an **electric distribution system** must develop and maintain a plan for shedding **firm load**.

(4) The **legal owner** of an **electric distribution system** must ensure that its plan for shedding **firm load** takes into account the following:

(a) shedding of industrial and large commercial loads before residential loads;

(b) **system operating limit** violations;

(c) the need to maintain the integrity of **remedial action schemes** and the **underfrequency load shedding** scheme;

(d) public safety and environmental impact; and

(e) **ISO** discretion to adjust curtailments as required to account for unforeseen circumstances.

Coming into Effect

6 This Section 211.2 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 211 State of Supply
Section 211.3 Supply Surplus

Applicability

1 Section 211.3 applies to:

(a) the **ISO**.

Requirements

State of Supply Surplus

2(1) The **ISO** may curtail next hour import **interchange transactions** to balance system supply and **system load**, if during a current hour the **ISO** forecasts that the **interconnected electric system** will experience a state of supply surplus, as evidenced by the **in merit** electricity supply consisting only of multiple **offers** at the **energy price floor** but excluding any **offers** associated with a **source asset** which energy production cannot be reduced due to an inflow constraint.

(2) The **ISO** must, subject to subsection 2(3), if it determines that a state of supply surplus is imminent in the current hour or already exists, balance system supply and **system load** using the following procedures, as required, and in the following sequence:

(a) initiate curtailment of import **interchange transactions**;

(b) allow **pool participants** to submit **bids** to increase export **interchange transactions** within 1 hour of the start of the applicable **hour ending**;

(c) allow **pool participants** to submit **offers** to decrease import **interchange transactions** within 1 hour of the applicable **hour ending**;

(d) allow **pool participants** to submit restatements reducing **generating unit**, **aggregated facility**, and **energy storage resource** output within 1 hour of the start of the applicable **hour ending**;

(e) issue **dispatches** for energy to **generating units, aggregated facilities**, and **energy storage resources** for **offers** priced at the **energy price floor**, based on the schedules determined for the **settlement interval** by the **real-time dispatch algorithm**; and

(f) issue **directives** for any other necessary actions, including shutting down **generating units**, **aggregated facilities**, and **energy storage resources,** to ensure system **reliability**.

(3) The **ISO** may, as part of the effective execution of the procedures set out in subsection 2(2), if it determines that a **generating unit**, **aggregated facility**, or **energy storage resource** is running at an output level higher than its **minimum stable generation** in order to provide **regulating reserve**, issue a **dispatch**:

(a) to curtail delivery of **regulating reserve** from that **generating unit**, **aggregated facility**, or **energy storage resource**; and

(b) for **regulating reserve** to another **generating unit**, **aggregated facility**, or **energy storage resource** which can provide **regulating reserve** while operating at a lower output level at or above **minimum stable generation**.

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Division 211 State of Supply
Section 211.3 Supply Surplus

(4) The **ISO** may alter the procedural sequence set out in subsections 2(2) and 2(3), if during a current hour, the **ISO** determines that real-time operating conditions are such that procedural sequence would put the **ISO** in contravention of a **reliability standard**.

(5) The **ISO** must, if it alters the procedural sequence as set out in subsection 2(4), recommence the procedural sequence set out in subsections 2(2) and 2(3) once it is assured that the **interconnected electric system** is operating in a safe and reliable mode.

Transitioning Out of a State of Supply Surplus

3 The **ISO** must, when it determines that the **interconnected electric system** is transitioning out of a state of supply surplus, reverse any actions taken under subsection 2(2), in reverse order, to balance system supply and **system load**.

Coming into Effect

4 This Section 211.3 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.1 Regulating Reserve Technical Requirements and Performance Standards

Applicability

1 Section 212.1 applies to:

(a) a **pool participant**; and

(b) the **ISO**.

Requirements

Application for Qualification to Provide Regulating Reserve

2(1) A **pool asset** must be qualified by the **ISO** in order to provide **regulating reserve**.

(2) A **pool participant** seeking to have the **ISO** qualify a **pool asset** to provide **regulating reserve** must provide the **ISO** with:

(a) a completed application, in the form and manner required by the **ISO**; and

(b) the data and records that the **ISO** specifies in the application form.

Eligibility to Provide Regulating Reserve

3 A **pool participant** seeking to have the **ISO** qualify its **pool asset** to provide **regulating reserve** must ensure that its **pool asset** has at least one **regulating reserve resource** that is:

(a) at a minimum, capable of providing:

(i) 1 MW of **regulating reserve**;

(ii) the amount of **real power** applied for, at either the high limit or the low limit of the **regulating reserve** range, for a period of up to 1 hour;

(iii) without manual intervention, **real power** movement in the direction of the latest **automatic generation control** signal within no more than:

A. 28 seconds of receiving an **automatic generation control** signal; and

B. 40 seconds of receiving an **automatic generation control** signal reversal; and

(b) equipped with a **governor** or **governor system** that adheres to the requirements of Section 503.6 of the **ISO rules**, *Frequency & Speed Governing*.

Qualification of a Pool Asset to Provide Regulating Reserve

4(1) The **ISO** may qualify a **pool asset** to provide **regulating reserve** if one or more **regulating reserve resources** of the **pool asset** meet the eligibility criteria set out in subsection 3.

(2) The **ISO** must, after qualifying a **pool asset** under subsection 4(1), determine the **real power** quantity in MW that each **regulating reserve resource** of the **pool asset** is capable of providing, with consideration given to the following:

(a) whether the **regulating reserve resource** is capable of a minimum **ramp rate** in MW per minute equal to 10% of the **real power** applied for under subsection 2(2);

(b) whether the **regulating reserve resource** participates in a **remedial action scheme**;

(c) the total **operating reserve** that could be lost during a single **contingency**;

(d) the maximum **real power** capability and minimum **real power** capability of each **regulating reserve resource** of the **pool asset**; and

(e) any other factors that the **ISO** considers relevant.

(3) The **ISO** must advise a **pool participant** whether its **pool asset** is qualified to provide **regulating reserve** within 60 **days** of the **ISO** receiving a completed application under subsection 2(2).

Performance Requirements when under Dispatch to Provide Regulating Reserve

5(1) A **pool participant** must ensure that, following the receipt of a **dispatch** to provide **regulating reserve**, one or more **regulating reserve resources** of the **pool asset** are positioned for the **regulating reserve** range indicated in the **dispatch**.

(2) A **pool participant** must ensure that each **regulating reserve resource** being used to provide **regulating reserve** meets the requirements set out in subsection 5(1) at the time stated in the **dispatch** or as soon as possible thereafter, but in any event, not more than 15 minutes after receiving the **dispatch.**

(3) A **pool participant** must ensure that, after positioning each **regulating reserve resource** being used to provide **regulating reserve** in accordance with subsection 5(1), the **regulating reserve** control status is sent to the **ISO**:

(a) indicating that the **regulating reserve resource** is enabled to provide **regulating reserve**; and

(b) identifying the high and low limits of the **regulating reserve** range.

(4) The **ISO** may issue an **automatic generation control** signal to a **pool asset** or a **regulating reserve resource** any time after the **regulating reserve resource** being used to provide **regulating reserve** has met the requirements set out in subsection 5(3).

(5) A **pool participant** must ensure that the **automatic generation control** signal the **ISO** issues in accordance with subsection 5(4) can move each **regulating reserve resource** being used to provide **regulating reserve** within the **regulating reserve** range.

(6) A **pool participant** must ensure that each **regulating reserve resource** being used to provide **regulating reserve** responds to an **automatic generation control** signal change:

(a) with a minimum **ramp rate** in MW per minute of 10% of the **real power** quantity qualified for under subsection 4(2); and

(b) in accordance with time delays set out in subsection 3(1)(a)(iii).

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Division 212 Ancillary Services
Section 212.1 Regulating Reserve Technical Requirements and Performance Standards

(7) A **pool participant** must ensure that the **regulating reserve resources** being used to provide **regulating reserve** maintain an output level equal to the latest **automatic generation control** signal within a total tolerance of plus or minus 5% of the **regulating reserve** range.

(8) A **pool participant** will not be paid for **regulating reserve** unless the **pool participant** ensures that the **regulating reserve resources** being used to provide **regulating reserve** meet the requirements set out in subsections 5(1), 5(2), 5(3), 5(5), 5(6) and 5(7) for as long as the **dispatch** is in effect.

Frequency Response Requirements when under Dispatch to Provide Regulating Reserve

6(1) A **pool participant** must ensure that, while its **pool asset** is under **dispatch** to provide **regulating reserve**, the **governor** or **governor system** of each **regulating reserve resource** providing **regulating reserve** is operating such that:

(a) it is in service at all times;

(b) it is operating without load limiters or other control systems including outer control loops that would prevent the **governor** or **governor system** from achieving the maximum frequency response; and

(c) the response of the **governor** or **governor system** and the **automatic generation control** signal of the **regulating reserve resource** is coordinated to provide both primary frequency control and response to the **automatic generation control** signal.

(2) A **pool participant** must ensure that, while its **pool asset** is under a **dispatch** to provide **regulating reserve**, the change in **real power** output of each **regulating reserve resource** being used to provide **regulating reserve** is:

(a) continuously proportional to the measured frequency;

(b) in accordance with the droop settings set out in Section 503.6 of the **ISO rules**, *Frequency & Speed Governing*; and

(c) limited to the maximum **real power** capability of the **regulating reserve resource** that is available at the time of the frequency event.

for any change in frequency where the frequency goes outside the deadband set out in Section 503.6 of the **ISO rules**, *Frequency & Speed Governing*.

(3) A **pool participant** must ensure that, while its **pool asset** is under a **dispatch** to provide **regulating reserve**, each **regulating reserve resource** being used to provide **regulating reserve** sustains the change in **real power** set out in subsection 6(2) for any change in frequency where the frequency is outside of the deadband set out in Section 503.6 of the **ISO rules**, *Frequency & Speed Governing*.

(4) A **pool participant** must ensure that, while its **pool asset** is under a **dispatch** to provide **regulating reserve**, for any change in frequency where the frequency is outside the deadband set out in Section 503.6 of the **ISO rules**, *Frequency & Speed Governing*, other **resources** within the **pool asset** do not change their **real power** load level as a result of the change in **real power** of the **regulating**

reserve resource, unless such a change does not negatively impact frequency response of the **pool asset**.

(5) A **pool participant** must ensure that, for the applicable minimum time period set out in Appendix 1, each **regulating reserve resource** being used to provide **regulating reserve** will not trip as a result of under frequency or over frequency deviations while the **pool asset** is under a **dispatch** to provide **regulating reserve**.

Maintaining Connection when under Dispatch to Provide Regulating Reserve

7 A **pool participant** must ensure that, while its **pool asset** is under a **dispatch** to provide **regulating reserve**, the **regulating reserve resource** remains connected to the **interconnected electric system** and remains frequency responsive in accordance with the requirements set out in subsection 6.

Measuring Frequency Response when under Dispatch to Provide Regulating Reserve

8 For the purpose of subsection 6, frequency response performance is measured at:

(a) the stator winding terminals of a **generating unit** or synchronous **energy storage resource**;

(b) the circuit breaker or disconnection device that is electrically closest to each load;

(c) the alternating current terminal closest to each inverter based **resource**;

(d) the **collector bus** for **aggregated facilities**; or

(e) a point the **ISO** designates.

Other Facility Arrangements

9 The **ISO** may, for the purposes of evaluating frequency response performance, consider other facility arrangements if the combined change in **real power** demonstrates in aggregate that they meet the frequency response requirements set out in subsection 6 for a single **regulating reserve resource**.

Test Requirements

10 The **ISO** may request a **pool participant** to test a **regulating reserve resource**:

(a) prior to allowing the **regulating reserve resource** to provide **regulating reserve**;

(b) if the **ISO** provides evidence that the **regulating reserve resource** exhibits behaviour that is inconsistent with the requirements of this Section 212.1; or

(c) if the **ISO** otherwise determines that such testing is necessary.

Maintaining Eligibility to Provide Regulating Reserve

11(1) The **ISO** may issue a notice suspending the ability of a **pool participant** to provide **regulating reserve** if the **pool participant** does not comply with:

(a) a testing request pursuant to subsection 10;

(b) any other provision of this Section 212.1; or

(c) other **ISO rules** that affect the provision of **regulating reserve**.

(2) A **pool participant** that has received a suspension notice issued pursuant to subsection 11(1) must not submit an **offer** for **regulating reserve** until the **ISO** confirms that the **pool participant** is compliant with this Section 212.1 and all other **ISO rules** that affect the provision of **regulating reserve**.

Coming into Effect

12 This Section 212.1 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Appendices

Appendix 1 – *Frequency Ranges*

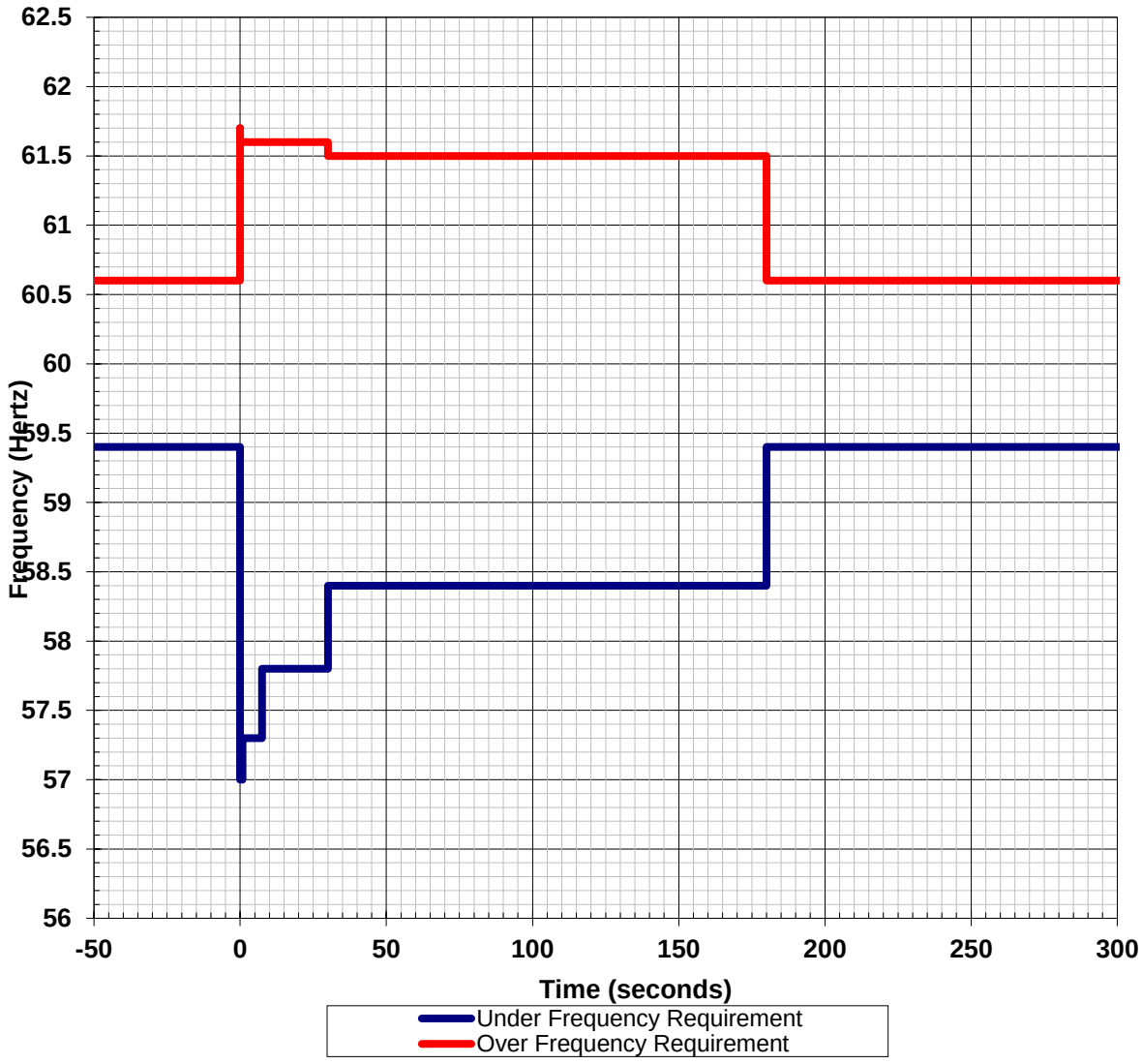
Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.1 Regulating Reserve Technical Requirements and Performance Standards

Appendix 1
Frequency Ranges

High Frequency Duration		Low Frequency Duration	
Frequency (Hz)	**Time (seconds)**	**Frequency (Hz)**	**Time (seconds)**
≥ 61.7	Instantaneous trip	≤57.0	Instantaneous trip
≥61.6	30	≤57.3	0.75
≥60.6	180	≤ 57.8	7.5
<60.6	Continuous operation	≤ 58.4	30
		≤ 59.4	180
		> 59.4	Continuous operation


62.5
62
61.5
61
60.5
60
59.5
59
58.5
58
57.5
57
56.5
56
Frequency (Hertz)
-50
0
50
100
150
200
250
300
Time (seconds)
Under Frequency Requirement
Over Frequency Requirement

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.2 Spinning Reserve Technical Requirements and Performance Standards

Applicability

1 Section 212.2 applies to:

(a) a **pool participant**; and

(b) the **ISO**.

Requirements

Application for Qualification to Provide Spinning Reserve

2(1) A **pool asset** must be qualified by the **ISO** in order to provide **spinning reserve**.

(2) A **pool participant** seeking to have the **ISO** qualify a **pool asset** to provide **spinning reserve** must provide the **ISO** with:

(a) a completed application, in the form and manner required by the **ISO**; and

(b) the data and records that the **ISO** specifies in the application form.

Eligibility to Provide Spinning Reserve

3 A **pool participant** seeking to have the **ISO** qualify its **pool asset** to provide **spinning reserve** must ensure that its **pool asset** has at least one **spinning reserve resource** that is:

(a) at a minimum, capable of providing:

(i) 1 MW of **spinning reserve**;

(ii) the amount of **real power** applied for under subsection 2(2) for a period of 1 hour; and

(b) equipped with a **governor** or **governor system** that adheres to the requirements of Section 503.6 of the ISO rules, *Frequency & Speed Governing*.

Qualification of a Pool Asset to Provide Spinning Reserve

4(1) The **ISO** may qualify a **pool asset** to provide **spinning reserve** if one or more **spinning reserve resources** of the **pool asset** meet the eligibility criteria set out in subsection 3.

(2) The **ISO** must, after qualifying a **pool asset** under subsection 4(1), determine the **real power** quantity in MW that each **spinning reserve resource** of the **pool asset** is capable of providing, with consideration given to the following:

(a) whether the **spinning reserve resource** participates in a **remedial action scheme**;

(b) the total **operating reserve** that could be lost during a single **contingency**;

(c) the maximum **real power** capability and minimum **real power** capability of each **spinning reserve resource** of the **pool asset**; and

(d) any other factors that the **ISO** considers relevant.

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(3) The **ISO** must advise a **pool participant** whether its **pool asset** is qualified to provide **spinning reserve** within 60 **days** of the **ISO** receiving a completed application under subsection 2(2).

Performance Requirements when under Dispatch to Provide Spinning Reserve

5(1) A **pool participant** must ensure that, following the receipt of a **dispatch** to provide **spinning reserve**, one or more **spinning reserve resources** of the **pool asset** are positioned to provide the **real power** set out in the **dispatch** within a total tolerance of minus 5% of the **dispatch** quantity.

(2) A **pool participant** must ensure that each **spinning reserve resource** being used to provide **spinning reserve** meets the requirements set out in subsection 5(1) at the time stated in the **dispatch**, or as soon as possible thereafter but not more than 15 minutes after receiving the **dispatch**.

(3) A **pool participant** will not be paid for **spinning reserve** unless the **pool participant** ensures that the **spinning reserve resources** being used to provide **spinning reserve** meet the requirements set out in subsections 5(1) and 5(2).

Frequency Response Requirements when under Dispatch to Provide Spinning Reserve

6(1) A **pool participant** must ensure that, while its **pool asset** is under a **dispatch** to provide **spinning reserve**, the **governor** or **governor system** of each **spinning reserve resource** providing **spinning reserve** is operating such that it is:

(a) in service at all times; and

(b) operating without load limiters or other control systems including outer control loops that would prevent the **governor** or **governor system** from achieving the maximum frequency response.

(2) A **pool participant** must ensure that, while its **pool asset** is under a **dispatch** to provide **spinning reserve**, the change in **real power** of each **spinning reserve resource** being used to provide **spinning reserve** is:

(a) continuously proportional to the measured frequency;

(b) in accordance with the droop settings set out in Section 503.6 of the **ISO rules**, *Frequency & Speed Governing*; and

(c) limited to the maximum **real power** capability of the **spinning reserve resource** that is available at the time of the frequency event

for any change in frequency where the frequency goes outside the deadband set out in Section 503.6 of the **ISO rules**, *Frequency & Speed Governing*.

(3) A **pool participant** must ensure that, while its **pool asset** is under a **dispatch** to provide **spinning reserve**, each **spinning reserve resource** being used to provide **spinning reserve** sustains the change in **real power** set out in subsection 6(2) for any change in frequency where the frequency is outside the deadband set out in Section 503.6 of the **ISO rules**, *Frequency & Speed Governing*.

(4) A **pool participant** must ensure that, while its **pool asset** is under a **dispatch** to provide **spinning reserve**, for any change in frequency where the frequency is outside the deadband set out in Section

503.6 of the **ISO rules**, *Frequency & Speed Governing*, other **resources** within the **pool asset** do not change their **real power** load level as a result of the change in **real power** of the **spinning reserve resource**, unless such a change does not negatively impact frequency response of the **pool asset**.

(5) A **pool participant** must ensure that, for the applicable minimum time period set out in Appendix 1, each **spinning reserve resource** being used to provide **spinning reserve** will not trip as a result of under frequency or over frequency deviations while the **pool asset** is under a **dispatch** to provide **spinning reserve**.

Maintaining Connection when under Dispatch to Provide Spinning Reserve

7 A **pool participant** must ensure that, while its **pool asset** is under a **dispatch** to provide **spinning reserve**, the **spinning reserve resource** remains connected to the **interconnected electric system** and remains frequency responsive in accordance with the requirements set out in subsection 6.

Measuring Frequency Response when under Dispatch to Provide Spinning Reserve

8 For the purpose of subsection 6, frequency response performance is measured at:

(a) the stator winding terminals of the **generating unit** or synchronous **energy storage resource**;

(b) the circuit breaker or disconnection device that is electrically closest to each load;

(c) the alternating current terminal closest to each inverter based **resource**;

(d) the **collector bus** for **aggregated facilities**; or

(e) a point the **ISO** designates.

Other Facility Arrangements

9 The **ISO** may, for the purposes of evaluating frequency response performance, consider other facility arrangements if the combined change in **real power** demonstrates in aggregate that they meet the frequency response requirements set out in subsection 6 for a single **spinning reserve resource**.

Performance Requirements when Responding to a Directive to Provide Spinning Reserve

10(1) A **pool participant** must, within 10 minutes following receipt of a **directive** to provide **spinning reserve**, ensure that its **pool asset** is providing a quantity of **real power** equal to the instantaneous amount of **real power** of the **pool asset** at the time of the **directive** and the amount of **real power** set out in the **directive**.

(2) A **pool participant** must ensure that, from the first time its **pool asset** achieves the response set out in subsection 10(1) to the time 15 minutes following receipt of the **directive**, the **pool asset** is providing an average response equal to or greater than the amount of **real power** set out in the **directive**.

(3) A **pool participant** must ensure that, for each consecutive **settlement interval** beginning 15 minutes following receipt of a **directive**, the **pool asset** does not vary the average MW it delivers outside the applicable **dispatch compliance range**.

(4) Where a **pool asset** does not have a **maximum capability**, the tolerances set out in subsection 10(3) will be measured against the maximum qualified facility capacity the **ISO** prescribes for the **pool asset**.

(5) A **pool participant** must ensure that its **pool asset** continues to meet the requirements set out in subsection 10(3) for as long as the **directive** to provide **spinning reserve** is in effect.

(6) A **pool participant** must ensure that its **pool asset** is in the position set out in subsection 5(1) as soon as possible but not more than 15 minutes after receiving cancellation of the **directive** for **spinning reserve**.

(7) A **pool participant** must not use the amount of **real power** set out in the **directive** for **spinning reserve** to simultaneously provide **real power** in response to a **directive** for other **ancillary services** under any other section of the **ISO rules** or under any contract.

Measuring Response to a Directive

11 A **pool participant** must ensure that each **pool asset** complies with the requirements set out in subsection 10 as measured at:

(a) the stator winding terminals of each **generating unit** or synchronous **energy storage resource**;

(b) the circuit breaker or disconnection device that is electrically closest to each load;

(c) the alternating current terminal closest to each inverter based **resource**;

(d) the **collector bus** for **aggregated facilities**; or

(e) a point the **ISO** designates.

Test Requirements

12 The **ISO** may request a **pool participant** to test a **spinning reserve resource**:

(a) prior to allowing the **spinning reserve resource** to provide **spinning reserve**;

(b) if the **ISO** provides evidence that the **spinning reserve resource** exhibits behaviour that is inconsistent with the requirements of this Section 212.2; or

(c) if the **ISO** otherwise determines that such testing is necessary.

Maintaining Eligibility to Provide Spinning Reserve

13(1) The **ISO** may issue a notice suspending the ability of a **pool participant** to provide **spinning reserve** if the **pool participant** does not comply with:

(a) a testing request pursuant to subsection 12;

(b) any other provision of this Section 212.2; or

(c) other **ISO rules** that affect the provision of **spinning reserve**.

(2) A **pool participant** that has received a suspension notice issued pursuant to subsection 13(1) must not submit an **offer** for **spinning reserve** until the **ISO** confirms that the **pool participant** is compliant with this Section 212.2 and all other **ISO rules** that affect the provision of **spinning reserve**.

