

ISO Rules

Part 200 Markets

Division 205 Ancillary Services

Section 205.5 Spinning Reserve Technical Requirements and Performance Standards



Applicability

- 1 Section 205.5 applies to:
 - (a) a **pool participant**; and
 - (b) the **ISO**,

in relation to qualifying for, providing and utilizing **spinning reserve**.

Requirements

General

- 2 A **pool participant** that provides or anticipates providing **spinning reserve** must satisfy the technical requirements set out in this section 205.5 and must continue to satisfy such technical requirements while providing **spinning reserve**.

Minimum Requirements

- 3(1) A **pool participant** must ensure that each **generating unit** or load is capable of providing a minimum of ten (10) MW of **spinning reserve**.

- (2) A **pool participant** must ensure that each **generating unit** or load is capable of providing the amount of **real power** the **ISO** qualifies the **generating unit** or load to provide under subsection 4(1) for the period from ten (10) minutes after receiving a **directive** to provide **spinning reserve** to sixty (60) minutes after receiving a **directive** to provide **spinning reserve**.

- (3) A **pool participant** must ensure that each **generating unit** or load is equipped with a **governor system** that:

- (a) is responsive to both over frequency and under frequency events;
- (b) has a total deadband of equal to or less than zero point zero three six (0.036) Hertz;
- (c) has a droop setting equal to or greater than three percent (3%) but less than or equal to five percent (5%) based on:
 - (i) the maximum operating range of each **generating unit** providing **spinning reserve**; or
 - (ii) the total **real power** capacity of each load providing **spinning reserve**;
- (d) has no intentional time delays added to the control system;
- (e) has a sample rate of at least thirty (30) samples per second;
- (f) has a resolution of at least zero point zero zero four (0.004) Hertz; and
- (g) while the **pool asset** is under a **dispatch** or **directive** to provide **spinning reserve** is:
 - (i) in service at all times; and
 - (ii) without load limiters or other control systems that override or interfere with the **governor system**; and
 - (iii) for **pool assets** providing both **spinning reserve** and **regulating reserve**, the **automatic generator control** signal must not override the frequency response of the **governor system**.

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(4) A **pool participant** must ensure that any **pool asset** providing **spinning reserve** complies with subsections 3(1), (2) and (3) as measured at the:

- (a) stator winding terminals of each qualified **generating unit**; or
- (b) the circuit breaker or disconnection device that is electrically closest to each qualified load.

(5) The requirements set out in subsections 3(3)(e) and (f) do not apply to a **pool participant** that provides **spinning reserve** with a **generating unit** that is equipped with an analog **governor system**, as of December 23, 2014, until such time as the **governor system** is replaced.

(6) A **pool participant** must ensure that, for the applicable minimum time period set out in Appendix 1, each **generating unit** or load providing **spinning reserve** will not trip as a result of under-frequency or over-frequency deviations when its **pool asset** is under a **dispatch** or a **directive** to provide **spinning reserve**.

Qualification of a Generating Unit or a Load

4(1) The **ISO** must, prior to any **generating unit** or load providing **spinning reserve**, assess the eligibility of each **generating unit** or load and determine the **real power** in MW it is qualified to provide.

(2) The **ISO** must, in determining the **real power** quantity each **generating unit** or load is qualified to provide, consider the following:

- (a) whether the **generating unit** or load participates in a **remedial action scheme**;
- (b) the total **operating reserve** that could be lost during a single **contingency**; and
- (c) the maximum **real power** capability and minimum **real power** capability of each **generating unit** or load.

(3) The **ISO** must advise a **pool participant** of the eligibility of each **generating unit** or load within sixty (60) **days** of the **ISO** receiving an application for **spinning reserve**.

Application to Provide Spinning Reserve

5 A **pool participant** may apply to provide **spinning reserve** by completing and providing to the **ISO** the documents the **ISO** specifies and posts on the AESO website.

