

~~Alberta Reliability Standard~~  
~~Telecommunications~~  
~~COM-001-AB1-1.1~~

**1. ~~1.~~ Purpose**

The purpose of this **reliability standard** is to ~~ensure the ISO and each operator of a transmission facility have adequate and reliable~~ establish voice and message telecommunication facilities internally and with others for the exchange of ~~interconnection and operating information necessary~~ communication capabilities necessary to maintain ~~reliability, the reliable operation of the interconnected electric system.~~

**2. ~~2.~~ Applicability**

This **reliability standard** applies to ~~the following~~:

~~(a) (a)~~ — the **operator of a transmission facility**;

the **operator** of a **transmission facility** that is:

~~(i)~~ part of the **bulk electric system**; or

~~(ii)~~ not part of the **bulk** **electric distribution system** but which ~~that~~ is directly connected to the **ISO**;

~~(a)(b)~~ determines is necessary for the reliable operation of either the **interconnected electric transmission system** or **to transmission facilities within** the City of Medicine Hat electric system; and;

~~(A)~~ publishes on the AESO website and may amend from time to time in accordance with the process set out in Appendix 1; and

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~~(c)~~ ~~(b)~~ — the **operator** of a **generating unit** that is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat and has a **maximum authorized real power** greater than or equal to 5 MW;

~~(d)~~ the **operator** of an **aggregated generating facility** that is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat and has a **maximum authorized real power** greater than or equal to 5 MW; and

~~(b)~~(e) the **ISO**.

3. — For the purpose of the requirements contained herein, the above list of entities will be collectively referred to as “Responsible Entities”. For requirements in this **reliability standard** where a specific entity or subset of entities are the applicable entity or entities, the entity or entities are specified explicitly.

### 3. Requirements

**R1** The **ISO** must, as it determines to be necessary to maintain reliability, provide adequate, reliable, and, where applicable, diverse and redundant ~~have primary voice and message telecommunication facilities for the exchange of interconnection and internal Alberta operating information~~ communication capability to communicate with the following entities, unless the ISO detects a failure of its primary voice communication capability, in which case requirement R10 applies:

(a) ~~(a)~~ — each **operator** of a **transmission facility**;

~~(b)~~ ~~(b)~~ — each **operator** of an **electric distribution system** that is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat;

~~(c)~~ each **operator** of a **generating unit** that is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat and has a **maximum authorized real power** greater than or equal to 5 MW;

~~(d)~~ each **operator** of an **aggregated generating facility** that is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat and has a **maximum authorized real power** greater than or equal to 5 MW;

~~(e)~~ each adjacent **reliability coordinator** within the **WECC**; and

~~(f)~~ each adjacent **interconnected transmission operator** directly connected to Alberta.

**R2** The **ISO** must designate a backup voice communication capability in each control room to communicate with the following entities:

~~(a)~~ each **operator** of a **transmission facility**;

~~(b)~~ each **operator** of an **electric distribution system** that is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat;

~~(c)~~ each **operator** of a **generating unit** that is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat and has a **maximum authorized real power** greater than or equal to 5 MW;

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~~(d) each operator of an aggregated generating facility that is directly connected to the transmission system or to transmission facilities within the City of Medicine Hat and has a maximum authorized real power greater than or equal to 5 MW; and~~

~~(e) each adjacent reliability coordinator within the WECC;~~

~~(a)(f) each adjacent interconnected transmission operator directly connected to Alberta;~~

~~(c) each adjacent balancing authority directly connected to Alberta; and~~

~~(d) the adjacent reliability coordinators.~~

**R2R3** Each operator of a transmission facility must, as necessary to maintain reliability, provide adequate, reliable, and, where applicable, diversely routed and redundant voice and message telecommunication facilities for the exchange of **interconnection** and Alberta operating information with the following have primary voice communication capability to communicate with the following entities, unless the operator of a transmission facility detects a failure of its primary voice communication capability in which case requirement R10 shall apply:

~~(a) (a) the ISO;~~

~~(a)(b) each adjacent operator of a transmission facility; that is directly connected to its transmission facility;~~

~~(c) (b) each operator of an electric distribution system that is directly connected to its transmission facility;~~