Coming into Effect

14 This Section 212.2 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Appendices

Appendix 1 – *Frequency Ranges*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.2 Spinning Reserve Technical Requirements and Performance Standards

Appendix 1
Frequency Ranges

High Frequency Duration		Low Frequency Duration	
Frequency (Hz)	**Time (seconds)**	**Frequency (Hz)**	**Time (seconds)**
≥ 61.7	Instantaneous trip	≤57.0	Instantaneous trip
≥61.6	30	≤57.3	0.75
≥60.6	180	≤ 57.8	7.5
<60.6	Continuous operation	≤ 58.4	30
		≤ 59.4	180
		> 59.4	Continuous operation

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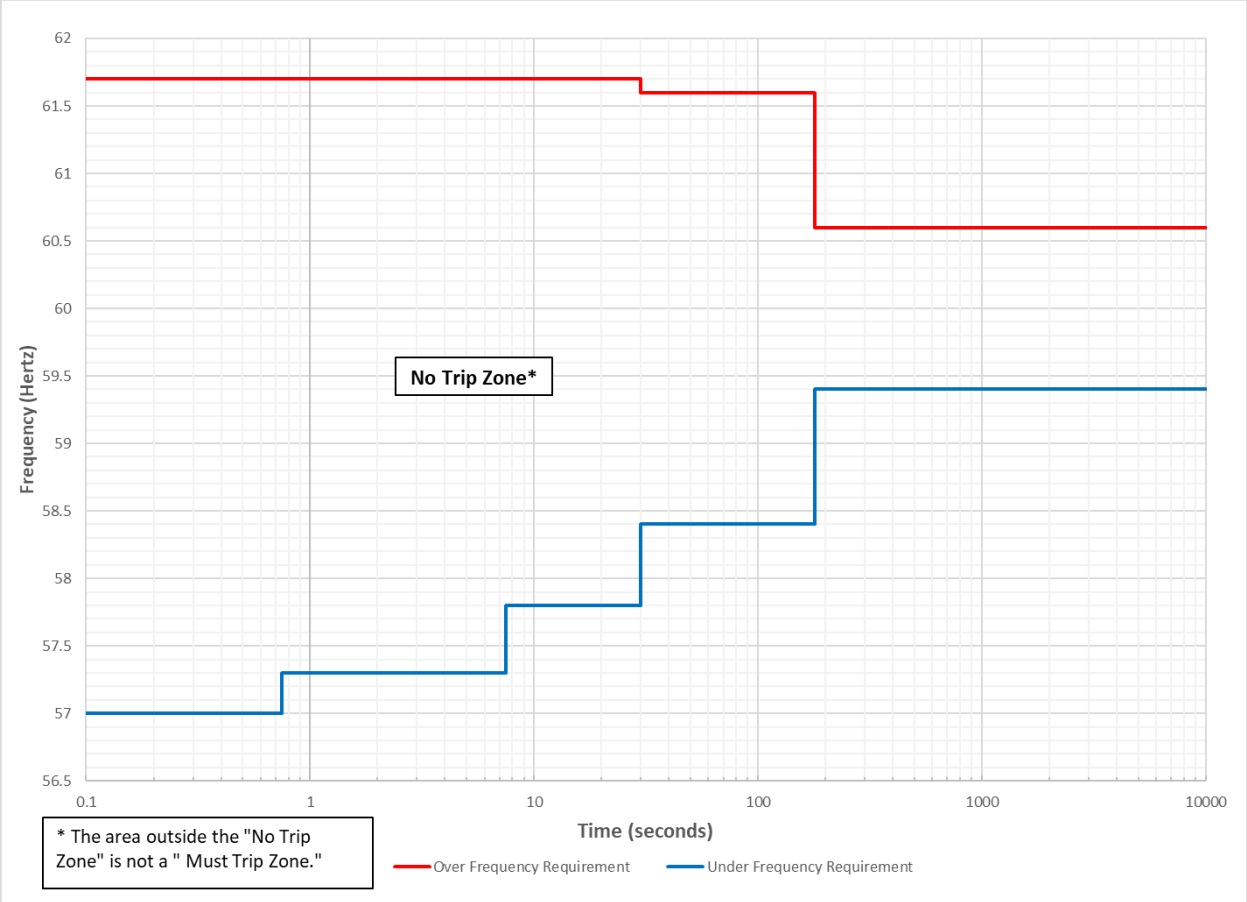
Section 212.2 Spinning Reserve Technical Requirements and Performance Standards



ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.3 Supplemental Reserve Technical Requirements and Performance Standards

Applicability

1 Section 212.3 applies to:

(a) a **pool participant**; and

(b) the **ISO**.

Requirements

Application for Qualification to Provide Supplemental Reserve

2(1) A **pool asset** must be qualified by the **ISO** in order to provide **supplemental reserve**.

(2) A **pool participant** seeking to have the **ISO** qualify a **pool asset** to provide **supplemental reserve** must provide the **ISO** with:

(a) a completed application, in the form and manner required by the **ISO**; and

(b) the data and records that the **ISO** specifies in the application form.

Eligibility to Provide Supplemental Reserve

3 A **pool participant** seeking to have the **ISO** qualify a **pool asset** to provide **supplemental reserve** must ensure that its **pool asset** has at least one **supplemental reserve resource** that is at a minimum, capable of providing:

(a) 1 MW of **supplemental reserve**; and

(b) the amount of **real power** applied for under subsection 2(2) for a period of 1 hour.

Qualification of a Pool Asset to Provide Supplemental Reserve

4(1) The **ISO** may qualify a **pool asset** to provide **supplemental reserve** if one or more **supplemental reserve resources** of the **pool asset** meet the eligibility criteria set out in subsection 3.

(2) The **ISO** must, after qualifying a **pool asset** under subsection 4(1), determine the **real power** quantity in MW that each **supplemental reserve resource** of the **pool asset** is capable of providing, with consideration given to the following:

(a) whether the **supplemental reserve resource** participates in a **remedial action scheme**;

(b) the total **operating reserve** that could be lost during a single **contingency**;

(c) the maximum **real power** capability and minimum **real power** capability of each **supplemental reserve resource** of the **pool asset**; and

(d) any other factor that the **ISO** considers relevant.

(3) The **ISO** must advise a **pool participant** whether its **pool asset** is qualified to provide **supplemental reserve** within 60 **days** of the **ISO** receiving a completed application under subsection 2(2).

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.3 Supplemental Reserve Technical Requirements and Performance Standards

Performance Requirements when under Dispatch to Provide Supplemental Reserve

5(1) A **pool participant** must ensure that, following the receipt of a **dispatch** to provide **supplemental reserve**, one or more **supplemental reserve resources** of the **pool asset** are positioned to provide the **real power** set out in the **dispatch** within a total tolerance of minus 5% of the **dispatch** quantity.

(2) A **pool participant** must ensure that each **supplemental reserve resource** being used to provide **supplemental reserve** meets the requirements set out in subsection 5(1) at the time stated in the **dispatch**.

(3) A **pool participant** will not be paid for **supplemental reserve** unless the **pool participant** ensures that the **supplemental reserve resources** being used to provide **supplemental reserve** meet the requirements set out in subsections 5(1) and 5(2).

Performance Requirements when Responding to a Directive to Provide Supplemental Reserve

6(1) A **pool participant** must, within 10 minutes following receipt of a **directive** to provide **supplemental reserve**, ensure that its **pool asset** is providing a quantity of **real power** equal to the instantaneous amount of **real power** of the **pool asset** at the time of the **directive** and the amount of **real power** set out in the **directive**.

(2) A **pool participant** must ensure that, from the first time its **pool asset** achieves the response set out in subsection 6(1) to the time 15 minutes following receipt of the **directive**, the **pool asset** is providing an average response greater than or equal to the amount of **real power** set out in the **directive**.

(3) A **pool participant** must ensure that, for each consecutive **settlement interval** beginning 15 minutes following the receipt of a **directive**, the **pool asset** does not vary the average MW it delivers outside the applicable **dispatch compliance range**.

(4) Where a **pool asset** does not have a **maximum capability**, the tolerances set out in subsection 6(3) will be measured against the maximum qualified facility capacity the **ISO** prescribes for the **pool asset**.

(5) A **pool participant** must ensure that its **pool asset** continues to meet the requirements set out in subsection 6(3) for as long as the **directive** to provide **supplemental reserve** is in effect.

(6) A **pool participant** must ensure that its **pool asset** is in the position set out in subsection 5(1) as soon as possible but not more than 15 minutes after receiving a cancellation of the **directive** for **supplemental reserve**.

(7) A **pool participant** must not use the amount of **real power** set out in the **directive** for **supplemental reserve** to simultaneously provide **real power** in response to a **directive** for other **ancillary services** under any other section of the **ISO rules** or under any contract.

Measuring Response to a Directive

7 A **pool participant** must ensure that each **pool asset** complies with the requirements set out in subsection 6 as measured at:

(a) the stator winding terminals of the **generating unit** or synchronous **energy storage resource**;

(b) the circuit breaker or disconnection device that is electrically closest to each load;

(c) the alternating current terminal closest to each inverter based **resource**;

(d) the **collector bus** for **aggregated facilities**; or

(e) a point the **ISO** designates.

Test Requirements

8 The **ISO** may request a **pool participant** to test a **supplemental reserve resource**:

(a) prior to allowing the **supplemental reserve resource** to provide **supplemental reserve**;

(b) if the **ISO** provides evidence that the **supplemental reserve resource** exhibits behaviour that is inconsistent with the requirements of this Section 212.3; or

(c) if the **ISO** otherwise determines that such testing is necessary.

Maintaining Eligibility to Provide Supplemental Reserve

9(1) The **ISO** may issue a notice suspending the ability of a **pool participant** to provide **supplemental reserve** if the **pool participant** does not comply with:

(a) a testing request pursuant to subsection 8;

(b) any other provision of this Section 212.3; or

(c) other **ISO rules** that affect the provision of **supplemental reserve**.

(2) A **pool participant** that has received a suspension notice pursuant to subsection 9(1) must not submit an **offer** for **supplemental reserve** until the **ISO** confirms the **pool participant** is compliant with this Section 212.3 and all other **ISO rules** that affect the provision of **supplemental reserve**.

Coming into Effect

10 This Section 212.3 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.4 Fast Frequency Response

Applicability

1 Section 212.4 applies to:

(a) a **market participant** with a contract with the **ISO** to provide **fast frequency response service**; and

(b) the **ISO**.

Requirements

Providing Data

2(1) The **market participant** must provide the **ISO** with any information that the **ISO** requires to administer **fast frequency response service** and must do so in real time via systems the **ISO** designates.

(2) The **ISO** must post its method for calculating **available transfer capability** and a range of potential import capabilities as a function of relevant variables.

Determining Amount to Arm

3(1) The **ISO** must arm the amount of **fast frequency response service** that the **ISO** determines to be required before every **hour ending** based on:

(a) the net import schedule of the combined British Columbia and Montana transfer paths; or

(b) the size of potential supply or load loss contingencies.

(2) The **ISO** must, when arming **fast frequency response service** under subsection 4(1), prioritize the arming of available **fast frequency response service** so as to minimize expected cost.

(3) The **ISO** may modify the amount of **fast frequency response service** armed under subsection 3(1) if the arming requirement changes during the **hour ending**.

Issuing and Responding to Dispatches

4(1) The **ISO** may issue **dispatches** to the **market participant** to arm and disarm **fast frequency response service**.

(2) The **market participant** must arm and disarm **fast frequency response service** in accordance with the contract.

Requirements for the Provision of Fast Frequency Response Service

5(1) The **market participant** must, when armed to provide **fast frequency response service**:

(a) maintain an actual volume of **fast frequency response service** that is at or above the armed volume specified in the contract or otherwise directed by the **ISO**; and

(b) provide a response when the frequency of the **interconnected electric system** becomes less than or equal to the target frequency specified in the contract, or otherwise directed by the **ISO**:

(i) by reducing **real power** flow into the facility, or increasing **real power** flow from the facility into the **interconnected electric system**;

(ii) by an amount that is at or above the tolerance specified in the contract, and

(iii) within the response time specified in the contract.

(2) The **market participant** must, when providing a response as part of **fast frequency response service**:

(a) ensure that the response is provided for 1 hour or until the **ISO** issues a **directive** to end the response, whichever occurs first;

(b) not counteract the response or otherwise reduce the benefit of the service to the **interconnected electric system**, through either the actions or inactions of the **market participant**, unless otherwise required by applicable laws; and

(c) record a response event record for each response in accordance with the contract.

Adjustment Due to Insufficient Fast Frequency Response Service

6 If there is insufficient **fast frequency response service** due to the unavailability of this service, the **ISO** must adjust the import transfer level and may adjust the size of potential supply or load loss contingencies to the corresponding total level of **fast frequency response service** that will be armed.

No Double-Counting

7 The **market participant** must not use the capacity it makes available or that is dispatched to provide **fast frequency response service** to simultaneously provide **operating reserve**.

Coming into Effect

8 This Section 212.4 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.5 Offers and Co-Clearing of Operating Reserve

Applicability

1 Section 212.5 applies to:

(a) a **pool participant**; and

(b) the **ISO**,

when offering to provide or procuring **operating reserve** in either one or both of the active and standby **operating reserve** markets.

Requirements

Submission Method and Timing

2(1) A **pool participant** may only submit an **offer** for **operating reserve** in respect to an active **pool asset** for which they have authority to submit **offers** for **operating reserve**.

(2) A **pool participant** must, if it submits an **offer** for **operating reserve**, do so via the electronic trading platform the **ISO** specifies.

Option to Submit an Offer and Offer Content

3(1) A **pool participant** may, for:

(a) each **hour ending**; and

(b) each of its **pool assets** described in subsection 2(1);

submit an **offer** for **operating reserve**.

(2) A **pool participant** must include in each **offer** for **operating reserve**:

(a) whether it is for active or standby **operating reserve;**

(b) the type of **operating reserve** service, being **spinning reserve**, **supplemental reserve, regulating reserve**, or such other types as the **ISO** allows;

(c) for active **operating reserve**, a price in $/MWh to the nearest cent per MWh which does not exceed the **offer** cap set by the **ISO** and is a premium or discount to the **reference bus price**;

(d) for standby **operating reserve**, a premium price, which must not exceed $99.00/MWh, being the price at which the **pool participant** is prepared to put the **pool asset** in a position to be able to provide the **operating reserve** capacity;

(e) a quantity in MW;

(f) an indication of whether the **offer**, if scheduled, must be procured in full; and

(g) for an **offer** that must be procured in full in accordance with subsection 3(2)(f), an indication of whether the **offer** is for 1, 2, or 3 consecutive **hours ending**.

(3) A **pool participant** must, if it submits an **offer** for a quantity in MW that exceeds the amount the **ISO** qualified the **pool asset** to provide, update such **offer** to reflect a quantity in MW that does not exceed the qualified amount.

(4) A **pool participant** must, for each **hour ending** where an **offer** for **operating reserve** has been submitted for a **pool asset**, submit a total offered volume of **operating reserve** that does not exceed the volume that the **pool asset** is qualified for and capable of providing.

Alternative Submission Methods

4 A **pool participant** must:

(a) notwithstanding any other method or timing requirement in this Section 212.6; and

(b) if there is a problem with the electronic trading platform;

submit an **offer** for **operating reserve** in accordance with the protocol the electronic trading platform establishes or the **ISO** specifies which may include an over-the-counter trading process.

Acceptance of Offers

5 The **ISO** must, to the extent there are sufficient **offers**, procure **operating reserve** for all quantities in MW it requires at the close of the trading session for each type of **operating reserve** by accepting as many **offers** as are required to meet the **ISO**'s forecasted requirements for each type of **operating reserve** service.

Operating Reserve Deliverability Constraints

6 Notwithstanding subsection 5, the **ISO** may limit the procurement of **operating reserve** where a **deliverability constraint** has been established.

Co-Clearing of Active and Standby Operating Reserve

7(1) The **ISO** must ensure that auctions to procure active **operating reserve** minimize overall offered costs for active **operating reserve** while considering any **deliverability constraints**.

(2) Subsequent to the procurement of active **operating reserve**, the **ISO** must ensure that auctions to procure standby **operating reserve** minimize overall offered costs for standby **operating reserve** while considering any **deliverability constraints**.

Coming into Effect

8 This Section 212.5 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.5 Offers and Co-Clearing of Operating Reserve

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.6 Issuing Dispatches and Directives for Operating Reserve

Applicability

1 Section 212.6 applies to:

(a) a **pool participant**; and

(b) the **ISO**,

during normal market conditions when providing and utilizing **operating reserve** that the **ISO** has procured.

Requirements

Issuing Dispatches and Directives

2(1) The **ISO** must issue **dispatches** for all available active **operating reserve**.

(2) The **ISO** must, when active **operating reserve** is not sufficient to meet requirements, use the **merit order** to issue **dispatches** for standby **operating reserve**.

(3) The **ISO** must, if it determines that the delivery of additional **real power** from **operating reserve** is required to ensure the safe and reliable operation of the **interconnected electric system** or to meet reserve sharing group requirements, issue a **directive** to a **pool participant** that has accepted a **dispatch** for **supplemental reserve** or **spinning reserve**, as applicable.

Dispatch and Directive Quantities

3(1) The **ISO** may only issue a **dispatch** or **directive** for a quantity of **operating reserve** that is equal to or less than the MW indicated in the corresponding **offers** in the **ISO**'s systems.

(2) The **ISO** may, notwithstanding subsection 3(1), issue a **directive** for the required additional quantity of **operating reserve** if it has:

(a) issued **dispatches** for quantities represented in all **offers** for **operating reserve**; and

(b) determined that it requires additional **operating reserve** to ensure the safe and reliable operation of the **interconnected electric system**.

Concurrent Energy and Operating Reserve

4(1) A **pool participant** must, if it receives a **dispatch** for energy while it is responding to a **dispatch** for **operating reserve**, continue to provide the **operating reserve**.

(2) A **pool participant** must, in order to be paid for **operating reserve**, comply with subsection 4(1) of this Section 212.6 and subsection 6 of Section 215.2 of the **ISO rules**, *Delivery Requirements for Energy*, for concurrent energy and **operating reserve**, as applicable.

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.6 Issuing Dispatches and Directives for Operating Reserve

Coming into Effect

5 This Section 212.6 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Effective	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.7 Dispatches for Concurrent Services

Applicability

1 Section 212.7 applies to:

(a) a **pool participant**.

Requirements

2(1) A **pool participant** for a **pool asset** that is under a concurrent **dispatch** or **directive** for both of the following **ancillary services**, if the **pool participant** is unable to provide the entirety of all the services, must provide the services in the following order of priority:

(a) **operating reserve**, and

(b) **fast frequency response service**.

(2) A **pool participant** providing **ancillary services** in accordance with subsection 2(1) must restate, or in the case of **fast frequency response service** change the offered volume of, any service that cannot be provided under the requirements applicable to that service.

Coming into Effect

3 This Section 212.7 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.8 Restatements for Operating Reserve

Applicability

1 Section 212.8 applies to:

(a) a **pool participant**,

when providing **operating reserve** pursuant to an **offer** the **ISO** accepts.

Requirements

General

2 A **pool participant** must submit all restatements and substitutions referred to in this Section 212.8 in the form and manner required by the **ISO**.

Restatements for Offers

3(1) A **pool participant** that submits an **offer** for **operating reserve** may only submit a restatement for a quantity higher than the most recent **offer** quantity prior to 30 minutes before the start of the applicable **hour ending**.

(2) A **pool participant** that submits an **offer** for **supplemental reserve** or **spinning reserve** may submit a restatement for a quantity lower than the most recent **offer** quantity prior to receiving a **directive** to provide **supplemental reserve** or **spinning reserve**.

(3) A **pool participant** that submits an **offer** for **regulating reserve** may submit a restatement for a quantity lower than the most recent **offer** quantity at any time.

(4) A **pool participant** that submits an **offer** must, as soon as practicable, submit a restatement to represent the operating state of the **pool asset** if:

(a) the **pool asset** is no longer able to deliver the MW set out in the **offer**; or

(b) the **pool participant** is not able to meet the requirements set out in Section 212.1 of the **ISO rules**, *Regulating Reserve Technical Requirements and Performance Standards*, Section 212.2 of the **ISO rules**, *Spinning Reserve Technical Requirements and Performance Standards*, or Section 212.3 of the **ISO rules**, *Supplemental Reserve Technical Requirements and Performance Standards*, as applicable.

(5) The **ISO** may, if a **pool participant** submits a restatement for a quantity higher than the original **offer** quantity**,** notwithstanding subsection 3(1) of this Section 212.8 and subsection 2 of Section 212.6 of the **ISO rules**, *Issuing Dispatches and Directives for Operating Reserve*, choose not to issue a **dispatch** for a quantity representing the incremental higher amount.

Pool Asset Substitutions

4 A **pool participant** may substitute one or more **pool assets** to provide **operating reserve** for another **pool asset**, if:

(a) the **ISO** pre-approves the **pool participant** to make such substitutions and enables the **ISO**'s systems as required;

(b) such substitutions are submitted no later than one hour before the start of the applicable **hour ending**;

(c) the **pool participant** is substituting among **pool assets** that the **ISO** has qualified to provide the same type of **operating reserve** pursuant to subsection 4 of Section 212.1 of the **ISO rules**, *Regulating Reserve Technical Requirements and Performance Standards*, subsection 4 of Section 212.2 of the **ISO rules**, *Spinning Reserve Technical Requirements and Performance Standards*, or subsection 4 of Section 212.3 of the **ISO rules**, *Supplemental Reserve Technical Requirements and Performance Standards;* and

(d) such substitutions do not violate **deliverability constraints** published by the **ISO**.

Coming into Effect

5 This Section 212.8 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.9 Deliverability Constraints

Applicability

1 Section 212.9 applies to:

(a) the **ISO**.

Requirements

Creation of Deliverability Constraints

2(1) The **ISO** may, for the purpose of ensuring the **reliability** of the **interconnected electric system**, create **deliverability constraints** that limit the scheduling and **dispatch** of **ancillary services** on the **interconnected electric system**.

(2) If the **ISO** creates a **deliverability constraint**, the **ISO** must publish on the AESO website:

(a) the geographic area in Alberta to which the **deliverability constraint** applies;

(b) the **ancillary services** to which the **deliverability constraint** applies;

(c) the **pool assets** that are located within the geographic area to which the **deliverability constraint** applies; and

(d) the scheduling and **dispatch** limits associated with the **deliverability constraint** for each **hour ending**.

(3) The **ISO** must, as soon as practicable, update the limits published under subsection 2(d) when the limits associated with the **deliverability constraint** change.

Review of Deliverability Constraints

3 The **ISO** must, once each calendar year, review the effectiveness of any **deliverability constraints** created under subsection 2(1).

Deliverability Constraint Methodology

4(1) The **ISO** must publish the methodology underlying the creation of a **deliverability constraint** under subsection 2(1) on the AESO website.

(2) The **ISO** must comply with Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures*, before adopting or revising the methodology set out in subsection 4(1).

Coming into Effect

5 This Section 212.9 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.10 30-Minute Ramping Reserve Qualification and Cost Allocation

Applicability

1 Section 212.10 applies to:

(a) a **pool participant** with a **pool asset** that is not an import asset or export asset**;** and

(b) the **ISO**.

Requirements

Qualification to Provide 30-Minute Ramping Reserve

2 A **pool participant** must not submit an **offer** for **30-minute ramping reserve** for a **pool asset** unless the **ISO** has qualified that **pool asset** to provide **30-minute ramping reserve**.

Qualification of a Source Asset to Provide 30-Minute Ramping Reserve

3(1) Subject to subsection 3(2), the **ISO** must qualify a **source asset** to provide **30-minute ramping reserve** if:

(a) the **source asset** is:

(i) **controllable**;

(ii) capable of providing **30-minute ramping reserve**; and

(iii) capable of providing at least 1 MW of **real power**, and

(b) the **pool participant** for that **source asset** is required to submit an **offer** for energy for that **source asset** in accordance with subsection 4 of Section 213.1 of the **ISO rules**, *Real-Time Market Offers and Bids*.

(2) The **ISO** must not qualify a **source asset** to provide **30-minute ramping reserve** if it is an **energy storage resource** with a storage capability, measured in MWh, that is less than the **maximum capability** of the **source asset** multiplied by 0.5 hours.

Qualification of a Sink Asset to Provide 30-Minute Ramping Reserve

4(1) Subject to subsections 4(2) and 4(3), the **ISO** must qualify a **sink asset** to provide **30-minute ramping reserve** if the **sink asset** is:

(a) **controllable**;

(b) capable of providing **30-minute ramping reserve**; and

(c) capable of responding with at least 1 MW of **real power**;

(2) The **ISO** must not qualify a **sink asset** to provide **30-minute ramping reserve** if it is an **energy storage resource.**

ISO Rules
Part 200 Markets
Division 212 Ancillary Services
Section 212.10 30-Minute Ramping Reserve Qualification and Cost Allocation

Cost Allocation of 30-Minute Ramping Reserve

5(1) The **ISO** must recover all costs paid to a **pool participant** for **30-minute ramping reserve** through an **ISO fee** calculated in accordance with the methodology set out in Appendix 2 of Section 216.1 of the **ISO rules**, *Financial Settlement*.

(2) The **ISO** must, for each **settlement interval**, charge the **ISO fee,** calculated in accordance with the methodology referenced in subsection 5(1), to a **pool participant** with a:

(a) **sink asset,** unless excluded by the **ISO** pursuant to the process set out in subsection 5(3); or

(b) **source asset** containing a wind or solar **resource** that is submitting **offers** for energy, unless excluded by the **ISO** pursuant to the process set out in subsection 5(3).

(3) The **ISO** must publish the processes for exclusion of a **sink asset** or a **source asset** under subsection 5(2)(a) or (b) on the AESO website.

(4) The **ISO** must comply with Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures*, before adopting or revising one or both of the processes set out in subsection 5(3).

Coming into Effect

6 This Section 212.10 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.1 Real-Time Market Offers and Bids

Applicability

1 Section 213.1 applies to:

(a) a **pool participant**; and

(b) the **ISO**.

Requirements

Submission Method and Timing

2(1) A **pool participant** may only submit an **offer** or **bid** for energy in the **real-time market** for a **pool asset** that is listed opposite their name in the **ISO** list of **pool assets**.

(2) A **pool participant** may only submit an **offer** for **30-minute ramping reserve** for a **pool asset** that has been qualified by the **ISO** to provide **30-minute ramping reserve**.

Standing Submission

3(1) A **pool participant** may create a standing submission, being an **offer** or **bid** that remains in place until the **pool participant** changes it.

(2) The **ISO** must use the data contained in the standing submission for the **pool asset** for the **day** following the **forecast scheduling period**.

Obligation to Offer Energy and 30-Minute Ramping Reserve

4(1) A **pool participant** must, for each **hour ending**, submit an **offer** for energy for each **source asset** with a **maximum capability** of greater than or equal to 5 MW, excluding imports.

(2) A **pool participant** must, for each **hour ending**, submit an **offer** for energy for each of its **source assets**, excluding import assets, with a **maximum capability** greater than or equal to 1 MW and less than 5 MW that has been registered to participate in the **real-time market** in accordance with subsection 6 of Section 210.1 of the **ISO rules**, *Pool Participant Registration*.

(3) A **pool participant** must not, notwithstanding subsections 4(1) to 4(2), submit an **offer** for energy for capacity that is committed under a contract for **long term adequacy**.

