

ISO Rules

Part 500 Facilities

Division 502 Technical Requirements

Section 502.17 Voice Communication System Requirements



Applicability

1 Section 502.17 applies to:

(a) the following **electricity market participants**:

- (i) the **operator** of a **generating unit** with a **maximum authorized real power** of 5 MW or greater; (ii) the **operator** of an **aggregated generating facility** with an aggregated **maximum authorized real power** of 5 MW or greater;
- (iii) the **operator** of a **transmission facility**;
- (iv) the **operator** of an **electric distribution system**; and
- (i) a **pool participant**; and

(b) the **ISO**.

Variations Required for Safe and Reliable Operation

2(1) The **ISO** may require a **market participant** to comply with any additional requirements of this section 502.17 if the **ISO** determines that such compliance is necessary for the safe and reliable operation of the **interconnected electric system**.

(2) The **ISO** must, if it identifies a situation contemplated by subsection 2(1), notify the affected **market participant** in writing and, after discussion with the **market participant**, confirm an appropriate effective date for compliance.

Extended Time to Comply

3(1) The **ISO** and the **operator** of a **transmission facility** may, notwithstanding subsections 5(1), 6(1), 6(6) and 6(7), take up to **9 months** from the effective date of this section 502.17 to fully implement any required utility orderwire system.

(2) The **operator** of a **generating unit** and the **operator** of an **aggregated generating facility** may, in the case of facilities operating as of the effective date of this section 502.17 and notwithstanding subsections 5(1) and 6(1), take up to **15 months** from the effective date of this section 502.17 to fully implement any required utility orderwire system.

(3) The **operator** of a **generating unit** and the **operator** of an **aggregated generating facility** may, in the case of existing facilities with a primary and backup voice communication system having a single point of failure and notwithstanding subsections 5(4) and 6(3), take up to **9 months** from the effective date of this section 502.17 to fully implement any required changes to address the single point of failure.

(4) The **operator** of a **generating unit** and the **operator** of an **aggregated generating facility** may, in the case of

- (a) facilities not yet operating as of the effective date of this section 502.17; or
- (b) existing facilities with a primary and backup voice communication system having a single point of failure;

submit a request to the **ISO** for approval to extend the time allowed to fully implement any required changes to their voice communication systems, including the reasons for the requested extension.

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(5) The **ISO** must make a decision on its approval and notify the **operator** of a **generating unit** or **operator** of an **aggregated generating facility** in writing of the decision no later than **90 days** after the date of receiving the submission set out in subsection 3(4).

(6) A **market participant** that takes additional time as permitted under the provisions of any of subsections 3(1), 3(2), 3(3) and 3(4), must remain in compliance with the previously applicable **ISO rules** governing required utility orderwire system or other required changes to address the single point of failure until the **market participant** is compliant with this section 502.17.

Requirements for Primary and Backup Voice Communication System for the ISO

4(1) The **ISO** must have primary and backup voice communication systems at its coordination centre and other back up locations to exchange communications with the control rooms or **control centres** of:

- (a) each adjacent interconnected transmission **operator** directly connected to Alberta;
- (b) each adjacent **balancing authority** directly connected to Alberta; and
- (c) each adjacent **reliability coordinator** within the Western **Interconnection**.

(2) The **ISO** must have the primary and back up communication systems in its coordination centre and other back up locations to exchange communications with the control rooms or **control centres** of any **market participant** that is required to comply with the provisions of this section 502.17.

(3) The **ISO** must have primary and backup voice communication systems between its coordination centre and back up locations.

(4) The **ISO** must have personnel available for all hours of the **day**, **7 days** a week, to receive and respond to any voice communication regarding a real-time system emergency condition via the communication systems identified in section 502.17.

Requirements for Primary and Backup Voice Communication Systems with the ISO

5(1) A **market participant** must have the primary voice communication system and, where identified, one of the backup voice communication systems at each of their control rooms and **control centres** to the **ISO** coordination centre and other back up locations as required by *Table 1 - Requirements for Primary and Backup Voice Communications Systems with the ISO* in Appendix 1.

(2) A **market participant** whose **control centre** is located outside of Alberta may, notwithstanding any other provision of this section 502.17, use an alternative backup communication system if it receives written approval from the **ISO**.

(3) A **market participant** that has a primary communication system with the **ISO** must ensure that the primary voice communication system is:

- (a) a commercial service with direct access telephone connection;
- (b) not degraded by any other communication or data transfer activities if there is any shared equipment or functionality associated with the connection;
- (c) automatically forwarded to another number if the primary number is busy; and
- (d) prohibited from using voicemail.