~~(d) each operator of a generating unit that is directly connected to its transmission facility and has a maximum authorized real power greater than or equal to 5 MW;~~

~~(e) each operator of an aggregated generating facility that is directly connected to its transmission facility and has a maximum authorized real power greater than or equal to 5 MW; and~~

~~(b)(f) each adjacent interconnected transmission operator that is directly connected to Alberta; and its transmission facility.~~

~~(c) the ISO.~~

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~~R3~~ ~~The ISO and each A1~~<sup>1</sup> ~~Each operator of a transmission facility must manage and test its alternate use a primary voice and message telecommunication facilities communication capability that is:~~

~~R4~~ ~~The ISO~~ (a) ~~a direct access telephone on the public telephone network;~~

(b) ~~not degraded by any other communication functionality or any other data transfer activities if there is any shared equipment; and~~

(c) ~~located in each control room.~~

~~R4~~ ~~Each operator of a transmission facility must provide a means to coordinate~~ designate a backup voice and message telecommunications communication capability with the following entities:

(a) ~~the ISO;~~

(b) ~~each adjacent operator of a transmission facility, that is directly connected to its transmission facility;~~

(c) ~~each operator of an electric distribution system that is directly connected to its transmission facility;~~

(d) ~~each operator of a generating unit that is directly connected to its transmission facility and has a maximum authorized real power greater than or equal to 5 MW;~~

(e) ~~each operator of an aggregated generating facility that is directly connected to its transmission facility and has a maximum authorized real power greater than or equal to 5 MW; and~~

(~~a~~) (f) ~~each adjacent interconnected transmission operator, adjacent balancing authority and adjacent reliability coordinators, which coordination must include the ability to investigate and recommend solutions to voice and message telecommunications problems within Alberta that is directly connected to its transmission facility.~~

~~R5~~ ~~R4.A1~~ ~~Each operator of a transmission facility must provide a means to coordinate voice and message telecommunications with~~ have the type of backup voice communication capability, in each control room, as identified in:

(a) ~~Appendix 1 for communicating with the ISO; and~~

(b) ~~Appendix 2 for communicating with each entity specified in requirement R4.~~

~~R5~~ Intentionally left blank.

~~R6~~ Intentionally left blank.

<sup>1</sup> Any requirement that contains an A in the designation, such as R3.A1, is an additional ISO requirement that was established by the ISO for use in its balancing authority area and was not derived from a NERC COM-001-3 requirement.

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R7 Each operator of an electric distribution system must have primary voice communication capability to communicate with the following entities, unless the operator of an electric distribution system detects a failure of its primary voice communication capability in which case requirement R11 shall apply:

- (a) the ISO and adjacent interconnected transmission operators, which coordination must include the ability to investigate and recommend solutions to voice and message telecommunications problems within Alberta; and
- (b) ~~R6~~ the operator of a transmission facility that is directly connected to its electric distribution system.

R7.A1 Each operator of an electric distribution system must use a primary voice communication capability that is:

- (a) a direct access telephone on the public telephone network;
- (b) not degraded by any other communication functionality or any other data transfer activities if there is any shared equipment; and
- (c) located in each control room.

R7.A2 Each operator of an electric distribution system must have the type of backup voice communication capability, in each control room, as identified in:

- (a) Appendix 1 for communicating with the ISO; and
- (b) Appendix 3 for communicating with each entity specified in requirement R7.

R8 Each operator of a generating unit and operator of an aggregated generating facility must have primary voice communication capability to communicate with the following entities, unless the operator of a generating unit or operator of an aggregated generating facility detects a failure of its primary voice communication capability in which case requirement R11 applies:

- (a) the ISO; and
- (b) the operator of a transmission facility that is directly connected to its generating unit or aggregated generating facility.

R8.A1 Each operator of a generating unit and operator of an aggregated generating facility must use a primary voice communication capability that is:

- (a) a direct access telephone on the public telephone network;
- (b) not degraded by any other communication functionality or any other data transfer activities if there is any shared equipment; and
- (c) located in each control room.