(4) A **pool participant** must, for each **hour ending,** submit an **offer** for **30-minute ramping reserve** for each of its **source assets** qualified by the **ISO** in accordance with subsection 3 of Section 212.10 of the **ISO rules**, *30-Minute Ramping Reserve Qualification and Performance Standards*.

(5) A **pool participant** must, for each **hour ending** where a **bid** for energy has been submitted for a **sink asset** qualified by the **ISO** to provide **30-minute ramping reserve**, submit an **offer** for **30-minute ramping reserve** for that qualified **sink asset**.

(6) A **pool participant** may, for each **hour ending**, submit an **offer** for energy for an import asset.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.1 Real-Time Market Offers and Bids

Offer Content

5(1) A **pool participant** must include in each **operating block** in an **offer** for energy:

(a) a price in $/MWh to the nearest cent per MWh which:

(i) in the case of a **source asset** that is not an import asset, is greater than or equal to the **energy price floor** and less than or equal to the **energy offer cap**; and

(ii) in the case of an import, is equal to the **energy price floor**;

(b) a quantity in MW; and

(c) an indication of whether the **operating block** is a **flexible block** or an **inflexible block**.

(2) A **pool participant** that submits an **offer** for energy must select whether the **offer** profile is stepped or smooth.

(3) A **pool participant** that submits an **offer** for energy must ensure that:

(a) the cumulative total MW, as entered for the highest priced **operating block** in the **offer** for the applicable **hour ending**, excluding import assets, equals the **maximum capability** of the **source asset**; and

(b) the **minimum stable generation** submitted for the **source asset**, excluding import assets, does not exceed the MW of the **operating block** with the lowest price for the **source asset** and a quantity greater than zero.

(4) A **pool participant** must include in the **offer** for **30-minute ramping reserve** a price in $/MWh to the nearest cent per MWh which is greater than or equal to $0 per MWh and less than or equal to $100 per MWh.

Offers During Commissioning and Testing

6(1) A **pool participant** that submits an **offer** for energy for a **source asset**, excluding an import asset, which is undergoing **commissioning** and testing under section 505.3 of the **ISO rules**, *Coordinating Synchronization, Commissioning, WECC Testing and Ancillary Services Testing* must, notwithstanding subsection 5(1)(a)(i), submit a price for the **offer** equal to the **energy price floor** until the **ISO** otherwise authorizes in writing**.**

(2) A **pool participant** must not, notwithstanding subsections 4(4) and 4(5), submit an **offer** for **30-minute ramping reserve** for a **source asset**, excluding an import asset, which is undergoing **commissioning** and testing under section 505.3 of the **ISO rules**, *Coordinating Synchronization, Commissioning, WECC Testing and Ancillary Services Testing* until the **ISO** otherwise authorizes in writing.

Available Capability

7 A **pool participant** that submits an **offer** for energy for a **source asset**, excluding an import asset, must also submit the **available capability**, in MW, for each **source asset,** where such **available capability** must equal the **maximum capability** of the **source asset** unless the **pool participant** has submitted an **acceptable operational reason** with the **offer**.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.1 Real-Time Market Offers and Bids

Bids for Energy and Bid Content

8(1) A **pool participant** may, for an **hour ending**, submit a **bid** for energy for any of its **sink assets,** including export assets.

(2) Notwithstanding subsection 8(1), a **pool participant** must, for an **hour ending**, submit a **bid** for energy for any of its **sink assets** for which **operating reserve** has been procured.

(3) A **pool participant** must include in each **operating block** in a **bid** for energy:

(a) a price in $/MWh to the nearest cent per MWh which:

(i) in the case of a **sink asset** that is not an export asset, is greater than or equal to the **energy price floor** and less than or equal to $3,000 per MWh; and

(ii) in the case of an export asset, is $3,000 per MWh.

(b) a quantity in MW greater than or equal to the volume of **operating reserve** that has been procured.

(4) A **pool participant** that submits a **bid** for energy must ensure that the total MW in the **bid** do not exceed the **maximum capability** of the **sink asset**.

Operating Constraints for Offers and Bids

9 A **pool participant** submitting an **offer** or **bid** for energy or an **offer** for **30-minute ramping reserve** for a **pool asset** must submit accurate applicable operating constraints for that **pool asset**.

Validation

10 The **ISO** must, as soon as practicable following the receipt of an **offer** for energy, a **bid** for energy, an **offer** for **30-minute ramping reserve,** or an operating constraint, send to the **pool participant** who submitted the **offer**, **bid,** or operating constraint:

(a) a notification that the **offer** for energy, **bid** for energy, **offer** for **30-minute ramping reserve**, or operating constraint is either a valid or invalid input into the **ISO**'s systems; and

(b) if an **offer** for energy, **bid** for energy, **offer** for **30-minute ramping reserve** or operating constraint is invalid, an explanation as to why that **offer**, **bid**, or operating constraint is not a valid input into the **ISO**'s systems.

Coming into Effect

11 This Section 213.1 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.2 Real-Time Market Restatements

Applicability

1 Section 213.2 applies to:

(a) a **pool participant** and

(b) the **ISO**.

Requirements

Restatement Timing

2 The **ISO** may, for a restatement for a **pool asset** by a **pool participant** for the current **hour ending**, defer the application of the restatement to a subsequent **settlement interval** if that delay is required to validate, process, and accept the restatement in the **ISO**'s systems.

Available Capability Restatements for Energy

3(1) A **pool participant** must only submit an **available capability** restatement for energy revising the **available capability** of a **source asset** if such revision is:

(a) the result of an **acceptable operational reason**;

(b) in relation to an **operational deviation** and required under subsection 4(3) of Section 215.2 of the **ISO rules**, *Delivery Requirements for Energy*; or

(c) in order to reflect the output of a **source asset** which is restricted during either one or both of **commissioning** and testing under Section 505.3 of the **ISO rules**, *Coordinating Synchronization, Commissioning, WECC Testing and Ancillary Services Testing* or under Section 505.4 of the **ISO rules**, *Coordinating Operational Testing*.

(2) A **pool participant** that submits an **offer** for energy must, if there is a change to the **available capability** for energy of the **source asset** as a result of any of the circumstances outlined in subsections 3(1)(a) or (c), submit an **available capability** restatement for energy for the applicable hours, as soon as practicable.

(3) A **pool participant** must submit the reason or reasons, in the manner specified by the **ISO**, for submitting an **available capability** restatement for energy of a **source asset**.

Price Restatements for Offers for Energy

4(1) A **pool participant** that submits an **offer** for energy may submit a price restatement but must do so prior to 1 hour before the start of the applicable **hour ending**.

(2) A **pool participant** must, as soon as practicable, submit a price restatement for a **long lead time asset**, if required in accordance with subsections 8(1) or 8(2) of Section 214.1 of the **ISO rules**, *Reliability Unit Commitment*.

MW Restatements for Offers for Energy

5(1) A **pool participant** that submits an **offer** for energy may submit a MW restatement prior to 1 hour before the start of the applicable **hour ending**.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.2 Real-Time Market Restatements

(2) A **pool participant** that submits an **offer** for energy must submit a MW restatement redistributing the MW to represent the operating state of the **source asset**, as soon as practicable, if the **source asset** cannot comply with the current **offer** for energy as a result of:

(a) either:

(i) an **acceptable operational reason**; or

(ii) an **operational deviation** and such restatement is required under subsection 4(3) of Section 215.2 of the **ISO rules**, *Delivery Requirements for Energy*; and

an **available capability** restatement under subsection 2 cannot reasonably accommodate the **source asset**'s operating state; or

(b) carrying out either one or both of **commissioning** and testing under Section 505.3 of the **ISO rules**, *Coordinating Synchronization, Commissioning, WECC Testing and Ancillary Services Testing* or under Section 505.4 of the **ISO rules**, *Coordinating Operational Testing*.

(3) A **pool participant** must submit the reason or reasons, in the manner specified by the **ISO**, for submitting a MW restatement in accordance with subsection 5(2)(a) if such MW restatement is submitted within 1 hour of the start of the applicable **hour ending** or within the current **hour ending**.

(4) A **pool participant** must, if the **pool participant** is responding to the **ISO** under subsection 2 of Section 211.3 of the **ISO rules**, *Supply Surplus*, submit a restated **offer** for energy for its **source asset** within the current hour which reduces the quantity of only the **operating block** priced at the **energy price floor** of the **source asset**.

(5) A **pool participant** must, as soon as practicable, submit a MW restatement for a **long lead time asset** if required in accordance with subsections 8(1) or 8(2) of Section 214.1 of the **ISO rules**, *Reliability Unit Commitment*.

Minimum Stable Generation Restatements for Offers for Energy

6(1) A **pool participant** that submits an **offer** for energy, if there is a change to the **minimum stable generation** as a result of any **acceptable operational reason**, must submit a **minimum stable generation** restatement for the **source asset** for the applicable hours, as soon as practicable, excluding **offers** for energy for import assets.

(2) A **pool participant** must submit the reason or reasons, in the manner specified by the **ISO**, for submitting a **minimum stable generation** restatement under subsection 6(1).

Price Restatements for Bids

7 A **pool participant** that submits a **bid** may submit a price restatement but must only do so prior to 1 hour before the start of the applicable **hour ending**.

MW Restatements for Bids

8(1) A **pool participant** that submits a **bid** may submit a MW restatement prior to 1 hour before the start of the applicable **hour ending**.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.2 Real-Time Market Restatements

(2) A **pool participant** that submits a **bid** for energy must submit a MW restatement redistributing, or in the case of exports reducing, the MW to represent the operating state of the **sink asset**, as soon as practicable, if the **sink asset** cannot comply with the current **bid** as a result of either:

(a) an **acceptable operational reason**; or

(b) an **operational deviation** and such restatement is required under subsection 4(3) of Section 215.3 of the **ISO rules**, *Consumption Requirements for Bids*.

(3) A **pool participant** must submit the reason or reasons, in the manner specified by the **ISO**, for submitting a MW restatement under subsection 8(2) if such MW restatement is submitted within 1 hour of the start of the applicable **hour ending** or within the current **hour ending**.

(4) If a **pool participant** is responding to the **ISO** under subsection 2 of Section 211.3 of the **ISO rules**, *Supply Surplus*, then the **pool participant** must submit a MW restatement for its **bid** for energy for the applicable **sink asset** in the current hour, or increase the MW of the export **interchange transaction**.

Operating Constraints Restatements

9(1) A **pool participant** that submits an operating constraint for a **pool asset** must, if there is a change to an operating constraint, restate the operating constraint as soon as practicable.

(2) A **pool participant** must submit the reason or reasons, in the manner specified by the **ISO**, for submitting an operating constraint restatement under subsection 9(1).

Price Restatements for Offers for 30-Minute Ramping Reserve

10(1) A **pool participant** that submits an **offer** for **30-minute ramping reserve** may submit a price restatement but must do so prior to 1 hour before the start of the applicable **hour ending**.

(2) A **pool participant** must, as soon as practicable, submit a price restatement for an **offer** for **30-minute ramping reserve** for a **long lead time asset**, if required in accordance with subsection 8(2) of Section 214.1 of the **ISO rules**, *Reliability Unit Commitment*.

Coming into Effect

11 This Section 213.2 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.3 Secondary Offer Cap

Applicability

1 Section 213.3 applies to:

(a) the **pool participant**:

(i) for a **market participant** that has **offer** control greater than or equal to 5% of the total **maximum capability** of **generating units** in Alberta, as determined by the **Market Surveillance Administrator** under sections 5(3) and 5(4) of the *Fair, Efficient and Open Competition Regulation*, AR 159/2009; and

(ii) for a **pool asset** or a portion of a **pool asset** that is not:

(A) a renewable energy **resource**, except a renewable energy **resource** that produces electric energy by moving water, as defined in the *Renewable Electricity Act,* SA 2016, c R-16.5; or

(B) an import or export asset; and

(b) the **ISO**.

Requirements

Secondary Offer Cap

2(1) The **ISO** must set the secondary **offer** cap, on a daily basis, when in effect at:

(a) for a **pool asset**, or portion of a **pool asset** that is an **energy storage resource** or a hydroelectric **resource**, the **reference level cost** for the technology type of the **pool asset** as determined in accordance with subsection 3 of Section 214.4 of the **ISO rules**, *Reference Levels*; and

(b) for a **pool asset**, or portion of a **pool asset** that is not an **energy storage resource** or hydroelectric **resource**, the greater of:

(i) $400 per MWh; or

(ii) an amount equal to 25 times ICE NGX Canada Inc.'s ICE NGX AB-NIT Day Ahead Index.

(2) The **ISO** must, if the gas price index in subsection 2(1)(b) is not available, use a reasonably equivalent gas price index and must, if such unavailability becomes permanent, subsequently update this Section 213.3 to indicate the new source for obtaining the gas price.

(3) The **ISO** must:

(a) notify **pool participants** when the secondary **offer** cap comes into effect on the AESO website; and

(b) provide the notification in subsection 2(3)(a) at least 2 hours prior to 00:00 on the **day** the secondary **offer** cap will come into effect.

(4) The **ISO** must set the secondary **offer** cap into effect at 00:00 on the **day** following the **day** in which the value in subsection 3(5) has been reached.

(5) Notwithstanding subsection 2(4), if the value in subsection 3(5) is reached in the last 2 hours of a **day**, the **ISO** must set the secondary **offer** cap into effect at 00:00 2 **days** after that **day**.

(6) The **ISO** must, once the secondary **offer** cap is initially in effect in accordance with subsection 3(5), keep the secondary **offer** cap in effect for the remainder of the **mitigation period**.

(7) The **ISO** must notify **pool participants** of the daily **reference level cost** set out under subsection 2(1)(a) that is in effect for an **energy storage resource** or a hydroelectric **resource** at least 2 hours prior to 00:00 on that **day**.

(8) The **ISO** must notify **pool participants** of which secondary **offer** cap set out under subsection 2(1)(b) is in effect for the **day**, at least 2 hours prior to 00:00 on that **day**.

The Reference Generating Unit

3(1) The **ISO** must, for the **mitigation period**, determine the value of the annualized unavoidable costs of the **reference generating unit** in accordance with the methodology set out in Appendix 1.

(2) The **ISO** must, prior to the start of the **mitigation period**, publish the annualized unavoidable costs of the **reference generating unit** on the AESO website.

(3) The **ISO** must determine the cumulative net revenue of the **reference generating unit** for each **settlement interval** for the current **mitigation period** in accordance with the methodology set out in Appendix 1.

(4) The **ISO** must publish the updated value of the cumulative net revenue determined under subsection 3(3) daily on the AESO website.

(5) The **ISO** must, when the value of the cumulative net revenue of the **reference generating unit** determined under subsection 3(3) exceeds 2 times the annualized unavoidable costs of the **reference generating unit**, set the secondary **offer** cap in effect in accordance with subsection 2(4).

Pool Participant Implementation of the Secondary Offer Cap

4 A **pool participant** must, upon notification from the **ISO** pursuant to subsection 2(3), for the remainder of the **mitigation period**:

(a) not submit any energy **offers** that are greater than the applicable secondary **offer** cap set by the **ISO** under subsection 2(1); and

(b) restate all previously submitted energy **offers** to conform with the applicable secondary **offer** cap communicated by the **ISO** under subsection 2(1).

Review of the Inputs Underlying the Reference Generating Unit Methodology

5(1) The **ISO** must publish the inputs underlying the methodology set out in Appendix 1 on the AESO website.

(2) The **ISO** must:

(a) comply with Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures*, before adopting or revising an input listed in Table 1 of Appendix 1 as a technical characteristic of the **reference generating unit** set out in subsection 5(1); and

(b) consult on the inputs listed in Table 1 of Appendix 1 as technical characteristics of the **reference generating unit** referenced in subsection 5(2)(a) at least once every 5 calendar years.

Coming into Effect

6 This Section 213.3 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Appendices

Appendix 1 – *Calculation of Annualized Capital Investment Costs, Annual Fixed Operating Costs, Annual Unavoidable Costs, Settlement Interval Variable Costs, and Annual Cumulative Settlement Interval Net Revenue of the Reference Generating Unit*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.3 Secondary Offer Cap

Appendix 1
Calculation of Annualized Capital Investment Costs, Annual Fixed Operating Costs, Annual Unavoidable Costs, Settlement Interval Variable Costs, and Annual Cumulative Settlement Interval Net Revenue of the Reference Generating Unit

(1) The annualized capital investment costs of the **reference generating unit**, expressed in dollars, is determined in accordance with the following formula:

$$\mathrm{ACIC} = \frac{\mathrm{MC_G} \times \mathrm{CC_G} \times \mathrm{R} \times 1000}{1 - (1 + \mathrm{R})^{-\mathrm{N}}}$$

Where:

ACIC	is the annualized capital investment costs.
$\mathrm{MC_G}$	is the **maximum capability** of the **reference generating unit**.
$\mathrm{CC_G}$	is the capital cost of the **reference generating unit**.
R	is the pretax weighted average cost of capital of the **reference generating unit**.
N	is the useful life of the **reference generating unit**.

(2) The annual fixed operating costs of the **reference generating unit**, expressed in dollars, is determined in accordance with the following formula:

$$\mathrm{AFOC} = \mathrm{MC_G} \times \mathrm{FOM} \times 1000$$

Where:

AFOC	is the annual fixed operating costs.
FOM	is the fixed operating and maintenance costs of the **reference generating unit**.
$\mathrm{MC_G}$	is the **maximum capability** of the **reference generating unit**.

(3) The annual unavoidable cost of the **reference generating unit**, expressed in dollars, is determined in accordance with the following formula:

$$UC_G = ACIC + AFOC$$

Where:

UC_G	is the annual unavoidable cost of the **reference generating unit**.
$ACIC$	is the annualized capital investment costs of the **reference generating unit**.
$AFOC$	is the annual fixed operating costs of the **reference generating unit**.

(4) The **settlement interval** variable costs of the **reference generating unit** for each **settlement interval**, expressed in dollars per MWh, is determined in accordance with the following formula:

$$SIVC_i = \left[\left(P_C \times (EI_{NG} \times HR_G - EIB_G)\right) + (P_{NG} \times HR_G) + VOM + TC\right] \times \frac{min_i}{60}$$

Where:

$SIVC_i$	is the **settlement interval** variable cost of the **reference generating unit** for the applicable **settlement interval**.
P_C	is the price per tonne of carbon dioxide equivalent (CO_{2e}) for the applicable **settlement interval** as determined in accordance with relevant provincial or federal legislation.
EI_{NG}	is the emissions intensity of natural gas.
HR_G	is the heat rate of the **reference generating unit**.
EIB_G	is the emissions intensity benchmark for the applicable **settlement interval** determined in accordance with the relevant provincial or federal legislation.
P_{NG}	is the price of natural gas.
VOM	is the variable operating and maintenance costs of the **reference generating unit**.
TC	is the **ISO** trading charge for the applicable **settlement interval**.
min_i	is the number of minutes in each **settlement interval**.

(5) The annual cumulative **settlement interval** net revenue of the **reference generating unit**, expressed in dollars, is determined in accordance with the following formula:

$$\text{ACSINR} = \sum_{\text{i=1}}^{\text{n}} \{(P_i^{RB} - SIVC_i) \times Q_i \times CF_G \times (1 - \text{T})\}$$

Where:

ACSINR	is the annual cumulative **settlement interval** net revenue of the **reference generating unit**.
i	is each **settlement interval** within the current **mitigation period**.
n	is the number of **settlement intervals** that have occurred within the current **mitigation period**.
P_i^{RB}	is the **reference bus price** for each **settlement interval**.
$SIVC_i$	is the **settlement interval** variable cost of the **reference generating unit** for the applicable **settlement interval** as determined in subsection 4 of this Appendix 1.

Q_i is the quantity of energy provided in the applicable **settlement interval**, where:

$$Q_i = \begin{cases} MC_G \times CF_G^{MSG} \; if \; P_i^{RB} \leq SIVC_i \\ MC_G, if \; P_i^{RB} > SIVC_i \end{cases}$$

CF_G^{MSG} is the capacity factor of the **reference generating unit** at **minimum stable generation**.

CF_G is the average annual capacity factor of the **reference generating unit**.

T is the tax rate where:

$$T = \begin{cases} 0, if \; P_i^{RB} - SIVC_i < 0 \\ T, otherwise \end{cases}$$

Table 1
Technical Characteristics of the Reference Generating Unit

Variable	Description
MC_G	Maximum capability
CC_G	Capital cost
R	Pretax weighted cost of capital
N	Useful life
FOM	Fixed operating and maintenance costs
HR_G	Heat rate
VOM	Variable operating and maintenance costs
CF_G^{MSG}	Capacity factor at minimum stable generation
CF_G	Average annual capacity factor

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.4 Demand Curves and Violation Relaxation Limits

Applicability

1 Section 213.4 applies to:

(a) the **ISO**.

Requirements

Infeasibility Parameters for the Real-Time Dispatch Algorithm

2(1) The **ISO** must create a **30-minute ramping reserve demand curve** for each **settlement interval**, for use by the **real-time dispatch algorithm**.

(2) The **ISO** must create **violation relaxation limits**, for use by the **real-time dispatch algorithm**, for each of the following:

(a) the excess amount of energy that is scheduled to serve **net demand**;

(b) the shortfall amount of energy that is scheduled to serve **net demand**;

(c) the amount of energy that can be scheduled to flow on a **system operating limit**; and

(d) the maximum amount of **30-minute ramping reserve** that can be scheduled with a **deliverability constraint**, if any, for **30-minute ramping reserve**.

(3) The **ISO** must publish each **30-minute ramping reserve demand curve** and **violation relaxation limit** on the AESO website.

Prices and Values for Infeasibility Parameters

3(1) The **ISO** must determine prices for a **30-minute ramping reserve demand curve** based on the magnitude of a shortfall of **30-minute ramping reserve**, as follows:

(a) a first price-quantity block**,** priced at $3,000 per MWh, representing a shortfall of the expected portion of the **30-minute ramping reserve**; and

(b) a following set of price-quantity blocks**,** priced at or below $3,000 per MWh with a sloping profile, representing the total **reliability** value of procuring additional **30-minute ramping reserve** to address the uncertainty portion of the **30-minute ramping reserve** associated with the **net demand** forecast error.

(2) The **ISO** must determine the value for each **violation relaxation limit** as follows:

(a) the magnitude of shortfall for energy, valued as a single price-quantity block, at $30,000 per MWh;

(b) the magnitude of surplus for energy, valued as a single price-quantity block, at $30,000 per MWh;

(c) the magnitude of a violation for a **system operating limit**, valued as a single price-quantity block, at $90,000 per MWh; and

(d) the magnitude of a violation for a **deliverability constraint**, if any, for **30-minute ramping reserve**, valued as a single price-quantity block, at $10,000 per MWh.

(3) The **ISO** must publish the calculation and resulting prices for a **30-minute ramping reserve demand curve** under subsection 3(1) on the AESO website.

Lookahead Period for Expected Ramping Requirement for 30-Minute Ramping Reserve

4(1) The **ISO** must, at least once per calendar year, determine an expected ramping lookahead period for a **30-minute ramping reserve demand curve** as the lesser of:

(a) a 2-hour period; and

(b) the period equal to the whole number of 30-minute intervals required for a reference **source asset** to ramp to **maximum capability** from **minimum stable generation**.

(2) The **ISO** must determine the reference **source asset** in subsection 4(1)(b) by:

(a) sorting the **maximum capability** of all **source assets** that are **controllable** into ascending order based on the time required for a **source asset** to ramp to **maximum capability** from **minimum stable generation**;

(b) multiplying the summation of **maximum capability** of all **source assets** that are **controllable** by 0.9;

(c) removing **source assets** from the ascending order determined in subsection 4(2)(a), starting with the **source asset** with the longest time required to ramp to **maximum capability** from **minimum stable generation**, until the summation of **maximum capability** from the order determined in subsection 4(2)(a) is less than or equal to the product calculated in subsection 4(2)(b); and

(d) determining, from the ascending order that has been modified in accordance with subsection 4(2)(c), the **source asset** with the longest time required to ramp to **maximum capability** from **minimum stable generation** to be the reference **source asset**.

(3) The **ISO** must publish the results of the determination of the expected ramping lookahead period under subsection 4(1) on the AESO website.

Expected Ramping Requirement for 30-Minute Ramping Reserve

5(1) The **ISO** must, for each **settlement interval**, calculate the quantity for the first price-quantity block of the **30-minute ramping reserve demand curve**, referred to in subsection 3(1)(a), by:

(a) calculating, for each forecast **settlement interval** in the lookahead period determined under subsection 4(1), the sum of:

(i) the change in forecast **net demand** from the **settlement interval** to the forecast **settlement interval**; and

(ii) the change in forecast **net demand** from the **settlement interval** before the forecast **settlement interval** and the forecast **settlement interval** multiplied by 6; and

(b) selecting the maximum sum from the calculations required in subsection 5(1)(a) as the quantity for the first price-quantity block of the **30-minute ramping reserve demand curve**.

(2) The **ISO** may, if there is insufficient time to calculate the quantity for the first price-quantity block of a **30-minute ramping reserve demand curve** for a **settlement interval** in accordance with subsection 5(1), use the last successfully calculated quantity for the first price-quantity block.

Uncertainty Ramping Requirement for 30-Minute Ramping Reserve

6 The **ISO** must, on a quarterly basis, calculate the quantity for the set of price-quantity blocks representing the uncertainty portion of a **30-minute ramping reserve demand curve**, referred to in subsection 3(1)(b), in accordance with the formulas set out in Appendix 1.

Coming into Effect

7 This Section 213.4 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Appendices

Appendix 1 – *30-Minute Ramping Reserve Demand Curve Uncertainty Calculations*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.4 Demand Curves and Violation Relaxation Limits

Appendix 1
30-Minute Ramping Reserve Demand Curve Uncertainty Calculations

Step 1: Calculate Net Demand Forecast Error

Calculate the 30-minute **net demand** forecast error using the previous 12 **months** of historical data with the forecast horizon set to 30 minutes, for each **settlement interval**:

$$Net_Demand_{ForecastError} = Net_Demand_{Forecast} - Net_Demand_{Actual}$$

$$Net_Demand_{Actual} = AIL_{Actual} - solar_gen_{Actual} - wind_gen_{Actual}$$

$$Net_Demand_{Forecast} = AIL_{Forecast} - solar_gen_{Forecast} - wind_gen_{Forecast}$$

Where,

$Forecast$ is a subscript signifying that the parameter is the value for the relevant **settlement interval**, as forecasted 30 minutes ahead of the start of the **settlement interval**.

$Actual$ is a subscript signifying that the parameter is the value realized in the relevant **settlement interval**.