Performance Requirements to a Dispatch

6(1) A pool participant will not be paid for spinning reserve unless the **pool participant** ensures that:

- (a) upon receipt of a **dispatch** to provide **spinning reserve**, if the time stated in the **dispatch** for the **pool asset** to be in a position to provide the **real power** quantity indicated in the **dispatch** is:
 - (i) more than fifteen (15) minutes from the time the **pool participant** receives the **dispatch**, the **pool asset** is in position at the time stated in the **dispatch**; or
 - (ii) fifteen (15) minutes or less from the time the **pool participant** receives the **dispatch**, the **pool asset** is in position at the time stated in the **dispatch** or as soon as possible thereafter but in any event, not more than fifteen (15) minutes after receiving the **dispatch**; and

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(b) the **pool asset** maintains the ability to provide the **real power** quantity corresponding to the **dispatch** quantity, as measured in accordance with subsection 3(4):

(i) by the times set out in subsections 6(1)(a)(i) and (ii); and

(ii) within a tolerance of minus:

(A) one (1) MW for a **dispatch** of less than or equal to twenty (20) MW; or

(B) five percent (5%) for a **dispatch** greater than twenty (20) MW;

for as long as the **dispatch** is in effect.

(2) A **pool participant** must ensure that the **pool asset** remains connected to the **interconnected electric system** and be frequency responsive, as described in subsection 3(3), while under a **dispatch** to provide **spinning reserve**.

Performance Requirements to a Directive

7(1) A **pool participant** must, within ten (10) minutes after receiving a **directive** to provide **spinning reserve**, ensure that the **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** plus the amount of **real power** set out in the **directive**, as measured in accordance with subsection 3(4).

(2) A **pool participant** must ensure that, from the first time the **pool asset** achieves the quantity of **real power** set out in subsection 7(1) to fifteen (15) minutes after the time of the **directive**, the average quantity of **real power** provided by the **pool asset** is equal to or more than the quantity set out in subsection 7(1), as measured in accordance with subsection 3(4).

(3) A **pool participant** must ensure that, for each consecutive ten (10) minute interval starting fifteen (15) minutes following the receipt of a **directive**, the average **real power** from the **pool asset** equals the quantity set out in subsection 7(1), as measured in accordance with subsection 3(4), within a tolerance of:

(a) five (5) MW for a load **pool asset** or a generating **pool asset** with a **maximum capability** of two hundred (200) MW or less; or

(b) ten (10) MW for a load **pool asset** or a generating **pool asset** with a **maximum capability** of greater than two hundred (200) MW.

(4) Notwithstanding subsection 3(2), a **pool participant** must ensure the **pool asset** continues to provide the average **real power** set out in subsection 7(3) for as long as the **directive** is in effect.

(5) A **pool participant** must ensure that the **pool asset** remains connected to the **interconnected electric system** and remains frequency responsive, as described in subsection 3(3), while under a **directive** to provide **spinning reserve**.

(6) Notwithstanding subsections 7(1) through 7(4), a **pool participant** following the receipt of a **directive** for **spinning reserve** to zero (0) MW must as soon as possible, and, in any event, not more than fifteen (15) minutes after receiving the **directive** to zero (0) MW:

(a) ensure the generating **pool asset** is within the **allowable dispatch variance** of its current energy **dispatch**; or

(b) ensure the load **pool asset** is in position to provide the **real power** quantity indicated in its current **dispatch** for **spinning reserve**.

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Test Requirements

- 8** The **ISO** may request that a **pool participant** test its **pool asset's** responses to **dispatches** and **directives**:
- (a) prior to allowing the **pool asset** to provide **spinning reserve**; or
 - (b) if the **ISO** provides evidence that the **spinning reserve** exhibits behaviour that is inconsistent with the requirements of this section 205.5.

Maintaining Eligibility

9(1) The **ISO** may, if a **pool participant** refuses to comply with:

- (a) a testing request pursuant to subsection 8;
- (b) any other provision of this section 205.5; or
- (c) any other section of the **ISO rules** that affects the provision of **spinning reserve**;

provide notice to the **pool participant** that it cannot participate in the **spinning reserve** market until the **pool participant** is compliant with this section 205.5 and all other **ISO rules** that affect the provision of **spinning reserve**.

(2) A **pool participant** that has received a notice pursuant to subsection 9(1) must not submit an **offer** for **spinning reserve** until the **ISO** confirms that the **pool participant** is compliant with this section 205.5 and all other **ISO rules** that affect the provision of **spinning reserve**.

Appendices

Appendix 1 – *Frequency Ranges*

Revision History

Date	Description
2014-12-23	Initial release
2015-03-27	Replaced “effective date” within the initial release date in section 3(5); and replaced the word “Effective” in the Revision History to “Date”.

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Appendix 1

Frequency Ranges

High Frequency Duration		Low Frequency Duration	
Frequency (Hz)	Time (Sec)	Frequency (Hz)	Time (sec)
≥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