R8.A2 Each operator of a generating unit and operator of an aggregated generating facility must have the type of backup voice communication capability, in each control room, as identified in:

- (a) Appendix 1 for communicating with the ISO; and

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(b) Appendix 3 for communicating with each entity specified in requirement R8.

**R9** The Responsible Entities must test each backup voice communication capability, as specified in Appendix 1, Appendix 2, and Appendix 3, at least once each **month**. If the test is unsuccessful, the Responsible Entity must initiate action to repair or designate a temporary replacement backup voice communication capability within 2 hours of the unsuccessful test.

**R10** The **ISO** and each **operator** of a **transmission facility** must use the English language for all communications between their respective operating personnel responsible for the real-time generation control and operation of the **interconnected electric system** notify entities as identified in requirements R1 and R3, respectively within 60 minutes of the detection of a failure of its primary voice communication capability that lasts 30 minutes or longer.

**R7R11** Each **operator** of an **electric distribution system**, **operator** of a **generating unit**, and **operator** of an **aggregated generating facility** that detects a failure of its primary voice communication capability must consult with each entity affected by the failure, as identified in requirement R7 for an **operator** of an **electric distribution system** or requirement R8 for an **operator** of a **generating unit** or **operator** of an **aggregated generating facility**, to determine a mutually agreeable action for the restoration of its primary voice communication capability.

**R12** The **ISO** and each **operator** of a **transmission facility**, **operator** of a **generating unit**, and **operator** of an **aggregated generating facility** must have internal primary voice communication capabilities for the exchange of information necessary for the reliable operation of the **interconnected electric system**. This includes internal primary voice communication capabilities between its control rooms, and between its control rooms and field personnel.

**R13** Each **operator** of an **electric distribution system** must have internal primary voice communication capabilities for the exchange of information necessary for the reliable operation of the **interconnected electric system** during the loss of voice and message telecommunications facilities. This includes internal primary communication capabilities between its control rooms, and between its control rooms and field personnel.

4. **R14.A1** Each Responsible Entity must, where its backup voice communication capability is a satellite telephone service, use a satellite network system, as approved by the **ISO**.

**R15.A1** Each Responsible Entity must, where its backup voice communication capability is a satellite telephone service or utility orderwire service,<sup>2</sup> have backup voice communication equipment that remains operational for a minimum of 8 hours in the event of an extended power outage to its facilities.

#### 4. Measures

The following measures correspond to the requirements identified in section 3 of this **reliability standard**. For example, MR1 is the measure for **requirement** R1.

<sup>2</sup> "utility orderwire service" means a private voice communications system that is operated and controlled by one or more **market participant** and the **ISO**. The utility orderwire service: leverages utility telecommunication network infrastructure owned by a **market participant** and the **ISO**; and may also leverage passive telecommunication infrastructure owned by a third-party.

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~~MR1 Evidence of providing having primary voice and message telecommunication facilities communication capability as required in requirement R1 exists. Evidence may include:~~

- ~~(a) a list identifying each telecommunication facility for the exchange of **interconnection** and Alberta operating information; and~~

~~physical assets, dated evidence, such as, equipment specifications and installation documentation demonstrating the implementation of diverse routing and redundancy capability, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.~~

~~MR2 Evidence of providing voice and message telecommunication facilities designating a backup voice communication capability as required in requirement R2 exists. Evidence may include:~~

- ~~(a) a list identifying each telecommunication facility for the exchange of **interconnection** and Alberta operating information; and~~

~~physical assets, or dated evidence, such as, equipment specifications and installation documentation demonstrating the implementation of diverse routing and redundancy capability, if applicable, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.~~

~~MR3 Evidence of managing and testing its alternate voice and message telecommunication facilities having primary voice communication capability as required in requirement R3 exists. Evidence may include: physical assets, dated evidence, such as, equipment specifications and installation documentation, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.~~

- ~~(a) a list identifying each telecommunication facility as determined to be alternate;~~  
~~(b) documented procedures describing how to manage and test its alternate telecommunication facilities; and~~  
~~(c) records of testing.~~

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**MR3.A1** Evidence of using a primary voice communication capability as required in requirement R3.A1 exists. Evidence may include physical assets, dated evidence, such as, equipment specifications and installation documentation, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