$ForecastError$ is a subscript signifying the parameter is the error in the 30-minute forecast compared to the realized value. A positive value indicates that the forecast was higher than the realized value (a negative value indicates the forecast was lower than realized).

Net_Demand_{Actual} (MW) is the actual realized **net demand** in the **settlement interval**.

$Net_Demand_{ForecastError}$(MW) is the forecast error in that **settlement interval**.

$Net_Demand_{Forecast}$ (MW) is the 30-minute-ahead forecast for **net demand**.

AIL_{Actual} (MW) and $AIL_{Forecast}$ (MW) are the realized and 30-minute-ahead forecast **Alberta internal load**.

$solar_gen_{Actual}$ (MW) and $solar_gen_{Forecast}$ (MW) are the realized and 30-minute-ahead forecast values of solar generation.

$wind_gen_{Actual}$ (MW) and $wind_gen_{Forecast}$ (MW) are the realized and 30-minute-ahead forecast values of wind generation.

Step 2: Construct a Normal Distribution of the Net Demand Forecast Error

Construct a statistical description of the distribution of **net demand** forecast error, assuming that the historical data is normally distributed around a mean of zero:

The following equation describes the cumulative distribution function of a normal distribution using inputs calculated from $Net_Demand_{ForecastError}$:

$$NormCumuDist(x, NetDemand_{mean}, NetDemand_{stdev})$$

Where,

$NormCumuDist$ is a function that calculates the cumulative probability of a value at or below 'x' occurring based on a normal distribution using the inputted normal distribution parameters, with the mean set at $NetDemand_{mean}$ and the standard deviation set at Net_Demand_{stdev} (MW)

x is the value at which the cumulative distribution function is to be calculated.

Net_Demand_{stdev} (MW) is the standard deviation of $Net_Demand_{ForecastError}$, calculated over the previous 12 **months** of historical data in Step 1 above.

$NetDemand_{mean}$ (MW) is the mean of the $Net_Demand_{ForecastError}$, assumed to be a value of 0 MW for the purposes of calculating the **30-minute ramping reserve demand curve**.

Step 3: Estimate the Incremental Value of Involuntary Load Shedding Avoided

Multiply the **R30 value of lost load** by the probability that holding additional **30-minute ramping reserve** will maintain sufficient headroom to manage net load forecast uncertainties and prevent incremental load shedding from occurring:

$$VOLL_R30DC(R30_{UncertaintyVolume} + OR) = VOLL \times (1 - NormCumuDist(R30_{uncertainty\ volume} + OR - LoadShedMW, 0, Net_Demand_{stdev}))$$

Where,

$R30_{UncertaintyVolume}$ (MW) is the **30-minute ramping reserve** volume held for managing **net demand** uncertainties that will correspond to a specific price on the **30-minute ramping reserve demand curve**.

OR (MW) is the typical volume of **operating reserve** (including **contingency reserve** plus **regulating reserve**) that are anticipated to be held by the **ISO** over the upcoming quarter when the resulting **30-minute ramping reserve demand curve** will be utilized.

$LoadShedMW$ (MW) is the MW volume of **regulating reserve** maintained in advance of load shed, assumed to be the anticipated amount of **regulating reserve** to be held over the upcoming quarter when the **30-minute ramping reserve demand curve** will be utilized.

$VOLL_R30DC(R30_{UncertaintyVolume})$ ($/MWh) the function for the incremental value of lost load avoided by holding additional **30-minute ramping reserve**, assuming that $R30_{UncertaintyVolume}$ is the volume of **30-minute ramping reserve** being held. The value of $VOLL_R30DC$ is a function that describes the declining value of avoided load shedding accomplished by holding more **30-minute ramping reserve**, as $R30_{uncertainty\ volume}$ increases.

$VOLL$ ($/MWh) is the **R30 value of lost load**, assigned an economic value of $32,000/MWh.

Step 4: Estimate the Incremental Value of Operating Reserve Shortfalls Avoided

Multiply the **R30 value of lost operating reserve** by the probability that holding additional **30-minute ramping reserve** will maintain sufficient headroom to manage net load forecast uncertainties and prevent reserve shortfall events:

$$VOR_R30DC(R30_{uncertainty\ volume}) = VOLOR \times (1 - NormCumuDist(R30_{UncertaintyVolume}, 0, Net_Demand_{stdev}))$$

Where,

$VOR_R30DC(R30_{uncertainty\ volume})$ ($/MWh) is the function for the value of lost **operating reserve** avoided by holding additional **30-minute ramping reserve**, assuming that $R30_{uncertainty\ volume}$ is the volume of **30-minute ramping reserve** being held. The value of VOR_R30DC is a function that describes the declining value of avoided **operating reserve** accomplished by holding more **30-minute ramping reserve**, as $R30_{uncertainty\ volume}$ increases.

$VOLOR$ ($/MWh) is the **R30 value of lost operating reserve**, assigned an economic value of $3,000/MWh.

Step 5: Estimate the Value-Based 30-Minute Ramping Reserve Demand Curve

Calculating the total estimated **reliability** value of holding additional **30-minute ramping reserve**, calculated as the sum of avoided load shedding events and avoided **operating reserve** shortfall events, up to a maximum value defined by the **30-minute ramping reserve** price cap:

$$R30DC\left(R30_{UncertaintyVolume}\right) = Minimum(PriceCap_{R30}, (VOLL_{R30DC\left(R30_{UncertaintyVolume}+OR\right)}) + VOR_R30DC(R30_{uncertainty\ volume}))$$

Where,

$PriceCap_{R30}$ ($/MWh) is the price cap for **30-minute ramping reserve**.

$R30DC\left(R30_{uncertainty\ volume}\right)$ is a function that calculates the $/MWh value-based maximum willingness to pay for each level of **30-minute ramping reserve** uncertainty volume procured.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.5 Available Transfer Capability and Transfer Path Management

Applicability

1 Section 213.5 applies to:

(a) the **ISO**.

Requirements

Capability Limits Determinations by the ISO

2(1) The **ISO** must determine and post on the AESO website the following capability limits in MW prior to each **hour ending** and also on an as required basis when **interconnected electric system** operating conditions change:

(a) the **Alberta interchange capability**;

(b) the import and export capability of the combined British Columbia and Montana transfer paths; and

(c) the import **available transfer capability** and export **available transfer capability** for each of the British Columbia, Montana and Saskatchewan transfer paths.

(2) Once the **ISO** has determined the limits under subsection 2(1), it must ensure that:

(a) the amount in MW of all transmission service for all import and export **interchange transactions** for all transfer paths does not exceed the **Alberta interchange capability** limit referenced in subsection 2(1)(a);

(b) the amount in MW of all transmission service for all import and export **interchange transactions** for the combined British Columbia and Montana transfer paths does not exceed the combined limit referenced in subsection 2(1)(b); and

(c) the amount in MW of all transmission service for all import and export **interchange transactions** for an individual transfer path does not exceed the limit for that transfer path referenced in subsection 2(1)(c).

Total Transfer Capability Determinations by the ISO

3(1) The **ISO** must determine the import **total transfer capability** and the export **total transfer capability** for an individual transfer path, in order to determine the import **available transfer capability** and the export **available transfer capability** for that transfer path.

(2) The **ISO** must make the determinations under subsection 3(1) with reference to the applicable provisions of any related **reliability standards**.

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Section 213.5 Available Transfer Capability and Transfer Path Management

Available Transfer Capability Determinations by the ISO for a Transfer Path

4(1) The **ISO** must use the import **available transfer capability** and the export **available transfer capability** limits as referenced under subsection 2(1)(c) for an individual transfer path, as the **maximum capability** for scheduling **interchange transactions** on that transfer path.

(2) The **ISO** must post on the AESO website the import **available transfer capability** and the export **available transfer capability** as determined for an individual transfer path.

(3) The **ISO** must post on the AESO website as soon as is practicable any change to the import **available transfer capability** or the export **available transfer capability** for an individual transfer path.

Saskatchewan Inadvertent Energy Management

5 If the **ISO** is required to manage an amount of inadvertent energy on the Saskatchewan transfer path, then:

(a) the inadvertent energy is not eligible to set the **locational marginal price** at its respective **pricing node**; and

(b) inadvertent energy payback on the Saskatchewan transfer path must not exceed 25 MW.

Available Transfer Capability Allocations for Transfer Paths

6(1) The **ISO** must, at approximately 55 minutes prior to the first **settlement interval** of an **hour ending**, determine whether the capability limits under subsection 2 may be exceeded, and if so then the **ISO** must determine the individual transfer path **available transfer capability** allocations in accordance with the following procedures:

(a) the **ISO** must calculate the net **interchange transaction** amount in MW, at each potential applicable **pricing node**, taking into account:

(i) the energy **interchange transaction** amounts in MW, and the prices for **bids** and **offers**;

(ii) the **interchange transaction** amount in MW for **ancillary services**; and

(iii) applicable counterflows; and

(b) the **ISO** may exclude any **wheel through transaction** amounts in MW if those amounts will not result in any limits or allocations under this Section 213.5 being exceeded.

(2) The **ISO** must comply with the following additional procedures in the following sequence to determine the allocation of each of the individual transfer path **available transfer capability** allocations:

(a) the net amount in MW of all **interchange transactions** for the individual transfer path must be compared to the limit determined for that individual transfer path as referenced in subsection 2(1)(c), and:

(i) if that net amount is equal to or greater than the limit, then the allocation must be set at that limit; and

(ii) if that net amount is less than the limit, then the allocation must be set at that net amount;

(b) for the British Columbia and Montana transfer paths, the sum in MW of their individual transfer path allocations calculated under subsection 6(2)(a) must be compared to the combined British Columbia and Montana transfer path limit referenced in subsection 2(1)(b);

(c) if the combined transfer path limit of subsection 2(1)(b) is not exceeded, then the allocations must remain as determined in accordance with subsection 6(2)(a), but if it is exceeded, then a further allocation must be done in accordance with the following sequence in order to ensure the combined transfer path limit as determined under subsection 2(1)(b) is not exceeded:

(i) first, the British Columbia, or the Montana, or both the British Columbia and the Montana transfer path allocations must be reduced as necessary by the applicable **ancillary services** type **interchange transaction** amounts in MW;

(ii) second, the British Columbia, or the Montana, or both the British Columbia and the Montana transfer path allocations must be reduced as necessary by the applicable energy **interchange transaction** amounts in MW, with the reduction being in reverse **merit order** based on **bid** and **offer** prices; and

(iii) third, if there are equally priced British Columbia and Montana energy **interchange transactions**, then the British Columbia and Montana allocations must be reduced on a pro rata basis using the following formula:

the MW allocation for each of the Montana and British Columbia transfer paths as determined in accordance with subsection 6(2)(a), as may be reduced under subsections 6(2)(c)(i) and 6(2)(c)(ii);

divided by

the sum in MW calculated under in subsection 6(2)(b) as may be reduced under subsections 6(2)(c)(i) and 6(2)(c)(ii);

multiplied by

the amount by which that sum exceeds the combined British Columbia and Montana transfer path limit referenced in subsection 2(1)(b);

(d) the allocation resulting from subsection 6(2)(c) plus the Saskatchewan transfer path allocation calculated under subsection 6(2)(a) must then be compared to the **Alberta interchange capability** limit referenced in subsection 2(1)(a); and

(e) if the **Alberta interchange capability** limit is not exceeded, then the allocations must remain as determined in accordance with subsections 6(2)(a) and 6(2)(c), but if that limit is exceeded, then a further allocation of **available transfer capability** must be done in accordance with the following sequence in order to ensure that the **Alberta interchange capability** limit as determined under subsection 2(1)(a) is not exceeded:

(i) first, any individual one or any combination of the British Columbia, Montana, and Saskatchewan transfer path allocations must be reduced as necessary by the applicable **ancillary service** type **interchange transaction** amount in MW;

(ii) second, any individual one, or any combination of the British Columbia, Montana, and Saskatchewan transfer path allocations must be reduced as necessary by the applicable energy **interchange transaction** amounts in MW, with the reduction being in reverse **merit order** based on **bid** and **offer** prices; and

(iii) third, if there are equally priced British Columbia, Montana and Saskatchewan energy **interchange transactions,** then the British Columbia, Montana and Saskatchewan allocations must be reduced on a pro rata basis using the following formula:

the MW allocation for each of the Montana and British Columbia transfer paths as determined in accordance with subsection 6(2)(c) and the Saskatchewan transfer path allocation under subsection 10(2)(a), as may be reduced under subsections 6(2)(e)(i), and 6(2)(e)(ii);

divided by

the sum in MW referred to in subsection 6(2)(d), as may be reduced under subsections 6(2)(e)(i) and 6(2)(e)(ii);

multiplied by

the amount by which that sum exceeds the **Alberta interchange capability** limit referenced in subsection 2(1)(a).

(3) The **ISO** must, at approximately 55 minutes prior to the first **settlement interval** of an **hour ending**, post on the AESO website:

(a) the total in MW of all energy import **offers** and export **bids** received for each transfer path and the combinations of transfer paths in accordance with subsection 2(1) of Section 214.6 of the **ISO rules***, Interchange Transactions and E-Tags*;

(b) the limits referenced under subsection 2; and

(c) all allocations made under this subsection 6.

(4) The **ISO** must, if after 55 minutes prior to the first **settlement interval** of an **hour ending** any of the limits referenced in subsection 2 have decreased, curtail **interchange transactions** in accordance with the procedures and sequence set out in subsection 7.

Transfer Path Constraint Management

7(1) The **ISO** must curtail **interchange transactions** in accordance with the sequential procedures set out in this subsection 7, if, after carrying out the procedures set out in subsection 6, within 15 minutes prior to the first **settlement interval** of the **hour ending** and based on the **e-tags** submitted under subsection 3 of Section 214.6 of the **ISO rules***, Interchange Transactions and E-Tags*, the limits referenced in subsection 2 of this Section 213.5 are still exceeded.

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Section 213.5 Available Transfer Capability and Transfer Path Management

(2) The **ISO** must determine the effective **interchange transactions** for mitigating a constraint caused by limits being exceeded at the **Alberta interchange capability** level, the combined Montana and BC transfer path capability level, or at each individual transfer path level.

(3) The **ISO** may determine that any **wheel through transaction** is not effective in mitigating a constraint, based on its analysis under subsection 7(2).

(4) The **ISO** must comply with the following procedures in the following sequence to mitigate the remaining constraint:

(a) assess all **interchange transactions** for transmission services against the limits referenced under subsection 2 and allocations made under subsection 6, and determine the **interchange transactions** that will be effective in mitigating the constraint;

(b) curtail the transmission service of **interchange transactions** under the sequencing set out in subsection 7(4)(c), mitigating the constraint in the following order at the following levels, where effective:

(i) an individual transfer path limit level;

(ii) the combined Montana and British Columbia transfer path level; or

(iii) the **Alberta interchange capability** level; and

(c) curtail at the effective level:

(i) inadvertent energy payback **interchange transactions**, prior to the curtailment of any **interchange transactions** on the Saskatchewan transfer path;

(ii) transmission services of any effective **interchange transactions** for **ancillary services**;

(iii) transmission services of any effective energy **interchange transactions** based on **bid** and **offer** prices in reverse **merit order**; and

(iv) transmission services of any effective energy **interchange transactions** on a pro rata basis in accordance with the following formula:

scheduled amount of each effective **interchange transaction**;

multiplied by

total amount necessary to mitigate the constraint;

divided by

total scheduled amount of all effective **interchange transactions**.

Coming into Effect

8 This Section 213.5 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.5 Available Transfer Capability and Transfer Path Management

Revision History

Effective	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.6 Managing Long Lead Time Assets

Applicability

1 Section 213.6 applies to:

(a) a **pool participant**; and

(b) the **ISO**,

when providing or procuring energy from a **long lead time asset**.

Requirements

Initial Start-Up Time

2 A **pool participant** must enter an **initial start-up time** of no greater than 36 hours in the **ISO**'s systems.

Voluntarily Providing Energy from a Long Lead Time Asset that is not Synchronized

3(1) A **pool participant** must, if it wishes to have a **long lead time asset** that is not synchronized participate in the **real-time market**, submit a start time for the **long lead time asset**.

(2) A **pool participant** must, as soon as practicable, submit a start time in accordance with subsection 3(1), which indicates, using the best information available to the **pool participant**, when a **long lead time asset** that is not synchronized will synchronize to the **interconnected electric system**.

(3) A **pool participant** that submits a start time in accordance with subsection 3(1) for a **long lead time asset** that is not synchronized must ensure that the start time is not earlier than the sum of:

(a) the submission time; and

(b) the **initial start-up time**,

for the **long lead time asset**.

(4) A **pool participant** may for a **long lead time asset** that is not synchronized:

(a) prior to 1 hour before the start of the applicable **hour ending**, submit a restated start time for the **long lead time asset**; and

(b) within 1 hour before the start of the applicable **hour ending**, submit a restated start time for the **long lead time asset** if it has an **acceptable operational reason**.

(5) A **pool participant** must ensure that a start time submitted in accordance with subsections 3(3) and 3(4) represents the current physical condition of the **long lead time asset**.

Voluntarily Providing Additional Energy from a Long Lead Time Asset that is Synchronized

4(1) A **pool participant** must declare the additional energy it would be able to provide from a **long lead time resource** of a **long lead time asset** that is synchronized.

(2) Notwithstanding subsection 7 of section 213.1 of the **ISO rules**, *Real-Time Market Offers and Bids*, a **pool participant** with a **long lead time asset** that is synchronized must ensure the **available**

capability submitted for the **long lead time asset** is equal to the **maximum capability** of the **long lead time asset** less the portion of its energy that it is not currently delivering from a **long lead time resource**.

(3) A **pool participant** must, for a **long lead time asset** that is synchronized to be eligible to receive a **dispatch** for the energy it is not currently delivering from a **long lead time resource**:

(a) inform the **ISO**, as soon as practicable, of the start time of the **long lead time resource** which indicates, using the best information available to the **pool participant**, when the **long lead time resource** will deliver the energy to the **interconnected electric system**;

(b) ensure that the start time in subsection 4(3)(a) is not earlier than the sum of:

(i) the submission time; and

(ii) the **initial start-up time**

for the **long lead time resource**; and

(c) reflect the availability of such energy by appropriately adjusting the **available capability** of the **long lead time asset** at the time that the **pool participant** informs the **ISO** of the start time of the **long lead time resource** in accordance with subsection 4(3)(a).

(4) A **pool participant** must ensure that the adjustment to **available capability** referenced in subsection 4(3)(c) represents the current physical condition of the **long lead time asset**.

Cancelling a Directive for Energy from a Long Lead Time Asset

5(1) Notwithstanding subsection 3 of section 301.2 of the **ISO rules**, *ISO Directives*, a **pool participant** may refuse a **directive** to provide energy from a **long lead time asset** if it chooses instead to receive a **dispatch** in the **real-time market**.

(2) If a **pool participant** chooses to receive a **dispatch** as allowed in subsection 5(1), the **pool participant** must:

(a) in the case of a **long lead time asset** that is not synchronized, submit a start time in accordance with subsection 3;

(b) in the case of a **long lead time asset** that is synchronized, inform the **ISO** of the start time of the **long lead time resource** and adjust **available capability** in accordance with subsection 4(3); and

(c) meet the time and MW requirements of the original **directive**.

(3) The **ISO** must, if a **pool participant** chooses to receive a **dispatch** in accordance with subsection 5(2), cancel the **directive** to provide energy from a **long lead time asset**, as applicable, and issue a **dispatch** according to the schedules generated by the **real-time dispatch algorithm**.

Payment for Incremental Generation Costs

6(1) Subject to subsection 6(2) below and subsection 4 of Section 216.1 of the **ISO rules**, *Financial Settlement* and the definition of **incremental generation costs**, a **pool participant** that has complied with a **directive** to provide energy from a **long lead time asset**, and with the cancellation of such **directive** may be eligible to receive payment for **incremental generation costs** from the **ISO**.

(2) A **pool participant** that elects to participate in the **real-time market**:

(a) before receiving a **directive** for energy from a **long lead time asset** that is not synchronized and by submitting a start time in accordance with subsection 3;

(b) before receiving a **directive** to provide energy from a **long lead time** asset that is synchronized and by informing the **ISO** of the start time of the **long lead time resource** and by adjusting **available capability** in accordance with subsection 4; or

(c) after receiving a **directive** to provide energy from a **long lead time asset** but before complying with it and choosing instead to receive a **dispatch** in accordance with subsections 5(1) and 5(2),

is not eligible to receive payment for **incremental generation costs**.

Financial Settlement

7(1) A **pool participant** that has complied with a **directive** to provide energy from a **long lead time asset** must, within 40 **business day**s after the end of the **settlement period** in which such **directive** was issued, issue to the **ISO** a statement showing the amount owing or owed as calculated in accordance with the definition of **incremental generation costs** and this subsection 7 along with supporting documentation.

(2) The **pool participant** must provide to the **ISO** the supporting information used to determine the amount specified in any statement provided pursuant to this subsection 7, including all information necessary to confirm the costs, charges and other items specified in the definition of **incremental generation costs** and such other information as the **ISO** considers appropriate and may request.

(3) The **ISO** must, if it approves the statement the **pool participant** issues, pay such statement on or before 40 **business days** following receipt by **ISO** of the statement and supporting information specified in this subsection 7.

Reporting

8(1) The **ISO** must prepare a report if the **ISO** issues a **directive** to provide energy from a **long lead time asset** in accordance with this Section 213.6.

(2) The **ISO** must include in a report prepared under subsection 8(1):

(a) an explanation of the circumstances that caused and are related to the issuance of the **directive**;

(b) chronological events and material market impacts; and

(c) any other matters the **ISO** deems appropriate.

(3) The **ISO** must publish the report referenced in subsection 8(1) on the AESO website.

Coming into Effect

9 This Section 213.6 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

ISO Rules
Part 200 Markets
Division 213 Market Inputs
Section 213.6 Managing Long Lead Time Assets

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 214 Market Clearing
Section 214.1 Reliability Unit Commitment

Applicability

1 Section 214.1 applies to:

(a) a **pool participant** with a **long lead time asset**; and

(b) the **ISO**.

Requirements

Anticipated Supply Cushion

2(1) The **ISO** must determine the **anticipated supply cushion** for each **hour ending** for the next 48 hours.

(2) The **ISO** must:

(a) determine the **anticipated supply cushion** based on:

(i) the **available capability** of applicable **source assets**;

(ii) estimated output from wind and solar **generating units**;

(iii) estimated total net imports and exports on all **interties**;

(iv) estimated **Alberta internal load**;

(v) estimated volume of **operating reserve** requirements; and

(vi) any other relevant variable as determined by the **ISO**; and

(b) publish the methodology underlying the determination referenced in subsection 2(2)(a) on the AESO website.

(3) The **ISO** must comply with Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures*, before adopting or revising the methodology referenced in subsection 2(2)(b).

(4) The **ISO** must publish the **anticipated supply cushion** on the AESO website.

Providing Estimated Cost Parameters for Reliability Unit Commitments

3(1) A **pool participant** with a **long lead time asset** must:

(a) submit to the **ISO** estimated cost parameters for the **long lead time asset** including:

(i) applicable start-up costs;

(ii) hourly operation costs of the **long lead time asset**; and

(iii) any other information requested by the **ISO**; and

(b) provide a completed statutory declaration to the **ISO** from a corporate officer of the **pool participant** or, if the **pool participant** is not the **legal owner** of the **long lead time asset**, from a corporate officer of the **legal owner** of the **long lead time asset** that declares the estimated cost parameters submitted under subsection 3(1)(a) to be reasonably accurate to the best knowledge of the corporate officer.

(2) A **pool participant** must:

(a) ensure the estimated cost parameters provided to the **ISO** under subsection 3(1)(a) remain reasonably accurate and up to date; and

(b) submit to the **ISO**, as soon as practicable, a correction to the estimated cost parameters and an updated statutory declaration under subsection 3(1) if the estimated cost parameters and statutory declaration are no longer reasonably accurate.

(3) A **pool participant** must submit the information in subsections 3(1) and 3(2)(b) in the form published on the AESO website.

(4) A **pool participant** must submit the information under subsection 3(1)(a):

(a) within 48 hours after a **long lead time resource** achieves **commercial operation**;

(b) for a **resource** that has achieved **commercial operation**, within 48 hours after the **pool participant** submits operating constraints of a **source asset** or **resource** such that a **resource** becomes a **long lead time resource**; or

(c) upon request from the **ISO**.

(5) The **ISO** must review the estimated cost parameters submitted by the **pool participant** under subsections 3(1)(a) or 3(2)(b) to ensure completeness in a timely manner and may request additional clarification or information from the **pool participant**.

(6) The **ISO** must, if it accepts the estimated cost parameters submitted by a **pool participant** under subsection 3(1)(a) or 3(2)(b):

(a) use the accepted estimated cost parameters when:

(i) determining the order of issuance of **unit commitment directives** in accordance with subsection 5(2); and

(ii) applying the cost guarantee in accordance with subsection 8; and

(b) provide written notification to the **pool participant** that the **ISO** has accepted the estimated cost parameters.

Providing Operating Constraints for Long Lead Time Resources

4(1) A **pool participant** must, notwithstanding subsection 9 of Section 213.1 of the **ISO rules**, *Real-Time Market Offers and Bids,* submit to the **ISO** accurate operating constraints for all **long lead time resources** contained within a **long lead time asset**.

(2) A **pool participant** must:

(a) ensure the operating constraints provided to the **ISO** under subsection 4(1) remain accurate and up to date; and

(b) submit to the **ISO**, as soon as practicable, any material changes to the operating constraints provided to the **ISO** under subsection 4(1).

ISO Rules
Part 200 Markets
Division 214 Market Clearing
Section 214.1 Reliability Unit Commitment

Unit Commitment Determination and Issuance

5(1) The **ISO** may, if the **anticipated supply cushion** will be less than or equal to 0 MW for any **hour ending** in the next 48 hours, minimize the deficit to the extent reasonable for the safe, reliable, and economic operation of the **interconnected electric system** by issuing a **unit commitment directive** or combination of **unit commitment directives** to **pool participants** for **long lead time assets**.

(2) The **ISO** must determine the order of issuance of **unit commitment directives** according to relative economic merit, including on the basis of the estimated cost parameters and operating constraints submitted in accordance with subsections 3 and 4.

(3) The **ISO** must, in assessing the relative economic merit of **unit commitment directives** under subsection 5(2), determine the least cost **unit commitment directive** or combination of **unit commitment directives** based on:

(a) all identified **hour endings** with an **anticipated supply cushion** deficit to be minimized;

(b) the period of time a **long lead time asset** would be required to operate; and

(c) the calculated estimated cost of a **unit commitment directive** for a **long lead time asset** as the sum of:

(i) the estimated start-up costs if the **long lead time resource** is not already online; and

(ii) the estimated hourly operation costs for each hour of operation for the **unit commitment directive**.