(4) Each **market participant** listed in *Table 1 - Requirements for Primary and Backup Voice Communications Systems* in Appendix 1 must ensure that its backup voice communication system with

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the **ISO** is an independent or redundant system with no common single point of failure with the primary voice communication system.

(5) A **market participant** may, notwithstanding any other provision of this section 502.17, use the same voice communication system for its primary and backup communication systems with the **ISO** if no other backup option is feasible and the **ISO** agrees in writing.

(6) A **market participant** must, where its backup voice communication system is a satellite network telephone, use the same satellite network system the **ISO** uses.

(7) A **market participant** must, where its backup voice communication system is a utility orderwire system, use telecommunication infrastructure the **market participant** and **legal owners of transmission facilities** each operate, and not depend on the commercial telecommunications system.

(8) Each **operator** of a **transmission facility**, each **operator** of an **aggregated generating facility** and each **operator** of a **generating unit** must have personnel available for all hours of the **day**, **7 days** a week, to receive and respond to any voice communication regarding a real-time system emergency condition via the communication systems identified in section 502.17.

Requirements for Primary and Backup Voice Communication Systems between Market Participants

6(1) A **market participant** must have the primary voice communication system and, where identified, one of the backup voice communication systems from their control rooms and **control centres** to the other **market participants** as required by *Table 2 - Requirements for Primary and Backup Voice Communications Systems between Market Participants* of Appendix 2.

(2) A **market participant** whose control centre is located outside of Alberta may, notwithstanding any other provision of this section 502.17, may use an alternative backup communication system if it receives written approval from the **ISO**.

(3) Each **market participant** listed in *Table 2 - Requirements for Primary and Backup Voice Communications Systems between Market Participants* in Appendix 2 must ensure that its backup voice communication system with any other **market participant** is an independent or redundant system with no common single point of failure with the primary voice communication system, and:

- (a) where the backup voice communication system is a satellite network telephone, it must use the same satellite network system between **market participants**; and
- (b) where the backup voice communication system is a utility orderwire system, it must use telecommunication infrastructure the **market participant** and the **legal owners** of the **transmission facility** operate, and not depend on the commercial telecommunications system.

(4) A **market participant** may, notwithstanding any other provision of this section 502.17, use the same voice communication system for its primary and backup communication systems with other **market participants** if no other backup option is feasible and the **ISO** agrees in writing.

(5) Each **operator** of a **transmission facility** that is required to have the primary communication system and one of the backup communication systems identified in *Table 2 - Requirements for Primary and Backup Voice Communications Systems between Market Participants* in Appendix 2, must have such communications with each of the following entities:

- (a) the **operator** of an **electric distribution system** with which it is directly connected to;
- (b) the **operator** of a **generating unit** and the **operator** of an **aggregated generating facility** with which it is directly connected;

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- (c) each adjacent **operator** of a **transmission facility**; and
- (d) each adjacent **interconnected transmission operator** that is directly connected to Alberta.

(6) Each **operator** of an **electric distribution system** that is required to have the primary voice communication system and one of the backup communication systems identified in *Table 2 - Requirements for Primary and Backup Voice Communications Systems between Market Participants* in Appendix 2, must have such communications with any directly connected **operator** of a **transmission facility** and directly connected **operator** of an **electric distribution system**.

(7) Each **operator** of a **generator unit** and **operator** of an **aggregated generating facility** that is required to have the primary voice communication system and one of the backup communication systems identified in *Table 2 - Requirements for Primary and Backup Voice Communications Systems between Market Participants* in Appendix 2, must have such communications with any directly connected **operator** of a **transmission facility** or **operator** of an **electric distribution system**.

Requirements for Internal Communication Capabilities

7(1) Each of the **operator** of a **transmission facility** and **operator** of an **electric distribution system** must have field voice communication systems between their **control centres** and their field personnel which remain operational for a minimum of 8 hours in the event of an extended power outage affecting its facilities.

(2) A **market participant** that has multiple control rooms or control centres that control the same facility, must ensure that voice communication systems exist between those control rooms or control centres.

Performance and Maintenance of Primary and Backup Voice Communication Systems

8(1) A **market participant** required to have primary and backup voice communication systems must ensure that all of its primary and backup voice communication systems are maintained in accordance with **good electric industry practice**.

(2) Each **operator** of a **generating unit** and **operator** of an **aggregated generating facility** required to have primary voice communication systems must ensure that its primary voice communication systems meet the availability requirements in the following table based on their **maximum authorized real power**.