**MR4** Evidence of ~~providing~~~~designating a means to coordinate backup~~ voice and message telecommunications communication capability as required in requirement R4 exists. Evidence may include a documented procedure in place which identifies a process. Evidence may include physical assets, or dated evidence, such as, equipment specifications and installation documentation, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

**MR4.A1** Evidence of having a backup voice communication capability as required in requirement R4.A1 exists. Evidence may include physical assets, dated evidence, such as, equipment specifications and installation documentation, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

**MR5** Intentionally left blank.

**MR6** Intentionally left blank.

**MR7** Evidence of having primary voice communication capability as required in requirement R7 exists. Evidence may include physical assets, dated evidence, such as, equipment specifications and installation documentation, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

**MR7.A1** Evidence of using a primary voice communication capability as required in requirement R7.A1 exists. Evidence may include physical assets, dated evidence, such as, equipment specifications and installation documentation, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

**MR7.A2** Evidence of having a backup voice communication capability as required in requirement R7.A2 exists. Evidence may include physical assets, dated evidence, such as, equipment specifications and installation documentation, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

**MR8** Evidence of having primary voice communication capability as required in requirement R8 exists. Evidence may include physical assets, dated evidence, such as, equipment specifications and installation documentation, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

**MR8.A1** Evidence of using a primary voice communication capability as required in requirement R8.A1 exists. Evidence may include physical assets, dated evidence, such as, equipment specifications and installation documentation, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

**MR8.A2** Evidence of having a backup voice communication capability as required in requirement R8.A2 exists. Evidence may include physical assets, dated evidence, such as, equipment specifications and installation documentation, test records, **operator** logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.



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MR9 Evidence of testing backup voice communication capability as required in requirement R9 exists. Evidence may include dated and time-stamped test records, operator logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

Evidence of initiating action to repair or designating a replacement of backup voice communication capability, which does not utilize the same infrastructure as voice communication used for day-to-day operation, as required in requirement R9 exists. Evidence may include dated and time-stamped test records, operator logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

MR10 Evidence of notifying entities, within the minimum timeframe, after a detection of a failure of its primary voice communication capability as required in requirement R10 exists. Evidence may include dated and time-stamped test records, operator logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

MR11 Evidence of consulting with each entity affected by the failure of its primary voice communication capability as required in requirement R11 exists. Evidence may include dated operator logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

MR12 Evidence of having internal primary voice communication capability as required in requirement R12 exists. Evidence may include physical assets, or dated evidence, such as, equipment specifications and installation documentation, operating procedures, test records, operator logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

MR13 Evidence of having internal primary voice communication capability as required in requirement R13 exists. Evidence may include physical assets, or dated evidence, such as, equipment specifications and installation documentation, operating procedures, test records, operator logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

MR14.A1 Evidence of using a satellite network system as a backup voice communication capability as required in requirement R14.A1 exists. Evidence may include physical assets, dated evidence, such as, equipment specifications and installation documentation, test records, operator logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

MR15.A1 Evidence of ensuring a backup voice communication capability complies with the minimum operation in the event of an extended power outage as required in requirement R15.A1 exists. Evidence may include dated and time-stamped records of operations, such as, operator logs, voice recordings, transcripts of voice recordings, or electronic communications or other equivalent evidence.

### Appendices

Appendix 1 – Responsible Entity Requirements for Each Backup Voice Communication Capability with the ISO

Appendix 2 – Operator of a Transmission Facility Requirements for coordinating telecommunications and a process Each Backup Voice Communication Capability with Adjacent Entities and Entities that are Directly Connected to its Transmission Facility

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~~Appendix 3 – *Operator of an Electric Distribution System, Operator of a Generating Unit, and Operator of an Aggregated Generating Facility Requirements for investigating and recommending solutions to telecommunications problems. Each Backup Voice Communication Capability with Operators of Transmission Facilities that is Directly Connected to its Electric Distribution System, Generating Unit, or Aggregated Generating Facility*~~

~~MR5 Evidence of providing a means to coordinate voice and message telecommunications as required in requirement R5 exists. Evidence may include a documented procedure in place which identifies a process for coordinating telecommunications and a process for investigating and recommending solutions to telecommunications problems.~~