(4) The **ISO** must ensure that a **unit commitment directive** requires a **long lead time resource** to operate, specifying:

(a) for a **long lead time resource** that is not already online, the time when the **long lead time resource** will be required to deliver energy to the **interconnected electric system**; and

(b) the period of time the **long lead time resource** is required to operate.

(5) The **ISO** must ensure that the period of time under subsection 5(4)(b), for a **long lead time resource** that is not already online is greater than or equal to the minimum amount of time after synchronization to the **interconnected electric system** required by the **long lead time resource** before the **long lead time resource** can be directed offline.

(6) The **ISO** may, subject to subsection 5(1), issue a new **unit commitment directive** to a **pool participant** for a **long lead time asset** that is already subject to a **unit commitment directive.**

(7) The **ISO** must not, notwithstanding subsection 5(1), issue a **unit commitment directive** that would require the **pool participant** to cancel an outage for a **long lead time asset**.

(8) The **ISO** is not required to take any steps to maintain the **anticipated supply cushion** other than those described in this subsection 5.

Unit Commitment Directive Reporting

6 The **ISO** must, as soon as practicable, upon issuing a **unit commitment directive,** publish on the AESO website:

(a) the times specified in subsection 5(3);

(b) the time that the **unit commitment directive** was issued; and

(c) the **pool ID** of the **long lead time asset** issued the **unit commitment directive**.

Election of Cost Guarantee

7 A **pool participant** must, at the time the **pool participant** is issued a **unit commitment directive,** elect to accept or opt out of a cost guarantee for the operation of the **long lead time asset** in response to the **unit commitment directive**.

Pool Participant Unit Commitment Directive Requirements

8(1) A **pool participant** that is subject to a **unit commitment directive** must set the price of the **operating block** containing the **minimum stable generation** of that **long lead time asset** to the **energy price floor** for the duration of the **unit commitment directive**.

(2) A **pool participant** that has elected to accept a cost guarantee in accordance with subsection 7 must, for a **long lead time asset** that is subject to a **unit commitment directive**:

(a) **offer** all energy except the **minimum stable generation** of the **long lead time asset** at the **energy offer cap** for the duration of the **unit commitment directive**;

(b) notwithstanding subsection 8(2)(a), **offer** all energy except the **minimum stable generation** of the **long lead time asset** at the secondary **offer** cap for the duration of the **unit commitment directive**, if the **long lead time asset** is subject to the secondary **offer** cap and the secondary **offer** cap is in effect in accordance with Section 213.3 of the **ISO rules**, *Secondary Offer Cap*;

(c) **offer 30-minute ramping reserve** for a **long lead time asset** at $100 per MWh for the duration of the **unit commitment directive**, if applicable; and

(d) ramp down the **long lead time resource** subject to the **unit commitment directive** to an offline state following the period specified by the **ISO**, unless the **ISO** issues a new **unit commitment directive** for the **long lead time asset** to operate immediately after the previous **unit commitment directive**.

(3) If a **pool participant** is issued a **unit commitment directive** to operate a **long lead time asset** with a **long lead time resource** not currently delivering energy to the **interconnected electric system**, the **pool participant** must, as soon as practicable:

(a) in the case of a **long lead time asset** that is not synchronized, submit a start time in accordance with the **unit commitment directive**; and

(b) in the case of a **long lead time asset** that is synchronized:

(i) inform the **ISO** of the start time of the **long lead time resource**; and

(ii) adjust the **available capability** of the **long lead time asset**.

Cost Guarantee

9(1) The **ISO** must determine the costs incurred by a **pool participant** from operating a **long lead time asset** for the duration of a **unit commitment directive** and for ramping down the **long lead time**

resource immediately following the termination of the **unit commitment directive**, based on the estimated cost parameters accepted by the **ISO** and in effect at the time of issuance of the **unit commitment directive** for the **long lead time asset** in accordance with subsection 3.

(2) The **ISO** must publish the methodology underlying the determination of the costs referenced in subsection 9(1) on the AESO website.

(3) The **ISO** must comply with Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures*, before adopting or revising the methodology underlying the determination of the costs referenced in subsection 9(1).

(4) The **ISO** must, if:

(a) a **pool participant** has elected to accept a cost guarantee in accordance with subsection 7; and

(b) a **pool participant** has responded to the **unit commitment directive** in accordance with subsections 8(2) and 8(3),

determine the sum of the revenues from energy, **30-minute ramping reserve**, and the **operating reserve** market that the **pool participant** receives for its **long lead time asset** for the duration of the **unit commitment directive**.

(5) The **ISO** must, if the sum of the revenues determined under subsection 9(4) differs from the costs determined under subsection 9(1), either pay or recover from the **pool participant**, as applicable, the difference such that the **pool participant** receives an amount equal to the costs determined under subsection 9(1).

(6) The **ISO** must pay the **pool participant** in accordance with subsection 9(5) on or before 75 **business days** after the last **day** of the **month** in which the applicable **unit commitment directive** ended.

Applicability of Other ISO Rules

10 Subsections 5, 6, 7 and 8 of Section 213.6 of the **ISO rules**, *Managing Long Lead Time Assets*, do not apply to a **long lead time asset** that is responding to a **unit commitment directive** under this Section 214.1.

Coming into Effect

11 This Section 214.1 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 214 Market Clearing
Section 214.2 Dispatch and Pricing Algorithm

Applicability

1 Section 214.2 applies to:

(a) the **ISO**.

Requirements

General Function of the Real-Time Dispatch Algorithm

2(1) The **ISO** must, for a **settlement interval**, use the **real-time dispatch algorithm** to determine schedules and prices for each of:

(a) energy; and

(b) **30-minute ramping reserve**.

(2) The **ISO** must ensure, subject to any constraints set out in subsection 2(3), that the **real-time dispatch algorithm** co-optimizes energy and **30-minute ramping reserve** to minimize overall costs.

(3) The **ISO** must ensure the schedules and prices determined by the **real-time dispatch algorithm** use:

(a) the **offers** and **bids**, as set out in subsection 3;

(b) the energy and **30-minute ramping reserve** requirements, as set out in subsection 4;

(c) the **system security** constraints, as set out in subsection 5;

(d) the operating constraints of **pool assets**, as set out in subsection 6;

(e) the real-time measurement and status data, as set out in subsection 7; and

(f) the infeasibility parameters, as set out in subsection 8.

Offers and Bids Used in the Real-Time Dispatch Algorithm

3 The **ISO** must ensure that the **real-time dispatch algorithm** uses the following **offers** and **bids**:

(a) **offers** and **bids** for energy for the **hour ending** applicable to the **settlement interval**; and

(b) **offers** for **30-minute ramping reserve** for the **hour ending** applicable to the **settlement interval**.

Energy and 30-Minute Ramping Reserve Requirements Used in the Real-Time Dispatch Algorithm

4 The **ISO** must ensure that the **real-time dispatch algorithm** uses the following requirements:

(a) the energy requirement; and

(b) the **30-minute ramping reserve** requirement as determined by a **30-minute ramping reserve demand curve**.

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System Security Constraints Used in the Real-Time Dispatch Algorithm

5 The **ISO** must ensure that the **real-time dispatch algorithm** uses the following **system security** constraints:

(a) for energy:

(i) **system operating limits**;

(ii) **available transfer capability** limits;

(iii) **shift factors**; and

(iv) **marginal loss factors**; and

(b) **deliverability constraints** for **30-minute ramping reserve**, if any.

Operating Constraints Used in the Real-Time Dispatch Algorithm

6 The **ISO** must ensure that the **real-time dispatch algorithm** uses operating constraints, including:

(a) the operating constraints submitted or restated for a **pool asset** in accordance with subsection 9 of Section 213.1 of the **ISO rules**, *Real-Time Market Offers and Bids*, and subsection 9 of Section 213.2 of the **ISO rules**, *Real-Time Market Restatements*;

(b) the operating constraints, as determined by the **ISO**, representing any applicable **ancillary services** procured by the **ISO** for a **pool asset**;

(c) any **directive constraints** for a **pool asset**;

(d) a forecast of the estimated output from wind and solar **generating units** for a **pool asset**; and

(e) the **interchange schedule**, as determined by the **ISO**, for:

(i) a **source asset** that is an import asset; and

(ii) a **sink asset** that is an export asset.

Measurement and Status Data Used in the Real-Time Dispatch Algorithm

7 The **ISO** must ensure that the **real-time dispatch algorithm** uses real-time measurement and status data.

Infeasibility Parameters Used in the Real-Time Dispatch Algorithm

8 The **ISO** must ensure that the **real-time dispatch algorithm** uses the **30-minute ramping reserve demand curve** and **violation relaxation limits** with respect to:

(a) **power balance constraints**;

(b) **system operating limits**; and

(c) **deliverability constraints** for **30-minute ramping reserve**, if any,

to allow the relaxation of the requirements set out in subsection 4 and of **system operating limits** to resolve infeasible **dispatch** solutions.

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Section 214.2 Dispatch and Pricing Algorithm

Prices Created by the Real-Time Dispatch Algorithm

9(1) The **ISO** must ensure that the **real-time dispatch algorithm** determines the **locational marginal price** at a **pricing node** to be the marginal cost of delivering energy to that **pricing node** that is:

(a) based on balancing:

(i) supply as represented by **bids** and **offers** for energy, and **offers** for **30-minute ramping reserve**; and

(ii) demand as represented by demand for energy and demand for **30-minute ramping reserve** based on the **30-minute ramping reserve demand curve**;

(b) greater than or equal to the **energy price floor**;

(c) less than or equal to $3,000 per MWh; and

(d) composed of the sum of:

(i) the **reference bus price**;

(ii) the **congestion component**; and

(iii) the **loss component**.

(2) The **ISO** must ensure the **real-time dispatch algorithm** determines the **Alberta load price**:

(a) using the real-time consumption measurement for each **sink asset** receiving the **Alberta load price**;

(b) as being greater than or equal to the **energy price floor**;

(c) as being less than or equal to $3,000 per MWh; and

(d) as composed of the sum of:

(i) the **reference bus price**;

(ii) the load-weighted average of the **congestion component** of each **sink asset** receiving the **Alberta load price**; and

(iii) the load-weighted average of the **loss component** of each **sink asset** receiving the **Alberta load price**.

(3) The **ISO** must ensure the **real-time dispatch algorithm** determines the **locational marginal price** at the **reference bus** to be the marginal cost of delivering energy to the **reference bus** that:

(a) is based on balancing:

(i) supply as represented by **bids** and **offers** for energy, and **offers** for **30-minute ramping reserve**; and

(ii) demand as represented by demand for energy and demand for **30-minute ramping reserve** based on the **30-minute ramping reserve demand curve**;

(b) is greater than or equal to the **energy price floor**;

(c) is less than or equal to $3,000 per MWh; and

(d) includes a:

(i) **congestion component** of $0 per MWh; and

(ii) **loss component** of $0 per MWh.

(4) The **ISO** must ensure the **real-time dispatch algorithm** sets the price for **30-minute ramping reserve** to be the marginal cost of delivering **30-minute ramping reserve** and that is:

(a) based on balancing:

(i) supply as represented by **bids** and **offers** for energy, and **offers** for **30-minute ramping reserve**; and

(ii) demand as represented by demand for energy, and demand for **30-minute ramping reserve** based on the **30-minute ramping reserve demand curve;**

(b) greater than or equal to $0 per MW; and

(c) less than or equal to $3,000 per MW.

Application of Real-Time Schedules and Prices

10(1) The **ISO** must, if the **real-time dispatch algorithm** produces a material change in the schedules determined in subsection 2(1), issue:

(a) the **dispatch** for energy, to a **pool participant** of a **pool asset**, based on the schedule for energy for that **pool asset**;

(b) the **dispatch** for **30-minute ramping reserve**, to a **pool participant** of a **pool asset,** based on the schedule for **30-minute ramping reserve** for that **pool asset**; and

(c) the following prices on a provisional basis:

(i) the **locational marginal price** at each **pricing node**;

(ii) the **Alberta load price**;

(iii) the **reference bus price**; and

(iv) the price for **30-minute ramping reserve**.

(2) The **ISO** may, if the **real-time dispatch algorithm** has not produced a material change in schedules determined in subsection 2(1), issue:

(a) the **dispatch** for energy, to a **pool participant** of a **pool asset,** based on its **dispatch** for energy from the previous **settlement interval**;

(b) the **dispatch** for **30-minute ramping reserve**, to a **pool participant** of a **pool asset**, based on its **dispatch** for **30-minute ramping reserve** from the previous **settlement interval**; and

(c) the prices issued on a provisional basis that were issued in the previous **settlement interval**.

(3) The **ISO** may, if the **ISO** suspects that the **real-time dispatch algorithm** has produced erroneous schedules and prices:

(a) re-issue the **dispatches** from the previous **settlement interval**, if applicable;

(b) issue a **dispatch** for energy and for **30-minute ramping reserve**, where required, in a manner that uses the most current and reasonably accurate schedules for energy and **30-minute ramping reserve**, if applicable; or

(c) declare a state of limited market operations and invoke the procedures set out in Section 214.7 of the **ISO rules**, *Limited Market Operations and Market Suspension,* if applicable.

(4) The **ISO** may, if the **real-time dispatch algorithm** has not produced schedules and prices:

(a) re-issue the **dispatches** from the previous **settlement interval**, if applicable;

(b) issue a **dispatch** for energy and for **30-minute ramping reserve**, where required, in a manner that uses the most current and reasonably accurate schedules for energy and **30-minute ramping reserve**, if applicable; or

(c) declare a state of market suspension and invoke the procedures set out in Section 214.7 of the **ISO rules**, *Limited Market Operations and Market Suspension,* if applicable.

Publishing of the Real-time Dispatch Algorithm Methodology

11(1) The **ISO** must publish the methodology of the **real-time dispatch algorithm** on the AESO website; and

(2) The **ISO** must comply with Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures*, before adopting or revising the methodology set out in subsection 11(1).

Review of the Real-time Dispatch Algorithm

12(1) The **ISO** must, if it determines that there has been a major update to the **real-time dispatch algorithm** referenced in subsection 11(1):

(a) arrange for a third-party review of the methodology of the **real-time dispatch algorithm** that considers if the major update meets the objectives of this Section 214.2; and

(b) publish the results of the third-party review on the AESO website.

Coming into Effect

13 This Section 214.2 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 214 Market Clearing
Section 214.3 Real-Time Market Pricing

Applicability

1 Section 214.3 applies to:

(a) a **pool participant**; and

(b) the **ISO**.

Requirements

Pricing Nodes

2(1) The **ISO** must determine a **pricing node** for a **pool asset** in accordance with a prescribed process.

(2) The **ISO** may update the **pricing node** for a **pool asset**, as required, including where a change to a **pool asset** requires an update under Section 210.1 of the **ISO rules**, *Pool Participant Registration*.

(3) The **ISO** must publish the process for making the determination under subsection 2(1) on the AESO website.

(4) The **ISO** must comply with Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures*, before adopting or revising the process set out in subsection 2(1).

Real-Time Market Price for Energy

3(1) The **ISO** must ensure that there is only one price for energy at each **pricing node**.

(2) The **ISO** must apply a **locational marginal price** at a **pricing node** that is constituted of one or more **source assets**.

(3) The **ISO** must apply the **Alberta load price** at a **pricing node** that is constituted of one of or more **sink assets** that are **non-controllable**.

(4) Notwithstanding subsection 3(3), the **ISO** must apply a **locational marginal price** at a **pricing node** that is constituted of one or more of the following:

(a) a **sink asset** that is **controllable**;

(b) a **sink asset** that is an export asset; and

(c) a **sink asset** that is **non-controllable** that has elected, under subsection 4(1), to receive a **locational marginal price** for energy.

Locational Marginal Price Election

4(1) A **pool participant** with a **sink asset** that is **non-controllable** may elect to receive a **locational marginal price** for energy for that **sink asset**.

(2) A **pool participant** that elects to receive a **locational marginal price** under subsection 4(1) must do so at the time of initial registration of that **sink asset** in accordance with Section 210.1 of the **ISO rules**, *Pool Participant Registration*.

(3) Notwithstanding subsection 4(2), a **pool participant** with a **sink asset** that is **non-controllable**, for which the **sink asset** is registered in accordance with Section 210.1 of the **ISO rules**, *Pool Participant*

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Registration prior to the commencement of the operation of the **restructured energy market**, may elect to receive a **locational marginal price** for energy within one year following the commencement of the operation of the **restructured energy market.**

(4) A **pool participant** that has elected to receive a **locational marginal price** for energy for a **sink asset** that is **non-controllable** may not subsequently elect to receive the **Alberta load price**.

(5) Notwithstanding subsection 4(4), a **pool participant** may request to change its election to receive a **locational marginal price** for energy for a **sink asset** that is **non-controllable** if the **pool participant** has made a material change to the facilities of that **sink asset**, as determined by the **ISO**.

(6) A **pool participant** must make a request under subsection 4(5) in the form and manner required by the **ISO**, as posted on the AESO website.

(7) The **ISO** may approve a request under subsection 4(5) if the **ISO** determines that a material change has occurred to the facilities of the **sink asset**.

(8) In making a determination under subsection 4(7), the **ISO** must have regard to the extent and impact of a change to the facilities of the **sink asset**.

Coming into Effect

5 This Section 214.3 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 214 Market Clearing
Section 214.4 Reference Levels

Applicability

1 Section 214.4 applies to:

(a) a **pool participant** for a **pool asset** that is a **source asset,** excluding an import asset; and

(b) the **ISO**.

Requirements

Technology-Specific Reference Level Costs

2(1) The **ISO** must publish on the AESO website a list of each technology type for which a **reference level cost formula** is required.

(2) The **ISO** must assign a technology type from the list referenced under subsection 2(1) to each **pool asset**.

(3) The **ISO** must, for each technology type in subsection 2(1):

(a) determine a **reference level cost formula**; and

(b) publish that **reference level cost formula** on the AESO website.

(4) The **ISO** must:

(a) comply with Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures*, before adopting or revising a **reference level cost formula** set out in subsection 2(3); and

(b) review the **reference level cost formula** for each technology type in subsection 2(1) at least once every 5 calendar years.

Reference Level Cost Designation and Submission of Actual Eligible Costs for Local Market Power Mitigation

3(1) The **ISO** must, for each **pool asset**, designate a **reference level cost formula** determined under subsection 2(3)(a) based on the appropriate technology type of the **pool asset** determined under subsection 2(2).

(2) The **ISO** must:

(a) publish the description of the actual eligible costs which may be attributable to a **pool asset** and supporting documentation that the **ISO** will require on the AESO website;

(b) publish the methodology used to determine the variable cost or opportunity cost of a **pool asset**; and

(c) comply with Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures*, before adopting or revising the description of actual eligible costs set out in subsection 3(3)(a) or methodology in subsection 3(3)(b).

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Section 214.4 Reference Levels

(3) Notwithstanding subsection 3(1), a **pool participant** may, solely for the purpose of Section 214.5 of the **ISO rules**, *Local Market Power Mitigation*, submit a written request to the **ISO** for the **ISO** to designate a **reference level cost formula** for a **pool asset** based on the actual eligible costs of that **pool asset**.

(4) A **pool participant** must submit the written request to the **ISO** in subsection 3(3) in the form and manner required by the **ISO**.

(5) A **pool participant** must, when submitting a written request, also provide:

(a) the supporting documentation set out in subsection 3(2)(a);

(b) the statutory declaration set out in subsection 3(6); and

(c) any other additional information requested by the **ISO**.

(6) A **pool participant** must, to be eligible for designation of a **reference level cost formula** based on the actual eligible costs of a **pool asset**, provide a completed statutory declaration to the **ISO** from a corporate officer of the **pool participant** or, if the **pool participant** is not the **legal owner** of the **pool asset**, from a corporate officer of the **legal owner** of the **pool asset** that:

(a) declares the supporting documentation submitted under subsection 3(5)(a) is reasonably accurate to the best knowledge of the corporate officer; and

(b) is in the form published on the AESO website.

(7) The **ISO**, upon receipt of a written request, supporting documentation, and statutory declaration as required under subsections 3(4) through 3(6):

(a) must review the information to ensure completeness; and

(b) may request additional clarification or information from the **pool participant**.

(8) The **ISO** must, upon the conditions in subsections 3(4) through 3(6) being satisfied, provide to the **pool participant**:

(a) written notification outlining:

(i) the approval or denial of the written request;

(ii) reasons for the denial of the written request, if applicable; and

(b) if approval is granted under subsection 8(a)(i):

(i) the **reference level cost formula** for the **pool asset** as determined by the **ISO**; and

(ii) the effective date of that **reference level cost formula**.

(9) The **ISO** must, by the effective date in subsection 3(8)(b)(ii), designate the **reference level cost formula** for a **pool asset** as determined in subsection 3(8)(b)(i).

(10) A **pool participant** must resubmit the information provided to the **ISO** under subsection 3(5):

(a) if, in the opinion of the **pool participant**, the actual eligible costs of the **pool asset** have decreased such that the information provided in subsection 3(5) is no longer reasonably accurate; or

(b) upon request by the **ISO**.

(11) The **ISO** may, upon receipt of any updated information from the **pool participant** in accordance with subsection 3(10), review and revise its initial decision under subsection 3(8).

Re-Designation of a Pool Asset to Technology-Specific Reference Level Cost

4(1) A **pool participant** may, after the effective date in subsection 3(8)(b)(ii), submit a written request to the **ISO** to re-designate a **reference level cost formula** for a **pool asset** in accordance with subsection 3(1).

(2) The **ISO** must, upon receipt of a written request in subsection 4(1), re-designate the **reference level cost formula** for a **pool asset** to the **reference level cost formula** previously determined in subsection 3(1) as soon as practicable.

Coming into Effect

5 This Section 214.4 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 214 Market Clearing
Section 214.5 Local Market Power Mitigation

Applicability

1 Section 214.5 applies to:

(a) the **ISO**.

Requirements

Designation of Local Constrained Areas

2(1) The **ISO** must designate, on an ongoing basis, Local Constrained Areas where the **ISO** determines that local generation is required to meet **ISO** transmission **reliability** criteria, including consideration of operating conditions and outages.

(2) The **ISO** must publish and maintain on the AESO website the list of:

(a) Local Constrained Areas; and

(b) **pool assets** located in each Local Constrained Area.

(3) The **ISO** must not apply the conduct and impact test set out in subsection 4 to a **pool asset** unless the **pool asset** is published on the list in subsection 2(2)(b).

Determination of Mitigated Cost

3 The **ISO** must, on a daily basis, determine a mitigated cost:

(a) for a **pool asset** that consists of an **energy storage resource** or hydroelectric **resource**, by multiplying the applicable **reference level cost** by a factor of 1; and

(b) for all other **pool assets**, by multiplying the applicable **reference level cost** by a factor of 4.

Local Market Power Mitigation Conduct and Impact Test

4(1) The **ISO** must identify all **pool assets,** excluding any **sink asset** or import asset**,** that are located in a Local Constrained Area and that have a **congestion component** greater than or equal to $0.01/MWh as determined by the **real-time dispatch algorithm**.

(2) The **ISO** must, for a **settlement interval**, carry out the conduct test by comparing, for a **pool asset** identified in subsection 4(1), an energy **offer** submitted by a **pool participant** for that **pool asset** to the mitigated cost determined in subsection 3.

(3) The **ISO** must determine that the conduct test has failed for a **pool asset** identified in subsection 4(1) if the **offer** price for an **operating block** for energy is more than $0.01/MWh higher than the mitigated cost determined in subsection 3.

(4) The **ISO** must, for a **settlement interval**, carry out the impact test for a **pool asset** that has failed the conduct test in subsection 4(3) by executing the **real-time dispatch algorithm** to simulate a mitigated **locational marginal price** using:

(a) the mitigated cost determined in subsection 3 for a **pool asset** that failed the conduct test pursuant to subsection 4(3);

(b) the mitigated cost determined in subsection 3 for any **pool asset** that was also identified by the **ISO** as failing the impact test in any **settlement interval** in the current **hour ending**; and

(c) the submitted energy **offers** for all other **pool assets**.

(5) The **ISO** must determine that the impact test has failed for a **pool asset** if the **locational marginal price** for that **pool asset** using its submitted **offer** for energy is higher than the mitigated **locational marginal price** for that **pool asset** simulated by the **real-time dispatch algorithm** in subsection 4(4).

(6) The **ISO** must, for a **pool asset** that fails the impact test pursuant to subsection 4(5) use the mitigated cost determined in subsection 3 to determine, for any **settlement interval** remaining in the current **hour ending**:

(a) schedules for **energy** and **30-minute ramping reserve**;

(b) the **locational marginal price** at each **pricing node**; and

(c) the price for **30-minute ramping reserve**.

Coming into Effect

5 This Section 214.5 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 214 Market Clearing
Section 214.6 Interchange Transactions and E-Tags

Applicability

1 Section 214.6 applies to:

(a) a **pool participant** seeking to **exchange** or transact an import or export **interchange transaction**; and

(b) the **ISO**.

Requirements

Submission of Interchange Transaction Bids and Offers

2(1) A **pool participant** with an import or export energy **interchange transaction** must, notwithstanding Section 213.1 of the **ISO rules**, *Real-Time Market Offers and Bids*, submit the **interchange transaction** as an import **offer** for energy or export **bid** for energy, as applicable, no later than 1 hour prior to the start of the applicable **hour ending**.

(2) A **pool participant** with any form of **interchange transaction** must use all reasonable efforts to procure transmission service from applicable transmission service providers in an amount in MW at least equal to the **available capability** of the **interchange transaction**, which reasonable efforts must include:

(a) determining whether there is transmission service posted by the applicable transmission service providers and available for that **interchange transaction**; and

(b) submitting a request to the applicable transmission service providers to procure the transmission service if it has been posted and is available.

(3) If after complying with subsection (2) the **pool participant** is unable to procure all or a portion of the requested transmission service for an **interchange transaction** then such a circumstance is a reason the **pool participant** must submit a restatement of **available capability**, and may be the basis for the determination of an **acceptable operational reason.**

Submission of E-tags by Pool Participants

3(1) A **pool participant** with any **interchange transactions** that has acquired transmission service must submit **e-tags** to the **ISO** for the **interchange transactions**.

(2) The **ISO** must receive **e-tags** no later than 20 minutes prior to the start of the applicable **hour ending** in order for the energy components of the **interchange transactions** to be included in an **interchange schedule**.