Maximum Authorized Real Power	Minimum Availability
<50MW	95%
>=50MW and <300MW	97%
>=300MW	98%

(3) The **ISO** and each **operator** of a **transmission facility**, except those who only operate radial **transmission system** equipment, with a **control centre** required to have primary voice communication systems must ensure that its primary voice communication systems have availability greater or equal to 99%.

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(4) Each **operator** of an **electric distribution system** who contributes load additions for **black start capability**, with a **control centre** required to have primary voice communication systems must ensure that its primary voice communication systems have availability greater or equal to 97%.

(5) Each **operator** of a **generating unit** and **operator** of an **aggregated generating facility** required to have backup voice communication systems must ensure that its backup voice communication systems meet the availability requirements in the following table based on their **maximum authorized real power**.

Maximum Authorized Real Power	Minimum Availability
<50MW	95%
>=50MW and <300MW	99%
>=300MW	99.5%

(6) The **ISO** and each **operator** of a **transmission facility**, except those who only operate radial **transmission system** equipment, with a **control centre** required to have backup voice communication systems must ensure that its backup voice communication systems have availability greater or equal to 99.5%.

(7) Each **operator** of an **electric distribution system** who contributes load additions for **black start capability**, with a **control centre** required to have backup voice communication systems must ensure that its backup voice communication systems have availability greater or equal to 99%.

(8) Each **market participant** may, notwithstanding subsections 8(2), 8(3), 8(4), 8(5), 8(6), and 8(7), have a temporary lower availability for its primary or backup voice communication system if the **ISO** agrees in writing to a revised availability based on a plan to repair, in appropriate extenuating circumstances.

Extended Power Outage

9(1) Each **market participant** required to have a backup communication system that is an:

- (a) **operator** of a **generating unit** greater than or equal to 50 MW, or
- (b) **operator** of an **aggregated generating facility** greater than or equal to 50,

must ensure that its backup voice communication equipment located within its facilities remains operational for a minimum of 36 hours in the event of an extended power outage to its facilities.

(2) Each **market participant** required to have a backup communication system that is an:

- (a) **operator** of a **transmission facility** with a centralized **control centre**, or
- (b) **operator** of an **electric distribution system** with a centralized **control centre**,

must ensure that its backup voice communication equipment remains operational for a minimum of 72 hours in the event of an extended power outage to its facilities.

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Loss of Primary Voice Communication Systems

10(1) The **ISO** must, within 60 minutes of the detection of a failure of its primary voice communication system that lasts 30 minutes or longer, notify the entities that it is required to have backup communications with of such failure.

(2) A **market participant** that is required to have backup communication systems must, within 60 minutes of the detection of a failure of its primary voice communication system that lasts 30 minutes or longer, notify the **ISO** and the entities with which it has backup communication systems of such failure.

(3) A **market participant** that does not have backup communication systems must initiate or coordinate action to determine a mutually agreeable action for the restoration of its voice communication systems capability with:

- (a) the **ISO**; and
- (b) each **operator** of a **transmission facility** to which it is directly connected to that may be affected by a failure.

Loss of Back Up Communication Systems

11 Each of the **ISO** and a **market participant** must, if any of their required backup communication systems experience a material disruption or complete failure outside a test period, initiate or coordinate action to repair, or designate a replacement backup communication system, within 2 hours after becoming aware of the disruption or loss of the backup communication system.

Testing of Back Up Communication Systems

12(1) Each of the **ISO** and a **market participant** with a backup voice communication system must test its backup voice communication systems at least once each **month** to verify successful two-way voice communication.

(2) Each of the **ISO** and a **market participant** must, if the monthly test conducted pursuant to subsection 12(1) is unsuccessful, initiate or coordinate action to repair, or designate a replacement back up communication system, within 2 hours of the unsuccessful test.

Appendices

Appendix 1 – *Table 1 - Requirements for Primary and Backup Voice Communications Systems with the ISO*

Appendix 2 - *Table 2 - Requirements for Primary and Backup Voice Communications Systems between Market Participants*

Revision History

Date	Description
xxxx-xx-xx	Initial release

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Appendix 1

Table 1 - Requirements for Primary and Backup Voice Communications Systems with the ISO