~~MR6 Evidence of using the English language as required in requirement R6 exists. Evidence may include operator logs, voice recordings, electronic communications or e-tag records.~~

~~MR7 Evidence of having written operating instructions and procedures as required in requirement R7 exists. Evidence may include electronic or hard copy of the operating instructions and procedures.~~

**5. — Appendices**

~~Appendix 1 — *Amending Process for List of Facilities*~~

**Revision History**

<del>Effective</del> <u>Date</u>	<del>Description</del>
<del>2013-10-01</del> <u>xxxx-xx-xx</u>	<del>Initial Release</del> <u>release.</u>
<del>2015-05-01</del>	<del>Revised for ISO assumption of RC functionality for the Alberta footprint</del>

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**Appendix 1**  
**Amending Process Responsible Entity Requirements for List of Facilities**

In order to amend the list referenced in subsections (a)(ii)(B) of section 2, Applicability, **Each Backup Voice Communication Capability with the ISO must:**

- (a) upon determining that a **transmission facility** is to be added, notify the **operator** in writing and determine an effective date, which must be no less than thirty (30) **days** after the date of notice, for the **operator** to meet the applicable requirements;
- (b) upon determining that a **transmission facility** is to be deleted, notify the **operator** in writing and determine an effective date for the **operator** to no longer be required to meet the applicable requirements; and
- (c) ~~publish the amended list with effective dates on the AESO website.~~

<u>Responsible Entity Category</u>	<u>Responsible Entity subcategory</u>	<u>Responsible Entity Backup Voice Communication Capability Options for Communicating with the ISO</u>
Each <b>operator</b> of a <b>transmission facility</b>	that operates a <b>transmission facility</b> , unless it only operates a <b>radial circuit</b> .	(1) <u>Utility orderwire service</u>
	that only operates a <b>radial circuit</b> .	(1) <u>Utility orderwire service;</u> (2) <u>Satellite telephone service; or</u> (3) <u>Direct access telephone service.</u>
Each <b>operator</b> of an <b>electric distribution system</b>		(1) <u>Utility orderwire service;</u> (2) <u>Satellite telephone service; or</u> (3) <u>Direct access telephone service.</u>
Each <b>operator</b> of a <b>generating unit</b> and <b>operator</b> of an <b>aggregated generating facility</b> connected to the <b>transmission system</b> or to <b>transmission facilities</b> within the City of Medicine Hat where the <b>maximum authorized real power is</b>	less than 50 MW based on the total amount of generation operated by the control room, unless the <b>generating unit</b> or <b>aggregated generating facility</b> is a <b>blackstart resource</b> .	(1) <u>Utility orderwire service; or</u> (2) <u>Direct access telephone service.</u>
	equal to or greater than 50 MW and less than 300 MW based on the total amount of generation operated by the control room, unless the <b>generating unit</b> or <b>aggregated generating facility</b> is a <b>blackstart resource</b> .	(1) <u>Utility orderwire service; or</u> (2) <u>Satellite telephone service.</u>
	equal to or greater than 300 MW based on the total amount of generation operated by the control room, where the total synchronous generation is less than 300 MW, unless the <b>generating unit</b> or <b>aggregated generating facility</b> is a <b>blackstart resource</b> .	(1) <u>Utility orderwire service; or</u> (2) <u>Satellite telephone service.</u>

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	<u>equal to or greater than 300 MW based on the total amount of synchronous generation operated by the control room or a <b>blackstart resource</b>.</u>	<u>(1) Utility orderwire service</u>
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**Appendix 2**  
**Operator of a Transmission Facility Requirements for Each Backup Voice Communication Capability with Adjacent Entities and Entities that are Directly Connected to its Transmission Facility**