(3) A **pool participant** must submit one or more **e-tags** for an **interchange transaction** such that the final total amount in MW agrees with the **available capability** of the single **source asset**:

(a) as stated 1 hour prior to the start of the applicable **hour ending**; or

(b) as may be restated in accordance with the provisions of this Section 214.6, but in any event the final total amount in MW must not exceed the **available capability** of the single **source asset** as stated at 1 hour prior to the start of the applicable **hour ending**.

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(4) If:

(a) a **pool participant** is unable to procure transmission service; or

(b) there is any other change in the **available capability** for the **sink asset** or the **source asset**, as applicable,

then the **pool participant** must submit a restatement in accordance with the **ISO rules.**

Validation of E-Tags by the ISO

4(1) The **ISO** must validate **e-tags** for **interchange transactions** in accordance with the provisions of this subsection 4.

(2) The **ISO** must validate an **e-tag** prior to including the **e-tag** in an **interchange schedule**.

(3) The **ISO** must validate an **e-tag** with reference to the provisions of **reliability standard** INT-006-AB-4 Evaluation of *Interchange Authority*.

(4) The **ISO** must reject an **e-tag**:

(a) if the **interchange transaction** is not being transacted by a **pool participant**;

(b) for an import **interchange transaction** if the source **balancing authority** is in the **WECC** and the sink **balancing authority** is the **ISO** and the source **balancing authority** is not carrying reserves allocated for that import **interchange transaction**; or

(c) if the **e-tag** is not fully completed.

(5) The **ISO** may, if the provisions of this subsection 4 otherwise are complied with, validate and include in the **interchange schedule** any **e-tags** that are submitted after the 20 minute deadline set out in subsection 3(2).

Interchange Schedules and Dispatches by the ISO

5(1) The **ISO** must, subject to the provisions of this Section 214.6, include in the **interchange schedule** the energy components of **interchange transactions** if the **e-tags** for the **interchange transactions** have been:

(a) received by the submission deadline set out in subsection 3(2); and

(b) validated under subsection 4.

(2) The **ISO** must determine the **interchange schedule** for each transfer path before the start of the applicable **hour ending**, taking into account the allocation and constraint management procedures and sequencing set out in subsection 4 of Section 213.5 the **ISO rules**, *Available Transfer Capability and Transfer Path Management.*

(3) The **ISO** must ensure that each **interchange schedule** period is equal to an **hour ending**, unless the **ISO** has an agreement with an adjacent **balancing authority** specifying an alternative **interchange schedule** start and end time for an individual transfer path, and, in that event, the timing of the **interchange schedule** for the transfer path must be governed by the form of agreement.

ISO Rules
Part 200 Markets
Division 214 Market Clearing
Section 214.6 Interchange Transactions and E-Tags

(4) The **ISO** must treat the energy component of a scheduled **interchange transaction** as a **dispatch** in accordance with the **merit order** for energy.

(5) The **ISO** must not make any changes to an **interchange schedule** for a transfer path except if required to accommodate:

(a) the delivery of external **supplemental reserves** or **spinning reserves**;

(b) a matter of **reliability** on the **interconnected electric system**, or a similar matter which may occur in any other **balancing authority area**;

(c) an emergency or a system emergency on the **interconnected electric system** or in any other **balancing authority area**;

(d) a supply shortfall or supply surplus matter; or

(e) any curtailments resulting from the procedures and sequencing set out in subsections 6 and 7 of Section 213.5 the **ISO rules**, *Available Transfer Capability and Transfer Path Management*.

(6) The **ISO** must, if it is required to accommodate any matter referred to in subsection 5(5), issue the resulting **interchange schedule** changes.

Coming into Effect

7 This Section 214.6 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 214 Market Clearing
Section 214.7 Limited Market Operations and Market Suspension

Applicability

1 Section 214.7 applies to:

(a) a **market participant**; and

(b) the **ISO**.

Requirements

State of Limited Market Operations

2 If the **ISO** is unable, in the ordinary course, to determine schedules, prices, or issue **dispatches** in the **real-time market**, then the **ISO** may, by the issuance of a declaration in accordance with subsection 3:

(a) declare that a state of limited market operations is in effect; and

(b) invoke the limited market operations procedures set out in this Section 214.7.

Declaration Invoking a State of Limited Market Operations

3(1) The **ISO** must issue a declaration if it is invoking a state of limited market operations.

(2) The **ISO** must include in the declaration made under subsection 3(1):

(a) the reasons that the **ISO** is invoking the state of limited market operations;

(b) the commencement date and time of the state of limited market operations; and

(c) a reasonable estimate of the anticipated date and time of termination of the state of limited market operations, and the return to ordinary course market operations.

(3) The **ISO** must use all reasonable efforts to issue the declaration as simultaneously as is possible to **market participants** who may reasonably be anticipated to be affected by the state of limited market operations.

(4) The **ISO** may, from time to time, issue a subsequent declaration updating **market participants** on limited market operations developments as the circumstances warrant.

(5) The **ISO** may select one or more of the following methods to issue a declaration, depending on which is the most practical and effective method under the circumstances:

(a) the real time AIES Event Log or other message communications posted on the AESO website;

(b) Automated Dispatch and Messaging System communications; or

(c) voice notifications.

ISO Rules
Part 200 Markets
Division 214 Market Clearing
Section 214.7 Limited Market Operations and Market Suspension

Dispatches During a State of Limited Market Operations

4 During a state of limited market operations, the **ISO** must use the most current and reasonably accurate data available to the **ISO** under the circumstances, including **merit orders**, to continue to issue **dispatches** in a manner that is as close as possible to ordinary course operations.

Real-Time Market Pricing During a State of Limited Market Operations

5 The **ISO** must, during a state of limited market operations, determine for each **settlement interval**:

(a) the **locational marginal price** at each **pricing node**;

(b) the **Alberta load price**;

(c) the **reference bus price**; and

(d) the price for **30-minute ramping reserve**,

using the most current and reasonably accurate data available to the **ISO** under the circumstances, including **merit orders**.

Termination of a State of Limited Market Operations

6(1) The **ISO**, by issuing a declaration, must terminate a state of limited market operations as soon as it restores ordinary course access to the **merit orders**.

(2) The **ISO** must use the most practical and effective communication method referenced in subsection 3(5) to issue a declaration to **market participants** that the **ISO** has terminated a state of limited market operations and ordinary course **merit order** operations are to recommence by the date and time specified in the declaration.

State of Market Suspension

7(1) The **ISO** may, if an approval is granted under subsection 7(2), issue a declaration invoking a state of market suspension for the **operating reserve** market or the **real-time market**, and implementing the market suspension procedures set out in this Section 214.7 if:

(a) the **interconnected electric system** is experiencing a blackout;

(b) the **interconnected electric system** is breaking up into 2 or more **electrical islands** causing constraints on the **transmission system** that significantly limit or prohibit market operations;

(c) the **ISO** is unable to continue in a state of limited market operations under this Section 214.7 because the **ISO** no longer can use the most current and reasonably accurate data available to the **ISO** under the circumstances, including **merit orders**; or

(d) a failure in the software, hardware, or communication systems that support the **ISO**'s systems, which impedes the **ISO**'s ability to determine schedules or prices, issue **dispatches** or communicate with **market participants**.

ISO Rules
Part 200 Markets
Division 214 Market Clearing
Section 214.7 Limited Market Operations and Market Suspension

(2) Subject to subsection 7(3), the **ISO** must not issue a declaration invoking a state of market suspension without the approval of the Chief Executive Officer of the **ISO** or a designee.

(3) If the **interconnected electric system** is experiencing a blackout, as referenced under subsection 7(1)(a), then the **ISO** may, by declaration in accordance with subsection 8, invoke a state of market suspension without Chief Executive Officer approval.

Declaration Invoking a State of Market Suspension

8(1) The **ISO** must issue a declaration if it is invoking a state of market suspension.

(2) The **ISO** must include in the declaration made under subsection 8(1):

(a) the reasons that the **ISO** is invoking the state of market suspension;

(b) the commencement date and time of the state of market suspension; and

(c) to the extent possible, provide a reasonable estimate of the anticipated date and time of the termination of the state of market suspension, and the return to ordinary course market operations.

(3) The **ISO** must use all reasonable efforts to issue the declaration as simultaneously as is possible to **market participants** who may reasonably be anticipated to be affected by the state of market suspension.

(4) The **ISO** from time to time may issue a subsequent declaration updating **market participants** on market suspension developments as the circumstances warrant.

(5) The **ISO** may select one or more of the following methods to issue the declaration, depending on which is the most practical and effective method under the circumstances:

(a) the real time AIES Event Log or other message communications posted on the AESO website;

(b) Automated Dispatch and Messaging System communications; or

(c) voice notifications.

Effect of a State of Market Suspension

9 During the period of time a state of market suspension is in effect, the **ISO**:

(a) may elect not to follow the **merit orders**;

(b) must not issue **dispatches** for **30-minute ramping reserve**; and

(c) must determine prices for energy in accordance with subsection 10.

Energy Pricing During a State of Market Suspension

10(1) During a state of market suspension, the **ISO** must, for each **settlement interval**, apply a single price for energy, determined in accordance with subsection 10(2), to all **pricing nodes**.

(2) The **ISO** must determine the single price for energy under subsection 10(1) as the prior 30-**day** average of the **reference bus price** of either the **on peak** or **off peak** period, dependent on the **settlement interval** for which the state of market suspension is in effect.

(3) Notwithstanding subsection 10(2), the **ISO** must set the price for energy at $3,000 per MWh if, during a state of market suspension, the **ISO** has issued a **directive** to the **legal owner** of an **electric distribution system** to shed **firm load** to maintain the reliable operation of the system**,** in accordance with subsection 5(1) of Section 211.2 of the **ISO rules**, *Supply Shortfall and Short Term Adequacy.*

Operating Costs Recovery for Certain Market Participants

11(1) If for a state of market suspension a **market participant** does not recover from energy receipts revenue all operating costs, as specified in subsection 11(2) below, for any **pool asset** that operated during that state of market suspension, then the **ISO** must pay to the **market participant** an additional amount up to, but not in excess of, those operating costs, net of the energy receipts revenue.

(2) Subject to subsection 11(3), the operating costs referred to in subsection 11(1) may include:

(a) variable **supply transmission service** charges which are the actual cost of all variable charges from *Rate Schedule STS* of the **ISO tariff**;

(b) variable operating and maintenance charges;

(c) fuel cost to operate the **pool asset**; and

(d) other related reasonable costs the **ISO** approves.

(3) If during a state of market suspension a **market participant** incurs start-up costs for a **pool asset** as the result of receiving a **directive** to start-up the **pool asset**, and then subsequently the **market participant**:

(a) receives a **directive** to shut down the same **pool asset**; or

(b) receives a **dispatch** to terminate energy delivery or consumption for the same **pool asset** upon the termination of the market suspension and the return to ordinary course operations;

then the **market participant** may include those start-up costs in the operating costs to be recovered in accordance with subsection 11(2).

(4) The **ISO** must include as a line item in a settlement statement any charge to a **pool participant** under subsection 9 of Section 103.6 of the **ISO rules**, *ISO Fees and Charges* for the **ISO** to recover any costs associated with the payment of operating costs net of energy receipts revenue due to a market suspension under this Section 214.7.

Termination of a State of Market Suspension

12(1) The **ISO**, by issuing a declaration, must terminate a state of market suspension as soon as it restores ordinary course market operations.

(2) The **ISO** must use the most practical and effective communication methods referenced in subsection 8(5) to issue a declaration to **market participants** that the **ISO** has terminated a state of

market suspension and ordinary course market operations are to recommence by the date and time specified in the declaration.

(3) The **ISO** must publish a preliminary report on the AESO website, no later than 5 **business days** following the last **day** of a state of market suspension, containing a summary of events and circumstances which led to the **ISO** invoking the state of market suspension.

(4) The **ISO** must publish a final report on the AESO website, no later than 20 **business days** following the termination of a state of market suspension, containing details on how the **ISO** managed the market suspension situation and the **interconnected electric system** during the state of market suspension**,** and the efforts the **ISO** undertook to return to ordinary course market operations.

Coming into Effect

13 This Section 214.7 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 215 Post Clearing
Section 215.1 Dispatches

Applicability

1 Section 215.1 applies to:

(a) a **pool participant**; and

(b) the **ISO**.

Requirements

Issuing Dispatches

2(1) The **ISO** may issue a **dispatch** to a **pool participant**.

(2) The **ISO** may issue a **dispatch** verbally or electronically.

Requirement to Comply

3(1) A **pool participant** must comply with a **dispatch** it receives subject to any other **ISO rule** or **reliability standard** and the exceptions in subsection 3(2).

(2) A **pool participant** that is a **legal owner** or **operator** of a **pool asset** must comply with a **dispatch** it receives subject to the following exceptions:

(a) it considers that a real and substantial risk of damage to its **pool asset** could result if it complied with the **dispatch**;

(b) it considers that a real and substantial risk to the safety of its employees or the public could result if it complied with the **dispatch**;

(c) it considers that a real and substantial risk of undue injury to the environment could result if it complied with the **dispatch**;

(d) it has received verbal authorization from the **ISO** to vary the requirements of the **dispatch** during **commissioning** and testing in accordance with any one or all of Section 504.3 of the **ISO rules**, *Coordinating Energization, Commissioning and Ancillary Services Testing*, section 504.4 of the **ISO rules**, *Coordinating Operational* Testing, Section 505.3 of the **ISO rules**, *Coordinating Synchronization, Commissioning, WECC Testing and Ancillary Services Testing*, and Section 505.4 of the **ISO rules**, *Coordinating Operational Testing*;

(e) those exceptions set out in subsection 5 of Section 215.2 of the **ISO rules**, *Delivery Requirements for Energy*; or

(f) those exceptions set out in subsection 5 of Section 215.3 of the **ISO rules**, *Consumption Requirements for Bids*.

Report Inability to Acknowledge a Dispatch

4(1) If a **pool participant** is unable to acknowledge a **dispatch** electronically due to an unavailability of its electronic or communication systems, then the **pool participant** must verbally notify the **ISO** of the unavailability immediately after becoming aware of the unavailability and, as soon as practicable, must also:

(a) provide the reasons for the unavailability;

(b) provide an estimate of the duration of the unavailability;

(c) provide the details of an action plan to resolve the unavailability; and

(d) notify the **ISO** when the unavailability is over.

(2) A **pool participant** must, if the unavailability is longer than expected, keep the **ISO** updated with current information regarding the expected duration of the unavailability.

Acknowledging Dispatches

5 A **pool participant** must acknowledge receipt of a **dispatch**:

(a) in the case of an electronic **dispatch** and unless the **pool participant** has notified the **ISO** of an unavailability in accordance with subsection 4(1)(a) by responding electronically using Automated Dispatch and Messaging System within 2 minutes for an intra-Alberta transaction;

(b) in the case of fast **frequency response service**, within the time frame set out in the contract; or

(c) in the case of a voice **dispatch**, by repeating the **dispatch** to the **ISO**.

Coming into Effect

6 This Section 215.1 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 215 Post Clearing
Section 215.2 Delivery Requirements for Energy

Applicability

1 Section 215.2 applies to:

(a) a **pool participant** with a **source asset,** excluding an import asset**,** that has an associated current **offer** when participating in the **real-time market**; and

(b) the **ISO**.

Requirements

Compliance Responsibilities

2(1) A **pool participant** may only deliver energy to the **interconnected electric system** pursuant to a **dispatch** or a **directive** that the **ISO** issues.

(2) A **pool participant** must, using **good electric industry practice**:

(a) operate its **source asset** or cause it to be operated; and

(b) respond to **dispatches** from the **ISO**.

Source Asset Dispatch Compliance

3(1) A **pool participant** that is not supplying **regulating reserve** from a **source asset** must not vary the average MW it delivers from the **source asset** in any **settlement interval** outside the applicable **dispatch compliance range**.

(2) A **pool participant** that is supplying **regulating reserve** from a **source asset** must ensure that the average MW it delivers from the **source asset** in any **settlement interval** is not outside:

(a) the minimum level of the applicable **dispatch compliance range**; and

(b) the maximum level of the **dispatch compliance range** plus the **regulating reserve**.

Operational Deviation

4(1) A **pool participant** must, if a **source asset** experiences an **operational deviation**, verbally inform the **ISO** as soon as practicable of the occurrence of the **operational deviation** and provide a description of the cause if known.

(2) A **pool participant** must inform the **ISO** of the information required under subsection 4(1) on a telephone line the **ISO** designates, which must contain a voice recording system.

(3) A **pool participant** must, if an **operational deviation** extends for 20 minutes or longer, submit an **available capability** restatement or MW restatement for the **source asset** that represents the operational capability of the **source asset** and must do so no later than 20 minutes after the commencement of the **operational deviation**.

ISO Rules
Part 200 Markets
Division 215 Post Clearing
Section 215.2 Delivery Requirements for Energy

Exceptions to Non-Compliance

5 Notwithstanding subsections 3 and 4, the **ISO** must not determine that a **pool participant** is non-compliant with a **dispatch** for a **source asset** if the **pool participant** has met its responsibilities in subsection 2 and one or more of the following circumstances occur:

(a) the **source asset** is ramping into position to provide **operating reserve** or **fast frequency response service** in response to a **dispatch** in the 15 minutes before the time indicated in that **dispatch**;

(b) the **source asset** is ramping following a **directive** for **fast frequency response service** in the 15 minutes following the end of the **directive**;

(c) the **source asset** is operating below **minimum stable generation**, but only if that **source asset** is:

(i) dispatched offline;

(ii) unable to follow the **ramp rate** the **pool participant** submitted when its output is being increased to its **minimum stable generation** and the **pool participant** has submitted a verbal plan to the **ISO** indicating a proposal for ramping to **minimum stable generation,** which verbal plan must provide an estimate of the time required to achieve the **ramp rate** and be updated for deviations of greater than 30 minutes or 50 MW; or

(iii) stopped at an output level not identified in the verbal plan referenced in subsection 5(c)(ii) above, but which is below **minimum stable generation** for more than 30 minutes for an operational reason and the **pool participant** has submitted a restatement of the **available capability** accordingly;

(d) the **source asset** is responding to abnormal frequency through automatic **governor** or **governor system** action;

(e) an **operational deviation** has occurred and the **pool participant** has complied with subsection 4; or

(f) energy is being delivered to the **interconnected electric system** from a **source asset** while it is being tested or commissioned or both, in accordance with applicable provisions of the **ISO rules**.

Concurrent Energy and Ancillary Services Requirements

6 A **pool participant** must, if the **pool participant** receives a **directive** for **spinning reserve**, **supplemental reserve**, or **fast frequency response service** while responding to a **dispatch** for **real power** in the **real-time market**, take the following actions, and in the following sequence:

(a) cease responding to the **dispatch** in the **real-time market**;

(b) provide, as applicable, the **spinning reserve** quantity in accordance with Section 212.2 of the **ISO rules**, *Spinning Reserve Technical Requirements and Performance Standards*, the **supplemental reserve** quantity in accordance with Section 212.3 of the **ISO rules**, *Supplemental Reserve Technical Requirements and Performance Standards*, or the **fast**

frequency response service in accordance with Section 212.4 of the **ISO rules**, *Fast Frequency Response*; and

(c) commence or resume the response to the **dispatch** in the **real-time market** in accordance with the **dispatch** in effect at the time.

Designated Biomass Assets

7(1) The **ISO** must maintain a list containing **pool assets** that have been approved as designated biomass assets in accordance with subsection 7(5) and must make the list available on the AESO website.

(2) A **pool participant** may submit a written request to the **ISO** for the **ISO** to approve a **pool asset** as a designated biomass asset if the **pool asset:**

(a) uses biomass as a primary fuel source;

(b) is comprised of one or more **generating units** that achieved **commercial operation** prior to January 1, 2026; and

(c) has physical or technological limitations such that energy cannot be consistently delivered within the **dispatch compliance range**, if the **dispatch compliance range** is calculated using an **allowable dispatch variance** of 5% of the **maximum capability** of the **pool asset**, to a maximum of 10 MW and a minimum of 1 MW.

(3) A **pool participant** must submit the written request to the **ISO** in subsection 7(2) in the form and manner required by the **ISO**.

(4) The **ISO**, upon receipt of a written request in accordance with subsection 7(3):

(a) must review the information to ensure completeness; and

(b) may request additional clarification or information from the **pool participant**.

(5) The **ISO** must, upon completion of the review in subsection 7(4)(a):

(a) if the written request is approved by the **ISO**, add the **pool asset** to the list referenced in subsection 7(1); or

(b) if the written request is denied by the **ISO**, provide the **pool participant** with reasons for the denial of the written request.

(6) A **pool participant** must notify the **ISO** as soon as practicable if a **pool asset** no longer meets the criteria referenced in subsection 7(2).

(7) The **ISO** must, upon notification from a **pool participant** in accordance with subsection 7(6), remove the **pool asset** from the list referenced in subsection 7(1).

Coming into Effect

8 This Section 215.2 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

ISO Rules
Part 200 Markets
Division 215 Post Clearing
Section 215.2 Delivery Requirements for Energy

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 215 Post Clearing
Section 215.3 Consumption Requirements for Bids

Applicability

1 Section 215.3 applies to:

(a) a **pool participant** with a **sink asset**, excluding an export asset, that has an associated current **bid** when participating in the **real-time market**; and

(b) the **ISO**.

Requirements

Compliance Responsibilities

2(1) A **pool participant** that submits a **bid** may only consume the **bid** energy from the **interconnected electric system** pursuant to a **dispatch** the **ISO** issues.

(2) A **pool participant** must, using **good electric industry practice**:

(a) operate its **sink assets**, or cause them to be operated; and

(b) respond to **dispatches** from the **ISO**.

Sink Asset Dispatch Compliance

3(1) A **pool participant** that is not supplying **regulating reserve** from a **sink asset** must not vary the average MW it consumes from a **sink asset** in any **settlement interval** outside the applicable **dispatch compliance range**.

(2) A **pool participant** that is supplying **regulating reserve** from a **sink asset** must ensure that the average MW consumed in any **settlement interval** is not outside:

(a) the minimum level of the applicable **dispatch compliance range**; and

(b) the maximum level of the **dispatch compliance range** plus the **regulating reserve**.

Operational Deviation

4(1) A **pool participant** must, if a **sink asset** experiences an **operational deviation**, verbally inform the **ISO** as soon as practicable of the occurrence of the **operational deviation** and provide a description of the cause if known.

(2) A **pool participant** must inform the **ISO** of the information required under subsection 4(1) on a telephone line the **ISO** designates, which must contain a voice recording system.

(3) A **pool participant** must, if an **operational deviation** extends for 20 minutes or longer, submit a MW restatement for the **sink asset** that represents the operational capability of the **sink asset** and must do so no later than 20 minutes after the commencement of the **operational deviation**.

Exceptions to Non-Compliance

5 Notwithstanding subsections 3 and 4, the **ISO** must not determine that a **pool participant** is non-compliant with a **dispatch** for a **sink asset** if the **pool participant** has met its responsibilities in subsection 2 and one or more of the following circumstances occur:

(a) the **bid** energy is being consumed from the **interconnected electric system** from a **sink asset** while undergoing **commissioning** or testing in accordance with applicable **ISO rules**;

(b) the **sink asset** is moving into position to provide **operating reserve** in response to a **dispatch** in the 15 minutes before the time indicated in that **dispatch**;

(c) the **sink asset** is responding to abnormal frequency through automatic **governor** or **governor system** action; or

(d) an **operational deviation** has occurred and the **pool participant** has complied with subsection 4.

Coming into Effect

6 This Section 215.3 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition*.

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 215 Post Clearing
Section 215.4 Price Validation and Correction

Applicability

1 Section 215.4 applies to:

(a) the **ISO**.

Requirements

Provisional Price Reports

2 The **ISO** must, as soon as practicable, publish the following prices and price components on a provisional basis for each **settlement interval** on the AESO website:

(a) the **reference bus price**;

(b) the **locational marginal price** at each **pricing node**;

(c) the **loss component** of the **locational marginal price** at each **pricing node**;

(d) the **congestion component** of the **locational marginal price** at each **pricing node**;

(e) the **Alberta load price;**

(f) the **loss component** of the **Alberta load price**;

(g) the **congestion component** of the **Alberta load price**; and

(h) the price for **30-minute ramping reserve**.

Provisional Price Review and Correction

3(1) The **ISO** must review prices and price components published under subsection 2.

(2) Where the **ISO** becomes aware of a material error in a price or price component, the **ISO** must use the best methods and data available to correct a price component or price published under subsection 2.

Price Validation

4(1) The **ISO** must apply a price or price component published on a provisional basis as a final price or final price component for the purposes of financial settlement if no correction is required under subsection 3.

(2) The **ISO** must publish each price and price component listed in subsection 2 on a final basis on the AESO website no later than 4 **business days** after the **day** on which a price is published on a provisional basis for a **settlement interval.**

Final Price Correction

5(1) The **ISO** must, as soon as practicable upon discovering an error with a price or price component, use the best methods and data available to correct a final price or final price component published in accordance with subsection 4(2).

(2) The **ISO** must publish the corrected price or price component on the AESO website**.**

ISO Rules
Part 200 Markets
Division 215 Post Clearing
Section 215.4 Price Validation and Correction

Coming into Effect

6 This Section 215.4 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 216 Settlement
Section 216.1 Financial Settlement

Applicability

1 Section 216.1 applies to:

(a) a **pool participant**; and

(b) the **ISO**.

Requirements

Currency

2 All payments, fees, charges, amounts and calculations under this Section 216.1 must be in Canadian dollars.

ISO Calculation of Settlement Amounts

3 The **ISO** must settle **pool participant** financial amounts in accordance with the formulas set out in Appendix 1 and Appendix 2.

Payment for Energy from a Long Lead Time Asset

4(1) The **ISO** must calculate the payment to a **pool participant** for energy production related to **incremental generation costs** a **pool participant** incurs as a result of a **directive** for energy from a **long lead time asset**, excluding any **directive** issued during a markets suspension event and excluding any **unit commitment directive***.*

(2) The **ISO** must pay an additional amount to a **pool participant** to cover residual costs, if any costs a **pool participant** incurs due to a **directive** for energy from a **long lead time asset**, excluding any **directive** issued during a markets suspension event and excluding any **unit commitment directive**, are not fully recovered by payments to the **pool participant** for energy from the **long lead time asset***,* and those residual costs are referenced in and recoverable under the definition of **incremental generation costs.**

Payment for Cancellation of an Outage

5(1) The **ISO** must, subject to subsection 11 of Section 306.5 of the **ISO rules**, *Source Asset Outage Reporting and Coordination*, pay a **pool participant** or **legal owner** of a **source asset**, excluding an import asset, for **incremental generation costs** a **pool participant** or **legal owner** incurs as a result of complying with a **directive** to cancel an outage.