<u>Market Participant Subcategory</u>	<u>Primary and Backup Requirements</u>
1. (Pool) A pool participant who may receive an energy market dispatch or a directive.	Primary – P Backup – none
2. (Ancillary) A pool participant who may receive a dispatch for ancillary services or a directive.	Primary – P Backup - OW SAT BKD
3. (DER) The operator of a generating unit or aggregated generating facilities connecting to the interconnected electric system or to facilities within the City of Medicine Hat at a nominal voltage of less than 69kV.	Primary – P Backup - none
4. (<50MW) The operator of a generating unit or aggregated generating facilities connecting to the transmission system or to transmission facilities within the City of Medicine Hat where the aggregated maximum authorized real power is less than 50 MW.	Primary – P Backup - BKD OW
5. (<300MW) The operator of a generating unit or aggregated generating facilities connecting to the transmission system or to transmission facilities within the City of Medicine Hat where the aggregated maximum authorized real power is equal to or greater than 50MW and less than 300MW.	Primary – PC Backup - SAT OW
6. (>=300MW) The operator of a generating unit or aggregated generating facilities connecting to the transmission system or to transmission facilities within the City of Medicine Hat where the aggregated maximum authorized real power is equal to or greater than 300 MW.	Primary – PC Backup - OW
7. (blackstart) The operator of a generating unit providing a black start capability service.	Primary – PC Backup - OW
8. (TFO) The operator of a transmission facility, except those who only operate radial transmission system equipment.	Primary – PC Backup - OW
9. (Radial) The operator of a transmission facility operating only radial transmission system equipment.	Primary – PC Backup - OW SAT BKD
10. (DFO) The operator of an electric distribution system, except those who contributes load additions for black start capability process requirements.	Primary – P Backup - none
11. (DFO blackstart) The operator of an electric distribution system who contributes load additions for black start capability process requirements.	Primary – P Backup - OW SAT BKD

The defined primary and, if specified, one of the backup options is required as per section 4(1).

Legend

PC = A commercial service with a primary direct access telephone connection from each control room and control centre, with the telephone having mute and conference call capabilities

P = A commercial service with primary direct access telephone connection from each control room and control centre.

OW = A utility orderwire service from the control room.

SAT = A satellite network telephone service from the control room.

BKD = A backup direct access telephone connection from the control room.

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Appendix 2

Table 2 - Requirements for Primary and Backup Voice Communications Systems between Market Participants

<u>Market Participant Subcategory</u>	<u>4. (<50MW)</u>	<u>5. (<300MW)</u>	<u>6. (>=300MW)</u>	<u>7. (blackstart)</u>	<u>8. (TFO)</u>	<u>9. (Radial)</u>	<u>10. (DFO)</u>	<u>11. (DFO blackstart)</u>
4. (<50MW) The operator of a generating unit or aggregated generating facilities connecting to the transmission system or to transmission facilities within the City of Medicine Hat where the aggregated maximum authorized real power is less than 50 MW.					P / BKD OW	P / BKD OW		
5. (<300MW) The operator of a generating unit or aggregated generating facilities connecting to the transmission system or to transmission facilities within the City of Medicine Hat where the aggregated maximum authorized real power is equal to or greater than 50MW and less than 300MW.					PC / OW SAT	PC / OW SAT		
6. (>=300MW) The operator of a generating unit or aggregated generating facilities connecting to the transmission system or to transmission facilities within the City of Medicine Hat where the aggregated maximum authorized real power is equal to or greater than 300 MW.					PC / OW	PC / OW		
7. (blackstart) The operator of a generating unit providing a black start capability service.					PC / OW	PC / OW		
8. (TFO) The operator of a transmission facility, except those who only operate radial transmission system equipment.	P / BKD OW	PC / OW SAT	PC / OW	PC / OW	PC / OW	PC / OW SAT BKD	P / OW SAT	P / OW SAT
9. (Radial) The operator of a transmission facility operating only radial transmission system equipment.	P / BKD OW	PC / OW SAT	PC / OW	PC / OW	PC / OW SAT BKD	PC / OW SAT BKD	P	P / OW SAT
10. (DFO) The operator of an electric distribution system, except those who contributes load additions for black start capability process requirements.					P / OW SAT	P	P	P
11. (DFO blackstart) The operator of an electric distribution system who contributes load additions for black start capability process requirements.					P / OW SAT	P	P	

As per section 4(1) the defined primary and one of the backup options, if specified, is required. As per sections 5(4), 5(5), and 5(6) the requirements apply to adjacent and directly connected market participants.

Legend

PC = A commercial service with a primary direct access telephone connection from the control room, with the telephone having mute and conference call capabilities.

P = A commercial service with primary direct access telephone connection from the control room.

OW = A utility orderwire service from the control room.

SAT = A satellite network telephone service from the control room.

BKD = A backup direct access telephone connection from the control room.