<u>Entity</u>	<u>Entity Subcategory</u> <u>Responsible Entity Backup Voice Communication System Options for Communicating with the ISO</u>	<u>Operator of a Transmission Facility Backup Voice Communication Capability Options for Communicating with Each Adjacent Entity</u>
Each adjacent <b>operator of a transmission facility</b> that is directly connected to its <b>transmission facility</b>	that operates a <b>transmission facility</b> , unless it only connects through a <b>radial circuit</b> .	(1) Utility orderwire service; or (2) An <b>operator of a transmission facility</b> that only operates a <b>radial circuit</b> may use satellite telephone service or direct access telephone service.
	that only operates a <b>radial circuit</b> .	(1) Utility orderwire service; (2) Satellite telephone service; or (3) Direct access telephone service.
Each <b>operator of an electric distribution system</b> that is directly connected to its <b>transmission facility</b>		(1) Utility orderwire service; (2) Satellite telephone service; or (3) An <b>operator of electric distribution system</b> connected only to a substation that is part of a <b>radial circuit</b> may use direct access telephone service
Each <b>operator of a generating unit or aggregated generating facility</b> that is directly connected to its <b>transmission facility</b> and the <b>maximum authorized real power</b> is:	Equal to or greater than 5 MW and less than 50 MW based on the total amount of generation operated by the control room, unless the <b>generating unit or aggregated generating facility</b> is a <b>blackstart resource</b> ;	(1) Utility orderwire service; or (2) Direct access telephone service.
	equal to or greater than 50 MW and less than 300 MW based on the total amount of generation operated by the control room, unless the <b>generating unit or aggregated generating facility</b> is a <b>blackstart resource</b> ;	(1) Utility orderwire service; or (2) Satellite telephone service.
	equal to or greater than 300 MW based on the total amount of generation operated by the control room, where the total synchronous generation is less than 300 MW,	(1) Utility orderwire service; or (2) Satellite telephone service.

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	<u>unless the <b>generating unit or aggregated generating facility</b> is a <b>blackstart resource</b>; and</u>	
	<u>equal to or greater than 300 MW based on the total amount of synchronous generation operated by the control room or a <b>blackstart resource</b>.</u>	<u>(1) Utility orderwire service</u>
<u>Each adjacent <b>interconnected transmission operator</b> that is directly connected to its <b>transmission facility</b></u>		<u>(1) Utility orderwire service; or (2) Satellite telephone service.</u>

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Appendix 3

Operator of an Electric Distribution System, Operator of a Generating Unit, and Operator of an Aggregated Generating Facility Requirements for Each Backup Voice Communication Capability with Each Operator of Transmission Facility\* that is Directly Connected to its Electric Distribution System, Generating Unit, or Aggregated Generating Facility

<u>Responsible Entity Category</u>	<u>Responsible Entity Subcategory</u>	<u>Responsible Entity Backup Voice Communication Capability Options for Communicating with the Operator of a Transmission Facility that is Directly Connected to Its Electric Distribution System, Generating Unit, or Aggregated Generating Facility</u>
<u>Each operator of an electric distribution system</u>		(1) <u>Utility orderwire service;</u> (2) <u>Satellite telephone service; or</u> (3) <u>An operator of electric distribution system connected only to a substation that is part of a radial circuit may use direct access telephone service.</u>
<u>Each operator of a generating unit and each operator of an aggregated generating facility connecting to the transmission system or to transmission facilities within the City of Medicine Hat where the maximum authorized real power is:</u>	<u>less than 50 MW based on the total amount of generation operated by the control room, unless the generating unit or aggregated generating facility is a blackstart resource.</u>	(1) <u>Utility orderwire service; or</u> (2) <u>Direct access telephone service.</u>
	<u>equal to or greater than 50 MW and less than 300 MW based on the total amount of generation operated by the control room, unless the generating unit or aggregated generating facility is a blackstart resource.</u>	(1) <u>Utility orderwire service; or</u> (2) <u>Satellite telephone service.</u>
	<u>equal to or greater than 300 MW based on the total amount of generation operated by the control room, where the total synchronous generation is less than 300 MW, unless the generating unit or aggregated generating facility is a blackstart resource.</u>	(1) <u>Utility orderwire service; or</u> (2) <u>Satellite telephone service.</u>
	<u>equal to or greater than 300 MW based on the total amount of synchronous generation operated by the control room or is a blackstart resource.</u>	(1) <u>Utility orderwire service</u>

\*Appendix 3 does not include requirements for each operator of a transmission facility