(2) The **ISO** must calculate the payment referred to subsection 5(1) based on the information a claimant provides to the **ISO** in accordance with the provisions of subsection 11 of Section 306.5 of the **ISO rules**, *Source Asset Outage Reporting and Coordination*.

ISO Rules
Part 200 Markets
Division 216 Settlement
Section 216.1 Financial Settlement

Charge for Cost of Energy from a Long Lead Time Asset

6 The **ISO** must include as a line item in any settlement statement any charge to a **pool participant** under subsections 6 and 11 of Section 103.6 of the **ISO rules**, *ISO Fees and Charges* for the **ISO** to recover any costs associated with a **directive** for energy from a **long lead time asset**.

Post Final Adjustments for Load Settlement

7 The **ISO** must include post final adjustments in the final settlement statement for a **settlement period**, but if the **ISO** does not receive all information from a load settlement **agent** within the time periods set out in the post final adjustment schedule posted on the AESO website, then the **ISO** must include any remaining post final adjustments for that **settlement period** in the final settlement statement for the next **settlement period**.

Other Post Final Adjustments

8(1) The **ISO** must include post final adjustments for any energy production or energy consumption calculations for a **settlement period** if there are adjustments to metering data required after the **month** of determination on a final basis.

(2) The **ISO** may charge a **pool participant** interest in calculating post final adjustments if the adjustments to metering data are a result of the **pool participant**'s failure to comply with applicable requirements relating to metering, calculated on a simple basis using a rate equal to the Bank of Canada's Bank Rate plus 1.5%.

Energy Market Trading Charge

9 The **ISO** must include, as a line item in any settlement statement to a **pool participant**, the energy trading charge.

Settlement Statement

10(1) The **ISO** must issue on the AESO website:

(a) a preliminary settlement statement on the fifth **business day** after the last **day** of each **settlement period**; and

(b) a final settlement statement on the fifteenth **business day** after the end of each **settlement period**, to each **pool participant**.

(2) The **ISO** must include the following line items on the preliminary and final settlement statements on an initial basis for that **settlement period**, an interim basis for the 2 **months** prior to that **settlement period** and a final basis for the 4 **months** prior to that **settlement period**:

(a) the amount of energy a **pool participant** purchases and supplies and the payment calculation for that energy;

(b) the energy trading charge amount allocable to the **pool participant** as calculated in accordance with subsection 5 of Section 103.6 of the **ISO rules**, *ISO Fees and Charges*;

(c) any payment default charge amount allocated to the **pool participant** as calculated in

accordance with subsection 7 of Section 103.6 of the **ISO rules**, *ISO Fees and Charges*, including details regarding the calculation of the payment default charge as allocated to that **pool participant**, or any refund of that default charge amount;

(d) any other **ISO fees** and charges under Section 103.6 of the **ISO rules**, *ISO Fees and Charges,* including the pool participation fee, fee for a digital certificate, and records and data provision charges;

(e) any interest, late payment or other costs or charges under Section 103.7 of the **ISO rules**, *Financial Default and Remedies*;

(f) the amount of **30-minute ramping reserve** a **pool participant** supplies and the payment calculation for that **30-minute ramping reserve**;

(g) the amount of any **30-minute ramping reserve** adjustment and the payment calculation for that **30-minute ramping reserve** adjustment amount;

(h) the **30-minute ramping reserve** cost amount allocated to the **pool participant** in accordance with Section 212.10 of the **ISO rules**, *30-Minute Ramping Reserve Qualification and Cost Allocation* and calculated in accordance with the formulas set out in Appendix 2;

(i) the amount paid to or by a **pool participant** for a **long lead time asset** for any **unit commitment directive** that occurred during the relevant **settlement period**;

(j) the amount paid to a **pool participant** for a **long lead time asset** for any **directive** for energy in accordance with subsection 4 that occurred during the relevant **settlement period**;

(k) the amount paid to or by a **pool participant** for a **sink asset** for any **unit commitment directive** that occurred during the relevant **settlement period**;

(l) the amount paid by a **pool participant** for a **sink asset** for any **directive** for energy in accordance with subsection 4 that occurred during the relevant **settlement period**;

(m) such other information as the **ISO** considers appropriate; and

(n) the net amount either owing to or by the **pool participant**.

(3) The **pool participant** must contact the **ISO** to request the final settlement statement if the AESO website is not available on the fifteenth **business day** referred to in subsection 10(1).

Settlement Date and Payment Obligations

11(1) The **ISO** must use, as the settlement date for a **settlement period**, the twentieth **business day** following the last **day** of that **settlement period**.

(2) The **ISO** must, each January, publish on the AESO website the calendar dates which are settlement dates for the current and next calendar year, being the dates for the financial settlement for the final settlement statements and the **ISO tariff**.

(3) A **pool participant** must, subject to subsection 12, pay to the **ISO** the net dollar amount it owes no later than the specified settlement date for a **settlement period**.

(4) The **ISO** must, if the **ISO** owes a net dollar amount to a **pool participant**, as set out in the final settlement statement for the **settlement period**, pay a **pool participant** that amount by the settlement date.

(5) A **pool participant** must make full payment of the net amount a **pool participant** owes as set out in the final settlement statement, whether or not any such amounts are under dispute.

(6) A **pool participant** may provide early payment for a **settlement period**:

(a) if authorized by the **ISO** in its sole discretion;

(b) in the manner the **ISO** specifies; and

(c) if the early payment is received no later than the date and time the **ISO** specifies.

(7) The **ISO** may, notwithstanding subsection 11(4), withhold payment associated with erroneous metering data to a **pool participant** if the **ISO** determines an error in metering data is the result of the **pool participant**'s failure to comply with applicable requirements relating to metering, until such error is corrected by a **pool participant** to the satisfaction of the **ISO**.

Acceleration in Pool Settlement Dates Due to Payment Default

12(1) The **ISO** may require that a **pool participant** pay the **ISO** 1 **day** early for the next 6 **settlement periods** if a **pool participant** has:

(a) in its first calendar year of **pool participant** registration, defaulted in the payment for a **settlement period** 1 time; or

(b) after its first calendar year of **pool participant** registration, defaulted in the payment for any **settlement period** 2 times over 12 **settlement periods**.

(2) A **pool participant** that is required to pay early under subsection 12(1) may return to using the regular settlement date after the end of the 6 **settlement periods** if the **pool participant** does not commit any further default in payment during the 6 **settlement periods** referred to in subsection 12(1).

(3) The **ISO** may require that a **pool participant** pay the **ISO** 2 **days** early for the next 12 settlement dates if a **pool participant** that is already required to pay 1 **day** early commits another default in payment during the time it is required to pay early.

(4) A **pool participant** that is required to pay early under subsection 12(3) may return to using the regular settlement date after the end of the 12 **settlement periods** if the **pool participant** does not commit any further default in payment during the 12 **settlement periods** referred to in subsection 12(3).

(5) The **ISO** may implement the accelerated payment obligations under this subsection 11 in addition to any other rights and remedies of the **ISO** in accordance with Section 103.7 of the **ISO rules**, *Financial Default and Remedies*, with regard to any payment default by a **pool participant**.

Interest and Other Late Payment Costs and Charges

13 A **pool participant** must pay interest, a late payment charge, and any other costs and charges in accordance with the provisions of Section 103.7 of the **ISO rules**, *Financial Default and Remedies*, if a

pool participant fails to pay on or before a settlement date any outstanding **financial obligation** dollar amount owing to the **ISO** as set out in any of the **pool participant**'s final settlement statements.

Payment

14 A **pool participant** must, notwithstanding subsection 11(6) or any written notice of disagreement submitted pursuant to subsection 15(1), pay to the **ISO** any net dollar amount the **pool participant** owes, as set out in its final settlement statement, and do so in the manner the **ISO** specifies.

Prepayment Procedures

15(1) A **pool participant** may prepay in the manner the **ISO** specifies.

(2) The **ISO** may apply any prepayment amount, in whole or in part, against any outstanding **financial obligations** of that **pool participant**.

Disputes

16(1) A **pool participant** may submit a written dispute notice to the **ISO** if a **pool participant** determines that there is an error the content of a final settlement statement that the **ISO** has issued in accordance with subsection 10(1)(b).

(2) A **pool participant** must submit any written dispute notice pursuant to subsection 16(1) in accordance with the timelines posted on the AESO website.

(3) A **pool participant** and the **ISO** must make reasonable efforts to resolve any written dispute submitted pursuant to subsection 16(1).

Settlement Statement Adjustments for Resolved Disputes

17 The **ISO** must, if a dispute is resolved pursuant to subsection 16, include the resolved line item adjustments and the adjusted net amount payable by or to a **pool participant** in the next final settlement statement after the resolution.

ISO Recourse to Section 103.7 Financial Default and Remedies

18 The failure of a **pool participant** to pay any dollar amount under this Section 216.1 is deemed to be a **financial obligation** default event which will allow the **ISO** to have recourse to the rights and remedies of the **ISO** under Section 103.7 of the **ISO rules**, *Financial Default and Remedies.*

Coming into Effect

19 This Section 216.1 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Appendices

Appendix 1 – *Calculation of Settlement Amounts*

Appendix 2 – *Cost Allocation of 30-Minute Ramping Reserve*

ISO Rules
Part 200 Markets
Division 216 Settlement
Section 216.1 Financial Settlement

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

ISO Rules
Part 200 Markets
Division 216 Settlement
Section 216.1 Financial Settlement

Appendix 1
Calculation of Settlement Amounts

1) Energy Settlement Amount for a Pool Participant with a Source Asset

$$ESASE_{h,i}^{k} = E_RBC_RT_{\mathrm{h,i}} * \left(RT_AQE_I_{h,i}^{k} - NSI_QS_I_{h,i}^{k}\right) + \left(E_CC_RT_{h,i}^{k} + E_LC_RT_{h,i}^{k}\right) * RT_AQE_I_{h,i}^{k}$$

Where,

$ESASE_{h,i}^{k}$ = The energy settlement amount for **source asset** "k" and **hour ending** "h" and **settlement interval** "i".

$E_RBC_RT_{\mathrm{h,i}}$ = The **reference bus** component of the **real-time market** energy **locational marginal price** for **hour ending** "h" and **settlement interval** "i".

$NSI_QS_I_{h,i}^{k}$ = Quantity of energy scheduled for injection subject to a **net settlement instruction** for **hour ending** "h" and **settlement interval** "i" and **source asset** "k".

$RT_AQE_I_{h,i}^{k}$ = Actual quantity of energy injected at **source asset** "k", during **settlement interval** "i" for **hour ending** "h" in the **real-time market**. This is determined by dividing the total **metered energy** injected by the **source asset** "k" during the **metering interval** by the number of **settlement intervals** in that particular **metering interval**.

$E_CC_RT_{h,i}^{k}$ = The **congestion component** of the **locational marginal price** for **source asset** "k" for **hour ending** "h" and **settlement interval** "i".

$E_LC_RT_{h,i}^{k}$ = The **loss component** of the **locational marginal price** for **source asset** "k" for **hour ending** "h" and **settlement interval** "i".

2) Energy Settlement Amount for a Pool Participant with a Sink Asset that Pays a Locational Marginal Price

$$ESASA_LMP_{h,i}^{k} = E_RBC_RT_{\mathrm{h,i}} * \left(RT_AQE_W_{h,i}^{k} - NSI_QS_W_{h,i}^{k}\right) + \left(E_CC_RT_{h,i}^{k} + E_LC_RT_{h,i}^{k}\right) * RT_AQE_I_{h,i}^{k}$$

Where,

$ESASA_LMP_{h,i}^{k}$ = The energy settlement amount for a **pool participant** with a **sink asset** that pays a **locational marginal price** for **sink asset** "k" and **hour ending** "h" and **settlement interval** "i".

$E_RBC_RT_{\mathrm{h,i}}$ = The **reference bus** component of the **real-time market** energy **locational marginal price** for **hour ending** "h" and **settlement interval** "i".

$NSI_QS_W_{h,i}^{k}$ = Quantity of energy scheduled for withdrawal subject to a **net settlement instruction** for **sink asset** "k" and **hour ending** "h" and **settlement interval** "i".

$RT_AQE_W_{h,i}^{k}$ = Actual quantity of energy withdrawn at **sink asset** "k", during **settlement interval** "i" for **hour ending** "h" in the **real-time market**. This is determined by dividing the total

metered energy consumed by the **sink asset** during the **metering interval** by the number of **settlement intervals** in that particular **metering interval**.

$E_CC_RT_{h,i}^{k}$ = The **congestion component** of the **locational marginal price** for **sink asset** "k" for **hour ending** "h" and **settlement interval** "i".

$E_LC_RT_{h,i}^{k}$ = The **loss component** of the **locational marginal price** for **sink asset** "k" for **hour ending** "h" and **settlement interval** "i".

3) <u>Energy Settlement Amount for a Pool Participant with a Sink Asset that Pays the Alberta Load Price</u>

$$ESASA_ALP_{h,i}^{k} = E_RBC_RT_{\mathrm{h,i}} * \left(RT_AQE_W_{h,i}^{k} - NSI_QS_W_{h,i}^{k}\right) + \left(E_CC_ALP_{h,i} + E_LC_ALP_{h,i}\right) * RT_AQE_I_{h,i}^{k}$$

Where,

$ESASA_ALP_{h,i}^{k}$ = The energy settlement amount for **sink assets** that pay the **Alberta load price** for **sink asset** "k" and **hour ending** "h" and **settlement interval** "i".

$E_RBC_RT_{\mathrm{h,i}}$ = The **reference bus** component of the **real-time market** energy **locational marginal price** for **hour ending** "h" and **settlement interval** "i".

$RT_AQE_W_{h,i}^{k}$ = Actual quantity of energy withdrawn at **sink asset** "k", during **settlement interval** "i" for **hour ending** "h" in the **real-time market**. This is determined by dividing the total **metered energy** consumed by the **sink asset** during the **metering interval** by the number of **settlement intervals** in that particular **metering interval**.

$NSI_QS_W_{h,i}^{k}$ = Quantity of energy scheduled for withdrawal subject to a **net settlement instruction** for **hour ending** "h" and **settlement interval** "i" and **sink asset** "k".

$E_CC_ALP_{h,i}$ = The **congestion component** of the **Alberta Load Price**, as determined in accordance with subsection 9(2)(d) of Section 214.2 of the **ISO rules**, *Dispatch and Pricing Algorithm* for **hour ending** "h" and **settlement interval** "i".

$E_LC_ALP_{h,i}$ = The **loss component** of the **Alberta load price**, as determined in accordance with subsection 9(2)(d) of Section 214.2 of the **ISO rules**, for **hour ending** "h" and **settlement interval** "i".

4) <u>Settlement Amount for a Pool Participant Providing 30-Minute Ramping Reserve</u>

$$R30_SA_S_{h,i}^{k} = RT_QS_R30_{h,i}^{k} * R30_P_RT_{h,i}$$

Where,

$R30_SA_S_{h,i}^{k}$ = The **30-minute ramping reserve** settlement amount for **pool asset** "k" and **hour ending** "h" and **settlement interval** "i".

$RT_QS_R30^{k}_{h,i}$ = Quantity of **30-minute ramping reserve** scheduled for **hour ending** "h" and **settlement interval** "i" at **pool asset** "k" in the **real-time market**.

$R30_P_RT_{h,i}$ = Price for **30-minute ramping reserve** for **hour ending** "h" and **settlement interval** "i".

5) <u>Adjustment Amount for a Pool Participant with a Source Asset Providing 30-Minute Ramping Reserve that are Source Assets</u>

$$R30_AA_SA^{k}_{h,i} = \left(MAX[0, RT_SCADA_QE_I^{k}_{h,i} + RT_QS_R30^{k}_{h,i} - RT_EAC^{k}_{h,i}] \ * \ R30_P_RT_{h,i}\right)$$

Where,

$R30_AA_SA^{k}_{h,i}$ = The **30-minute ramping reserve** adjustment amount for **source asset** "k" and **hour ending** "h" and **settlement interval** "i".

$RT_EAC^{k}_{h,i}$ = **Real-time market** energy **available capability** for **source asset** "k" and **hour ending** "h" and **settlement interval** "i".

$R30_P_RT_{h,i}$ = Price for **30-minute ramping reserve** for **hour ending** "h" and **settlement interval** "i".

$RT_QS_R30^{k}_{h,i}$ = Quantity of **30-minute ramping reserve** scheduled for **hour ending** "h" and **settlement interval** "i" and **source asset** "k" in the **real-time market**.

$RT_SCADA_QE_I^{k}_{h,i}$ = Quantity of energy injected at **source asset** "k" during **settlement interval** "i" for **hour ending** "h" in the **real-time market**. This is determined based on the SCADA meter data for this **source asset** "k" for this **settlement interval** "i".

6) <u>Adjustment Amount for a Pool Participant with a Sink Asset Providing 30-Minute Ramping Reserve</u>

$$R30_AA_SS^{k}_{h,i} = \left(MAX[0, RT_QS_R30^{k}_{h,i} - RT_SCADA_QE_W^{k}_{h,i}] \ * \ R30_P_RT_{h,i}\right)$$

Where,

$R30_AA_SS^{k}_{h,i}$ = The **30-minute ramping reserve** adjustment amount for **sink asset** "k" and **hour ending** "h" and **settlement interval** "i".

$R30_P_RT_{h,i}$ = Price for **30-minute ramping reserve** for **hour ending** "h" and **settlement interval** "i".

$RT_QS_R30^{k}_{h,i}$ = Quantity of **30-minute ramping reserve** scheduled for **hour ending** "h" and **settlement interval** "i" and **sink asset** "k" in the **real-time market**.

$RT_SCADA_QE_W^{k}_{h,i}$ = Quantity of energy withdrawn at **sink asset** "k", during **settlement interval** "i" for **hour ending** "h" in the **30-minute ramping reserve**. This is determined based on the SCADA meter data for this **sink asset** "k" for this **settlement interval** "i".

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Appendix 2
Cost Allocation for 30-Minute Ramping Reserve

1) 30-Minute Ramping Reserve Recovery Settlement Amount for a Source Asset that Contains a Wind Resource

$$W_R30R_SA^{w}_{h,i} = \left((R30_SA_S_{h,i} - R30_AA_SS_{h,i} - R30_AA_SA_{h,i}) * \left(\frac{\sum_W FR^{w}_{h,i}}{\sum_W FR^{w}_{h,i} + \sum_S FR^{s}_{h,i} + FR^{l}_{h,i} + \varepsilon}\right) \right) * \left(\frac{FR^{w}_{h,i}}{\sum_W FR^{w}_{h,i} + \varepsilon}\right)$$

Where,

$W_R30R_SA^{w}_{h,i}$ = The **30-minute ramping reserve** recovery settlement amount for a **source asset** that contains a wind **resource** "w" identified in subsection 5(2)(b) of Section 212.10 of the **ISO rules**, *30-Minute Ramping Reserve Qualification and Cost Allocation* for **hour ending** "h" and **settlement interval** "i".

$R30_SA_S_{h,i}$ = The total **30-minute ramping reserve** settlement amount for providers of **30-minute ramping reserve** for **hour ending** "h" and **settlement interval** "i".

$R30_AA_SS_{h,i}$ = The total **30-minute ramping reserve** adjustment amount for providers that are **sink assets** for **hour ending** "h" and **settlement interval** "i".

$R30_AA_SA_{h,i}$ = The total **30-minute ramping reserve** adjustment amount for providers that are **source assets** for **hour ending** "h" and **settlement interval** "i".

$FR^{w}_{h,i}$ = The **ISO**-produced forecast ramp down for a **source asset** that contains a wind **resource** "w" identified in subsection 5(2)(b) of Section 212.10 of the **ISO rules**, for **hour ending** "h" and **settlement interval** "i".

$\sum_W FR^{w}_{h,i}$ = The sum of **ISO**-produced forecast ramp down for **source assets** that contain wind **resources** "W" identified in subsection 5(2)(b) of Section 212.10 of the **ISO rules**, for **hour ending** "h" and **settlement interval** "i".

$\sum_S FR^{s}_{h,i}$ = The sum of **ISO**-produced forecast ramp down for **source assets** that contain solar **resources** "S" identified in subsection 5(2)(b) of Section 212.10 of the **ISO rules**, for **hour ending** "h" and **settlement interval** "i".

$FR^{l}_{h,i}$ = The **ISO**-produced forecast ramp up for **Alberta Internal Load** for **hour ending** "h" and **settlement interval** "i".

ε = A number that approaches 0 in value. This variable is used to avoid a denominator with a value of 0.

2) <u>30-Minute Ramping Reserve Recovery Settlement Amount for a Source Asset that Contains a Solar Resource</u>

$$S_R30R_SA^{s}_{h,i} = \left((R30_SA_S_{h,i} - R30_AA_SS_{h,i} - R30_AA_SA_{h,i}) * \left(\frac{\sum_S FR^{s}_{h,i}}{\sum_W FR^{w}_{h,i} + \sum_S FR^{s}_{h,i} + FR^{l}_{h,i} + \varepsilon}\right)\right) * \left(\frac{FR^{s}_{h,i}}{\sum_S FR^{s}_{h,i} + \varepsilon}\right)$$

Where,

$S_R30R_SA^{s}_{h,i}$ = The **30-minute ramping reserve** recovery settlement amount for a **source asset** that contains a solar **resource** "s" identified in subsection 5(2)(b) of Section 212.10 of the **ISO rules**, *30-Minute Ramping Reserve Qualification and Cost Allocation* for **hour ending** "h" and **settlement interval** "i".

$R30_SA_S_{h,i}$ = The total **30-minute ramping reserve** settlement amount for providers of **30-minute ramping reserve** for **hour ending** "h" and **settlement interval** "i".

$R30_AA_SS_{h,i}$ = The total **30-minute ramping reserve** adjustment amount for providers that are **sink assets** for **hour ending** "h" and **settlement interval** "i".

$R30_AA_SA_{h,i}$ = The total **30-minute ramping reserve** adjustment amount for providers that are **source assets** for **hour ending** "h" and **settlement interval** "i".

$FR^{s}_{h,i}$ = The **ISO**-produced forecast ramp down for a **source asset** that contains a solar **resource** "s" identified in subsection 5(2)(b) of Section 212.10 of the **ISO rules**, for **hour ending** "h" and **settlement interval** "i".

$\sum_W FR^{w}_{h,i}$ = The sum of **ISO**-produced forecast ramp down for **source assets** that contain wind **resources** "W" identified in subsection 5(2)(b) of Section 212.10 of the **ISO rules**, for **hour ending** "h" and **settlement interval** "i".

$\sum_S FR^{s}_{h,i}$ = The sum of **ISO**-produced forecast ramp down for **source assets** that contain solar **resources** "S" identified in subsection 5(2)(b) of Section 212.10 of the **ISO rules**, for **hour ending** "h" and **settlement interval** "i".

$FR^{l}_{h,i}$ = The **ISO**-produced forecast ramp up for **Alberta Internal Load** for **hour ending** "h" and **settlement interval** "i".

ε = A number that approaches 0 in value. This variable is used to avoid a denominator with a value of 0.

3) 30-Minute Ramping Reserve Recovery Settlement Amount for Load

$$L_R30R_SA^{k}_{h,i} = \left((R30_SA_S_{h,i} - R30_AA_SS_{h,i} - R30_AA_SA_{h,i}) * (\frac{\sum_L FR^{l}_{h,i} + \varepsilon}{\sum_W FR^{w}_{h,i} + \sum_S FR^{s}_{h,i} + FR^{l}_{h,i} + \varepsilon}) \right) * (\frac{RT_AQE_W^{k}_{h,i}}{\sum_K RT_AQE_W^{k}_{h,i}})$$

Where,

$L_R30R_SA^{k}_{h,i}$ = The **30-minute ramping reserve** recovery settlement amount for **sink asset** "k" identified in subsection 5(2)(a) of Section 212.10 of the **ISO rules**, *30-Minute Ramping Reserve Qualification and Cost Allocation* for **hour ending** "h" and **settlement interval** "i".

$R30_SA_S_{h,i}$ = The total **30-minute ramping reserve** settlement amount for providers of **30-minute ramping reserve** for **hour ending** "h" and **settlement interval** "i".

$R30_AA_SS_{h,i}$ = The total **30-minute ramping reserve** adjustment amount for providers that are **sink assets** for **hour ending** "h" and **settlement interval** "i".

$R30_AA_SA_{h,i}$ = The total **30-minute ramping reserve** adjustment amount for providers that are **source assets** for **hour ending** "h" and **settlement interval** "i".

$RT_AQE_W^{k}_{h,i}$ = The actual quantity of energy withdrawn for **sink asset** "k" identified in subsection 5(2)(a) of Section 212.10 of the **ISO rules**, for **hour ending** "h" and **settlement interval** "i". This is determined by dividing the total **metered energy** consumed by the asset during the **metering interval** by the number of **settlement intervals** in that particular **metering interval**.

$\sum_K RT_AQE_W^{k}_{h,i}$ = The actual quantity of energy withdrawn for the sum of all **sink assets** "K" identified in subsection 5(2)(a) of Section 212.10 of the **ISO rules**, for **hour ending** "h" and **settlement interval** "i".

$\sum_W FR^{w}_{h,i}$ = The sum of **ISO**-produced forecast ramp down for **source assets** that contain wind **resources** "W" identified in subsection 5(2)(b) of Section 212.10 of the **ISO rules**, for **hour ending** "h" and **settlement interval** "i".

$\sum_S FR^{s}_{h,i}$ = The sum of **ISO**-produced forecast ramp down for **source assets** that contain solar **resources** "S" identified in subsection 5(2)(b) of Section 212.10 of the **ISO rules**, for **hour ending** "h" and **settlement interval** "i".

$FR^{l}_{h,i}$ = The **ISO**-produced forecast ramp up for **Alberta Internal Load** for **hour ending** "h" and **settlement interval** "i".

ε = A number that approaches 0 in value. This variable is used to avoid a denominator with a value of 0.

ISO Rules
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Section 216.2 Net Settlement Instruction

Applicability

1 Section 216.2 applies to:

(a) a **pool participant**; and

(b) the **ISO**.

Requirements

Net Settlement Instruction

2 The **ISO** must net out the **net settlement instruction** volumes against **metered energy** volumes when calculating any **power pool** settlement for **pool participants**, if 2 **pool participant** counterparties enter into a form of bilateral agreement, one acting as a buyer and the other acting as a seller, and complete all of the requirements under this Section 216.2 for electronically registering a **net settlement instruction** with the **ISO**.

Electronic Registration of Net Settlement Instruction

3(1) A **pool participant** may electronically register a **net settlement instruction** through **ISO**'s systems if the following criteria are satisfied:

(a) the counterparties to the **net settlement instruction** are registered and have digital certificates under Section 210.1 of the **ISO rules**, *Pool Participant Registration*;

(b) the initiating **pool participant** electronically submits the **net settlement instruction** to the **ISO** through **ISO**'s systems not less than 20 minutes before the beginning of the **hour ending** for which the **net settlement instruction** is to take effect;

(c) the **source asset** and **sink asset** are metered **pool assets**, or either the **source asset** or the **sink asset** is a metered **pool asset**;

(d) the submitted **net settlement instruction** information includes:

(i) the name of the **net settlement instruction**;

(ii) the name of the **pool participant** as seller;

(iii) the **source asset** the seller designates;

(iv) the name of the **pool participant** as buyer;

(v) the **sink asset** the buyer designates;

(vi) the MWh volume or percentage output of the **net settlement instruction**;

(vii) the commencement date and **hour ending** of the **net settlement instruction**; and

(viii) the expiry date and **settlement interval** of the **net settlement instruction**; and

(e) the **pool participant** counterparty accepts the **net settlement instruction** through the **ISO**'s systems not less than 20 minutes before the beginning of the **hour ending** in which the **net settlement instruction** is to take effect.

(2) The **ISO** may, subject to subsection 6, reject the electronic registration or de-registration of a **net settlement instruction** if it does not satisfy the criteria under this Section 216.2 for electronic registration or de-registration.

Request for De-registration of a Net Settlement Instruction

4(1) Either of the **pool participant** counterparties may request to de-register the **net settlement instruction** in subsection 3(1) by delivering a written request to the **ISO** which:

(a) the **ISO** receives:

(i) no less than 3 **business days** prior to the requested date for de-registration, if the **pool participant** counterparties currently have adequate **financial security** in place for their **financial obligations** post de-registration, or

(ii) no less than 15 **business days** prior to the requested date for de-registration, if the **pool participant** counterparties currently do not have adequate **financial security** in place for their **financial obligations** post de-registration; and

(b) includes the following information:

(i) a statement that the **net settlement instruction** is to be de-registered;

(ii) the **net settlement instruction** registration number;

(iii) the name of the **pool participant** as seller;

(iv) the designated **source asset**;

(v) the name of the **pool participant** as buyer;

(vi) the designated **sink asset**; and

(vii) the desired effective date and **hour(s) ending** for which the de-registration is to take effect.

(2) The **ISO** must de-register any **net settlement instruction** that is the subject of the request, on the effective date specified in the request, if the **ISO** receives a request that complies with the requirements of subsection 4(1).

(3) A **pool participant** must register a new **net settlement instruction** replacing the one requested for de-registration if the initiating **pool participant** submits a new **net settlement instruction** in accordance with this Section 216.2 and the non-initiating counterparty, through **ISO**'s systems, accepts the new **net settlement instruction**.

(4) The **ISO** must notify the non-requesting **pool participant** counterparty, no later than the close of business on the 1st **business day** after receiving the de-registration request under subsection 4(1), that the **net settlement instruction** is being de-registered in accordance with this subsection 4.

Mandatory De-registration of a Net Settlement Instruction

5(1) A **pool participant** must provide notice to the **ISO** to de-register a **net settlement instruction** if there is:

(a) a change in the registered **pool participant** for any **pool asset** that is the subject of the **net**

settlement instruction; or

(b) a voluntary termination of the registration of the **pool participant** under subsection 10 of Section 210.1 of the **ISO rules**, *Pool Participant Registration*.

(2) The **pool participant** must provide notice to the **ISO** of the de-registration of the **net settlement instruction** at least 3 **business days** in advance of an event referred to in subsection 5(1).

ISO Initiated De-registration

6 The **ISO** may, in addition to the right to suspend any **net settlement instruction** under Section 103.7 of the **ISO rules**, *Financial Default and Remedies*, de-register one or more **net settlement instructions** if:

(a) the **ISO** suspends or terminates the registration of the **pool participant** in accordance with subsection 9 of Section 210.1 of the **ISO rules**, *Pool Participant Registration*;

(b) a **pool participant** voluntarily terminates its registration in accordance with subsection 10 of Section 210.1 of the **ISO rules**, *Pool Participant Registration*; or

(c) a **pool participant** fails to de-register the **net settlement instruction** as required under subsection 5.

Coming into Effect

7 This Section 216.2 comes into effect in accordance with Section 103.15 of the **ISO rules**, *Restructured Energy Market Transition.*

Revision History

Date	Description
XXXX-XX-XX	Ministerial Approval.

REM ISO Rules
Consolidated Authoritative Document Glossary

The REM ISO rules include new and revised defined terms. This Definitions Document sets out those terms for addition or revision to the AESO *Consolidated Authoritative Document Glossary*[1]. Existing ISO rules definitions contained in the REM ISO rules that are not listed in this document have the meanings given to them in the existing AESO *Consolidated Authoritative Document Glossary*.

Term	Definition
"acceptable operational reason"	means: (i) any one or more of the following for a **pool asset**, that is not an import asset or export asset: (a) a circumstance related to the operation of a **pool asset** which, if it operated could reasonably be expected to affect the safety of the **pool asset**, the environment, personnel working at the **pool asset** or the public; (b) re-positioning a **pool asset**, within the **real-time market** due to the need to meet a **dispatch** given to that **pool asset** from the **ISO** to provide stand-by **operating reserve** or **fast frequency response service**; (c) re-positioning a **pool asset** within the **real-time market** to manage physical or operational constraints associated with the **pool asset**; (d) a circumstance directly resulting in the **pool asset** not being capable of operation, which circumstance was solely caused by an occurrence of **force majeure**; (e) re-positioning a **pool asset** for electric energy that is: A. produced on the property of which a **person** is the owner or a tenant; and B. consumed solely by that **person** and solely on that property; or (ii) re-positioning a **pool asset** that is an import asset or an export asset within the **real-time market** to manage physical or operational constraints associated with an **interconnection** or a neighbouring **balancing authority**.

[1] AESO, Consolidated Authoritative Document Glossary, Effective: October 28, 2025.

Term	Definition
“adjacent balancing authority”	means a **balancing authority area** that is interconnected with another **balancing authority area** either directly or via a multi-party agreement or transmission tariff.
"agent"	includes: (i) a representative of a **pool participant** duly appointed and authorized by the **pool participant** under Section 210.3 of the **ISO rules**, *Appointment of Agent* to act on behalf of and bind the **pool participant** with regard to transactions and other activities on the **ISO**’s systems, including the **ISO**’s Automated Dispatch and Messaging System; or (ii) a representative of a **market participant** or a **pool participant**, as the case may be, duly appointed and authorized to act on behalf of and bind that **person** with regard to other **ISO** activities, procedures and requirements, which such appointment is made under and in accordance with the applicable **ISO rules**, authorizations and procedures.
“Alberta load price”	means the price for energy for any **sink asset** that is **non-controllable** that is not receiving a **locational marginal price** for energy and is determined in accordance with subsection 9(2) of Section 214.2 of the **ISO rules**, *Dispatch and Pricing Algorithm*.
“allowable dispatch variance”	means: (i) for a **pool asset**, 5% of **maximum capability**, to a maximum of 10 MW and a minimum of 1 MW, unless designated by the **ISO** in accordance with subsection 7 of Section 215.2 of the **ISO rules**, *Delivery Requirements for Energy*; or (ii) for a **pool asset** that has been designated by the **ISO** in accordance with subsection 7 of Section 215.2 of the **ISO rules**, *Delivery Requirements for Energy*, 5% of **maximum capability**, to a maximum of 10 MW and a minimum of 5 MW.
“ancillary services”	as defined in the **Act** means those services necessary to support the transmission and supply of electricity while maintaining reliable operation of the **interconnected electric system**.
“anticipated supply cushion”	means the supply cushion as determined by the **ISO** in accordance with subsection 2 of Section 214.1 of the **ISO rules**, *Reliability Unit Commitment*.

Term	Definition
"congestion component"	means the component of a **locational marginal price** representing the marginal cost of congestion between a **pricing node** and the **reference bus.**
"contingency reserve"	means the component of **operating reserve** used to recover the area control error in accordance with **reliability standards**. It is an **ancillary service** that consists of **spinning reserve** and **supplemental reserve**.
"controllable"	means a **resource** or **pool asset** that is able to increase energy production or decrease energy consumption to meet a **dispatch** quantity or **directive** quantity under normal operating conditions in all solar or wind conditions.
"deliverability constraint"	means a delivery limitation of an **ancillary service** from one location to another.
"desired dispatch level"	means, for a **settlement interval**: (i) for a **pool asset** that is **controllable**, the MW level in the effective **dispatch**; (ii) for a **pool asset** that is **non-controllable**: (a) if the potential **real power** capability is less than the MW level in the effective **dispatch**, either: A. the potential **real power** capability, or B. the MW level in the effective **dispatch**; and (b) if the potential **real power** capability is greater than the MW level in the effective **dispatch**, the MW level in the effective **dispatch**; (iii) for a **pool asset** that is **partially-controllable**: (a) if dispatched within the **variable energy resource quantity**, the potential **real power** capability; or (b) if dispatched outside the **variable energy resource quantity**, the potential **real power** capability plus the effective **dispatch** minus the **variable energy resource quantity**.
"directive constraint"	means an operating constraint that applies to a **pool asset** to reflect a **directive** issued by the **ISO**.
"dispatch compliance range"	means, for a **pool asset** in a **settlement interval**, the range of MW levels between and including:

Term	Definition
	(i) the minimum **desired dispatch level** that exists within that **settlement interval**, the preceding **settlement interval**, and the following **settlement interval**, minus the **allowable dispatch variance** for that **pool asset**; and (ii) the maximum **desired dispatch level** that exists within that **settlement interval**, the preceding **settlement interval**, and the following **settlement interval**, plus the **allowable dispatch variance** for that **pool asset**.
"energy offer cap"	means: until 11:59:59 p.m. on March 31, 2032, $1,500 per MWh; and as of 12:00:00 a.m. on April 1, 2032, $2,000 per MWh.
"energy price floor"	means: until 11:59:59 p.m. on March 31, 2032, $0 per MWh; and as of 12:00:00 a.m. on April 1, 2032, -$100 per MWh.
"exchange"	as defined in the **Act** means: (i) to provide or receive electric energy or **ancillary services** by means of the **interconnected electric system**, or (ii) to enter into a financial transaction related to the purchase of, sale of or financial arrangements associated with electric energy or **ancillary services**.
"hh"	refers to a clock hour.
"hour ending or **HE"**	means the 60 minute period ending that hour. For example, **HE**:10 starts at 9:00:00 and ends 9:59:59.
"in merit"	means, for the **real-time market**, an **operating block** that is part of a schedule issued by the **real-time dispatch algorithm**.

Term	Definition
"initial start-up time"	means the time required for a **source asset** or **resource** to synchronize to the **interconnected electric system** from an offline state.
"interchange schedule"	means, for a given **hour ending**, the planned **interchange** of electricity between the **ISO** and an **adjacent balancing authority** which results from the validation and scheduling of **interchange transactions**.
"interconnection"	means the electrical connection of the **interconnected electric system** with any electric system in a jurisdiction bordering Alberta.
"ISO manual"	means a document that prescribes inputs or processes subject to Section 103.16 of the **ISO rules**, *ISO Manual Consultation Procedures*, applicable to a **market participant** or the **ISO** in accordance with the **ISO rules**
"ISO rules"	as defined in the **Act** means the rules made by the **ISO** under section 19 and 20 or the regulations, and includes the **REM ISO rules** established by the Minister under section 20.01.
"locational marginal price"	means the price for energy at a **pricing node** reflecting the marginal cost of energy at that **pricing node,** determined in accordance with subsection 9(1) of Section 214.2 of the **ISO rules**, *Dispatch and Pricing Algorithm*.
"long lead time asset"	means a **source asset** that contains a **long lead time resource**.
"long lead time resource"	means a **resource** within a **source asset**, excluding an import asset, that: (i) requires more than one hour to synchronize to the system under normal operating conditions when the **source asset** is not synchronized; or (ii) is a component of a **source asset** and requires more than one hour to deliver the additional MW from the component from an already synchronized **source asset**; and which is not delivering all of its energy for reasons other than an outage.

Term	Definition
"loss component"	means the component of a **locational marginal price** representing the marginal cost of system losses between a **pricing node** and the **reference bus**.
"marginal loss factor"	means a ratio representing the amount of system losses due to an injection of energy from a **pricing node** to the **reference bus**.
"market participant"	as defined in the **Act** means: (i) a **person** who supplies, generates, transmits, distributes, stores, discharges, trades, **exchanges**, purchases, or sells electricity or electricity services; or (ii) a broker, brokerage, forward exchange or other entity that trades, facilitates the trading of, or participates in an electricity market, but does not include the **ISO**.
"metering interval"	means: (i) for a transmission connected **source asset**: (a) until 11:59:59 p.m. on March 31, 2032, one of the following 15-minute periods: ME 1 to ME 15, ME 16 to ME 30, ME 31 to ME 45, ME 46 to ME 60 (where ME means **minute ending**); and (b) as of 12:00:00 a.m. on April 1, 2032, a **settlement interval**; (ii) for a transmission connected **sink asset**, and a **pool asset** that is an import or export asset: (a) until 11:59:59 p.m. on March 31, 2032, an **hour ending**; and (b) as of 12:00:00 a.m. on April 1, 2032, a **settlement interval**; and (iii) for all other **pool assets**, an **hour ending**.
"merit order"	means: (i) for energy, an order of **operating blocks** sorted by price; (ii) for standby **operating reserve**, a list of procured volumes sorted by price; or (iii) for **30-minute ramping reserve**, an order of volumes sorted by price, subject to **system security** constraints, operating constraints, and co-optimization requirements.

Term	Definition
"minute ending or **ME**"	means the 60 second period ending that minute. For example, **ME**:5 includes the time period beginning at **hh**:04:00 and ending at **hh**:04:59.
"mitigation period"	means the twelve calendar months running from April 1 to March 31.
"non-controllable"	means a **resource** or **pool asset** that is not able to increase energy production or decrease energy consumption to meet a **dispatch** quantity or **directive** quantity under normal operating conditions in all solar or wind conditions.
"net demand"	means **Alberta internal load**, less the electric energy injected from wind and solar **generating units**.
"offer"	means, in respect of a **pool asset** in an **hour ending**, a **pool participant** submission to sell: (i) electric energy and includes all of the **operating blocks** the **pool participant** uses for that submission; (ii) **30-minute ramping reserve** and includes the **price block** the **pool participant** uses for that submission; or other **ancillary services** to applicable Alberta markets.
"operating block"	means any one of the MW ranges, derived from price and quantity pairs, that the **ISO** allocates to a **pool asset** for an **hour ending** for the purposes of submitting **bids** and **offers**.
"operating reserve"	means the **real power** capability above system demand required to provide for regulation, **forced outages** and **unplanned outages**. It is an **ancillary service** that consists of **regulating reserve** and **contingency reserve**.
"operational deviation"	means a circumstance where a **pool asset**, excluding an import asset or export asset, varies outside its **allowable dispatch variance** due to **force majeure** or any other circumstances related to the operation of the **pool asset** which could reasonably be expected to affect the physical capability or **available capability** of the **pool asset**, or the safety of third party facilities, contracts or arrangements, the environment, personnel working at the **pool asset,** or the public.

Term	Definition
“partially-controllable”	means a **source asset** containing one or more **resources** that are **controllable** and one or more **resources** that are **non-controllable**.
“pool asset”	means either a **source asset** or a **sink asset** registered to a **pool participant** and identified by a single **pool ID**.
“pool ID”	means a unique identifier the **ISO** assigns to a **pool asset**.
“pool participant”	means a **market participant** listed in the **pool participant** list that is registered to **exchange** electric energy or **ancillary services**.
“power balance constraint”	means a power balance between **source assets** providing energy, **sink assets** consuming energy, net interchange, energy demand and losses on the **interconnected electric system,** used by the **real-time dispatch algorithm**.
“price block”	means the block the **ISO** allocates to a **pool asset** for an **hour ending** for the purposes of submitting an **offer** price.
“pricing node”	means a virtual location where a **locational marginal price** is determined for one or more **pool assets**.
“real-time dispatch algorithm”	means the algorithm used by the **ISO** to determine schedules and prices for energy and **30-minute ramping reserve**.
“real-time market”	as defined in the **Act** means a market operated by the **ISO** for the **exchange** of electric energy and certain **ancillary services**, as set out in the regulations or as otherwise required for system operations, to meet the operational needs of the **interconnected electric system**.
“reference bus”	means a virtual **pricing node** representing the load-weighted average of all **pricing nodes**.

Term	Definition
"reference bus price"	means the price of the last increment of energy at the **reference bus**, determined in accordance with subsection 9(3) of Section 214.2 of the **ISO rules**, *Dispatch and Pricing Algorithm*.
"reference generating unit"	means a hypothetical **generating unit** possessing the technical characteristics as determined by the **ISO** in accordance with Section 213.3 of the **ISO rules**, *Secondary Offer Cap.*
"reference level cost"	means the cost of providing energy by a **pool asset** as determined by the **reference level cost formula**.
"reference level cost formula"	means the formula that expresses the applicable eligible variable cost or, in the case of a hydroelectric **resource** or **energy storage resource**, opportunity cost of providing energy by a **pool asset**, as determined by the **ISO**, that is required for use in Section 214.5 of the **ISO rules**, *Local Market Power Mitigation* or Section 213.3 of the **ISO rules**, *Secondary Offer Cap*.
"REM ISO rules"	as defined in the **Act** means the rules established by the Minister under Section 20.01 of the **Act** for the operation of a **restructured energy market**.
"resource"	means a single device, component, or system of a **pool asset** that is capable of producing or consuming **real power** or **reactive power** in the **interconnected electric system**.
"restructured energy market"	as defined in the **Act** means the framework within which electricity markets operate, including the day-ahead market and the **real-time market**, as well as the procurement of **ancillary services** and the management of transmission constraints, whether through market-based or non-market mechanisms.
"R30 value of lost load"	means, for the **30-minute ramping reserve demand curve**, the dollar per MWh value representing the **reliability** value that load is willing to pay to avoid the **interruption** of electrical service.
"R30 value of lost operating reserve"	means, for the **30-minute ramping reserve demand curve**, the dollar per MWh value representing the **reliability** value that load is willing to pay to avoid a shortfall of **contingency reserve**.

Term	Definition
"settlement interval"	means any one of the following twelve (12) 5-minute periods in any **hour**: **ME**:01 to **ME**:05; **ME**:06 to **ME**:10; **ME**:11 to **ME**:15; **ME**:16 to **ME**:20; **ME**:21 to **ME**:25; **ME**:26 to **ME**:30; **ME**:31 to **ME**:35; **ME**:36 to **ME**:40; **ME**:41 to **ME**:55; **ME**:46 to **ME**:50; **ME**:51 to **ME**:55; **ME**:56 to **ME**:60.
"shift factor"	means a ratio of the change in the flow of energy through a **system operating limit** between a **pricing node** and the **reference bus**.
"system operating limit"	means, as determined by the **ISO**, the value expressed in MW, MVar, MVA, A, Hz or kV, that satisfies the most limiting of the following: (i) **facility ratings** (applicable **equipment ratings** or **facility ratings** pre- and post-**contingency**); (ii) transient stability limits (applicable transient stability limits pre- and post-**contingency**); (iii) voltage stability limits (applicable voltage stability limits pre- and post-**contingency**); and (iv) system voltage limits (applicable system voltage limits pre- and post-**contingency**), for a specified **interconnected electric system** configuration.
"system security"	means the safe scheduling, operation and control of the **interconnected electric system** in accordance with specified technical, security and operational standards to withstand events such as electric short circuits,

Term	Definition
	unanticipated loss of **interconnected electric system** components and switching operations without experiencing cascading loss of **interconnected electric system** components or uncontrolled loss of **load**.
"unit commitment directive"	means a **directive** issued by the **ISO** in accordance with Section 214.1 of the **ISO rules**, *Reliability Unit Commitment*.
"violation relaxation limit"	means a value limit, measured in dollars per MWh, that allows the **real-time dispatch algorithm** to clear the **real-time market** under an infeasible **dispatch** solution, by assigning a value to a constraint violation that varies based on the magnitude of a constraint violation.
"30-minute ramping reserve"	means an **ancillary service** that can be converted into energy within 30 minutes to meet both expected and unexpected increases in energy.
"30-minute ramping reserve demand curve"	means a series of price-quantity blocks that define the value of meeting a volume of **30-minute ramping reserve**.

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REM ISO Rules

ISO Rules to be Rescinded by the AESO

Section	ISO rule
103.3	Financial Security Requirements
103.4	Power Pool Financial Settlement
103.5	Net Settlement Instruction
103.6	ISO Fees and Charges
201.1	Pool Participant Registration
201.2	Appointment of Agent
201.3	Offer Control Information
201.4	Submission Methods and Coordination of Submissions
201.5	Block Allocation
201.6	Pricing
201.7	Dispatches
201.8	Requirements for the Balancing Pool
201.9	Requirements for a Generating Unit Subject to a Power Purchase Agreement
201.10	Automated Dispatch and Messaging System
202.2	Short-Term Adequacy and Supply Shortfall
202.3	Issuing Dispatches for Equal Prices
202.4	Managing Long Lead Time Assets
202.5	Supply Surplus
202.6	Adequacy of Supply

Section	ISO rule
202.7	Markets Suspension or Limited Markets Operations
203.1	Offers and Bids for Energy
203.2	Issuing Dispatches for Energy
203.3	Energy Restatements
203.4	Delivery Requirements for Energy
203.5	Consumption Requirements for Bids
203.6	Available Transfer Capability and Transfer Path Management
204.1	Offers for the Dispatch Down Services
204.2	Issuing Dispatches for Dispatch Down Services
204.3	Dispatch Down Service Restatements
205.1	Offers for Operating Reserve
205.2	Issuing Dispatches and Directives for Operating Reserve
205.3	Restatements for Operating Reserve
205.4	Regulating Reserve Technical Requirements and Performance Standards
205.5	Spinning Reserve Technical Requirements and Performance Standards
205.6	Supplemental Reserve Technical Requirements and Performance Standards
205.8	Transmission Must Run
205.9	Fast Frequency Response
205.10	Dispatches for Concurrent Services
206.1	Interim Secondary Offer Cap
206.2	Interim Supply Cushion Directives
302.1	Real Time Transmission Constraint Management
501.10	Transmission Loss Factors

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REM ISO Rules

Consolidated Authoritative Document Glossary Terms to be Rescinded by the AESO

Term	Definition
"10 minute clock period"	means any one of the following six (6) ten (10) minute periods in any hour: ME:01 to ME:10; ME:11 to ME:20; ME21 to ME30; ME31 to ME40; ME:41 to ME50; ME51 to ME60 where "ME" means minute ending.
	[Rules (2009-09-01)]
"constraint effective factor"	means a ratio, based on the results of load flow studies conducted by the **ISO**, of the change in the flow of electric energy through a **transmission constraint** to a change in energy production, energy consumption or an electric energy flow across an **interconnection**.
	[Rules (2011-05-05)]
"dispatch down service"	means a service which: (i) a **pool participant** elects to provide via an **offer**; and (ii) requires reducing energy production from a **source asset** in response to a **dispatch**.
	[Rules (2013-01-08)]
"downstream constraint side"	means, in relation to the transmission elements that comprise the **transmission constraint**, those elements of the **interconnected electric system** more proximate to the load or consumption side of the **transmission constraint** than to the supply side of the **transmission constraint**.
	[Rules (2011-05-05)]
“eligible long lead time asset”	as defined in the Supply Cushion Regulation, Alberta Regulation 42/2024, means a **source asset** that requires more than one hour to synchronize to the **interconnected electric system**.
	[Rules (2024-06-21)]
“emissions costs”	as defined in the Supply Cushion Regulation, Alberta Regulation 42/2024, means the amount that a **pool participant** for an **eligible long lead time asset** pays in respect of the costs of complying with (i) section 12(3) of the *Technology Innovation and Emissions Reduction Regulation Alberta Regulation* 133/2019 and (ii) any similar obligation under an enactment governing greenhouse gas emissions in Alberta.
	[Rules (2024-06-21)]

"generating asset steady state"	means the state of operation that begins the first **10 minute clock period** following the period in which the electricity production of a **source asset**, excluding an import asset, has reached the **allowable dispatch variance** for the **source asset**.
	[Rules (2024-04-01)]
"loss factor"	means the value, in percent, which reasonably represents the contribution to **transmission system** losses, based on location, of a **generating unit**, **energy storage resource,** export service, import service, or other opportunity service, and which the **ISO** establishes in accordance with Section 501.10 of the **ISO rules**, *Transmission Loss Factors*.
	[Rules (2024-04-01)]
“point of delivery”	means the point at which electricity is transferred from **transmission facilities** to facilities owned by a **market participant** receiving **system access service** under the **ISO tariff**, including an **electric distribution system**.
	[Rules (2010-04-30)]
"pool price"	as defined in the **Act** means the price for each hour, in $/MWh, established and reported by the **ISO**, in accordance with the **ISO rules**, for electric energy exchanged through the **power pool**.
	[Rules 2013-01-08)]
“power pool”	as defined in the **Act** means the scheme operated by the **ISO** for (i) exchanges of electric energy, and (ii) financial settlement for the exchange of electric energy.
	[Rules (2009-12-16)]
“super peak”	means the periods: (i) in the morning, from 05:00:00 to 07:59:59; (ii) in November, December and January, in the evening, from 16:00:00 to 23:59:59; and (iii) in all other months, in the evening, from 17:00:00 to 23:59:59.
	[Rules (2014-12-23)]
“supply cushion threshold”	as defined in the *Supply Cushion Regulation, Alberta Regulation* 42/2024, means the target supply cushion of 932 MW.
	[Rules (2024-07-01)]
"transmission constraint"	means a limitation imposed by one (1) or more transmission elements to normal economic merit operation of generation, load and interchange transactions or to the flow of electrical energy from one part of the interconnected electric system to the other.
	[Rules (2015-11-26)]
“transmission constraint rebalancing”	means the delivery of energy from a **pool asset** on the **downstream constraint side** of a **transmission constraint** in response to that portion of an energy market **dispatch** it receives to restore the energy balance on the **interconnected electric system** due to measures taken to mitigate a **transmission constraint**.
	[Rules (2015-11-26)]
"transmission system losses"	means, for each year, the total of the **transmission system losses** on **the interconnected electric system**.
	[Rules (2005-05-25)]
"upstream constraint side"	means, in relation to the transmission elements that comprise the **transmission constraint**, those elements of the **interconnected electric system** more proximate to the supply side of the **transmission constraint** than to the load or consumption side of the **transmission constraint**.
	[Rules (2011-05-05)]