

Development of Proposed New and Amended Communications ISO Rules and Reliability Standards

July 20, 2020

In accordance with its mandate to operate in the public interest, the AESO will be audio recording this Stakeholder session and making meeting minutes of the session available to the general public at www.aeso.ca. The accessibility of the session is important to ensure openness and transparency and to facilitate the participation of Stakeholders. Participation in this session is completely voluntary and subject to the terms of this notice.

The collection of personal information by the AESO for this session will be used for the purpose of capturing Stakeholder input for the development of the proposed new and amended ISO rules and standards. This information is collected in accordance with Section 33(c) of the *Freedom of Information and Protection of Privacy Act*. If you have any questions or concerns regarding how your information will be handled, please contact the Director, Information and Governance Services at 2500, 330 – 5th Avenue S.W., Calgary, Alberta, T2P 0L4, by telephone at 403-539-2528, or by email at privacy@aeso.ca.

- The AESO's top priorities are the health and well-being of our employees and stakeholders and continuing to meet the electricity needs of all Albertans.
- All business meetings with external stakeholders will be via phone or webinar indefinitely (this includes stakeholder engagement sessions).
- Based on Stakeholder feedback, the AESO's own security assessment and the use of Zoom for governments, post-secondary institutions and other companies, the AESO has decided for now to continue using Zoom for our stakeholder engagements until such time that face-to-face engagements are allowed.
- The AESO will continue to monitor developments and provide updates to our stakeholders as necessary.
- For additional information, please visit the AESO website at www.aeso.ca and follow the path Stakeholder engagement > Covid-19.

- Provide a status update on the development of the following proposed new and amended communication ISO rules and reliability standards:
 - Proposed new reliability standard COM-001-AB-3, *Communications* (“COM-001-AB-3”);
 - Proposed new reliability standard COM-002-AB-4, *Operating Personnel Communication Protocols* (“COM-002-AB-4”);
 - Proposed amended Section 502.4 of the ISO rules, *Automated Dispatch and Messaging System and Voice Communication System Requirements* (“Section 502.4”); and
 - Proposed new Section 502.17 of the ISO rules, *Voice Communication System Requirements* (“Section 502.17”).
- Review proposed new COM-001-AB-3 and Section 502.17 in detail and provide Stakeholders with an opportunity to provide feedback.

Time	Agenda Item
9:00 – 9:10	Introductions and Session Overview
9:10 – 9:20	Background and Status Update
9:20 – 9:30	Overview of the AESO's Current Proposed Approach
9:30 – 9:45	Proposed Amended Section 502.4 Update
9:45 – 10:30	Draft Proposed New COM-001 and Stakeholder Feedback Review
10:30 – 10:45	Coffee Break
10:45 – 11:15	Draft Proposed New Section 502.17 Stakeholder Feedback review
11:15 – 11:30	Draft Proposed New Section 502.17
11:30 – 11:40	Draft Proposed New Section 502.17 Definitions
11:40 – 11:45	Related System Projects Overview
11:45 – 12:00	Next Steps

Introduction and Session Overview



- AltaLink Management Ltd.
- ATCO Electric Ltd.
- Alberta Utilities Commission
- Capital Power
- City of Lethbridge
- ENMAX Energy Corporation
- ENMAX Power Corporation
- EPCOR Transmission and Distribution
- GridSME
- Heartland Generation Ltd.
- Suncor Energy Inc.
- TransAlta Corporation
- Voltus

OUR ENGAGEMENT PRINCIPLES

Inclusive and Accessible

Strategic and Coordinated

Transparent and Timely

Customized and Meaningful

- The participation of everyone is critical to the engagement process. To ensure everyone has the opportunity to participate, we ask you to:
 - Listen to understand others' perspectives
 - Disagree respectfully
 - Balance airtime fairly
 - Keep an open mind

- Meeting minutes will be prepared by AESO employees with the help of a minute-taking software program.
- Organization names will be used to identify contributions.
- Draft meeting minutes will be circulated to attendees for review and ultimately posted to the AESO website.

- All attendees will join the webinar in listen-only mode and the host will have attendee cameras disabled and microphones muted.
- When asking or typing in a question, **please state your first and last name and the organization you work for** to ensure your comments are attributed to your company.
- Two ways to ask questions during the Q&A portion if you are accessing the webinar using your computer or smartphone.
 - Raise your “hand”: The host will be notified that you have raised your hand and will open up your microphone when there is an opportunity to do so. Wait until the host opens up your microphone.
 - Type your question into the Q&A window: You are also able to up-vote questions that have been already asked. The host will see your questions and the up-votes and will have your question answered when there is an opportunity to do so.

- Using a 2-in-1/PC/MAC Computer
 - Hover your cursor over the bottom area of the Zoom app and the Controls will appear.
 - Click “Raise Hand”.
 - When the host opens your mic, your name will appear on the screen but your camera will remain turned off.
 - Click “Lower Hand” to lower it if needed.
 - Click the “Q&A” button and typing them in.
- Using Smartphone.
 - Tap “Raise Hand”.
 - When the host opens your mic, your name will appear on the screen but your camera will remain turned off.
 - Tap “Lower Hand” to lower it if needed.
 - You can also ask questions by tapping the “Q&A” button and typing them in.

- If you are accessing the webinar via conference call
 - Press *9 on your keypad to Raise your hand.
 - When the host opens your mic, your phone number will appear on the screen, but your camera will remain turned off.
 - Unmute your microphone by pressing *6 and then you can ask your question.
- Phone controls for attendees
 - Press *9 Click phone's dial pad. The host will be notified that you've raised your hand.
 - To toggle between mute and unmute, on your phone's dial pad, press *6.

Background and Status Update

ISO Rules Development

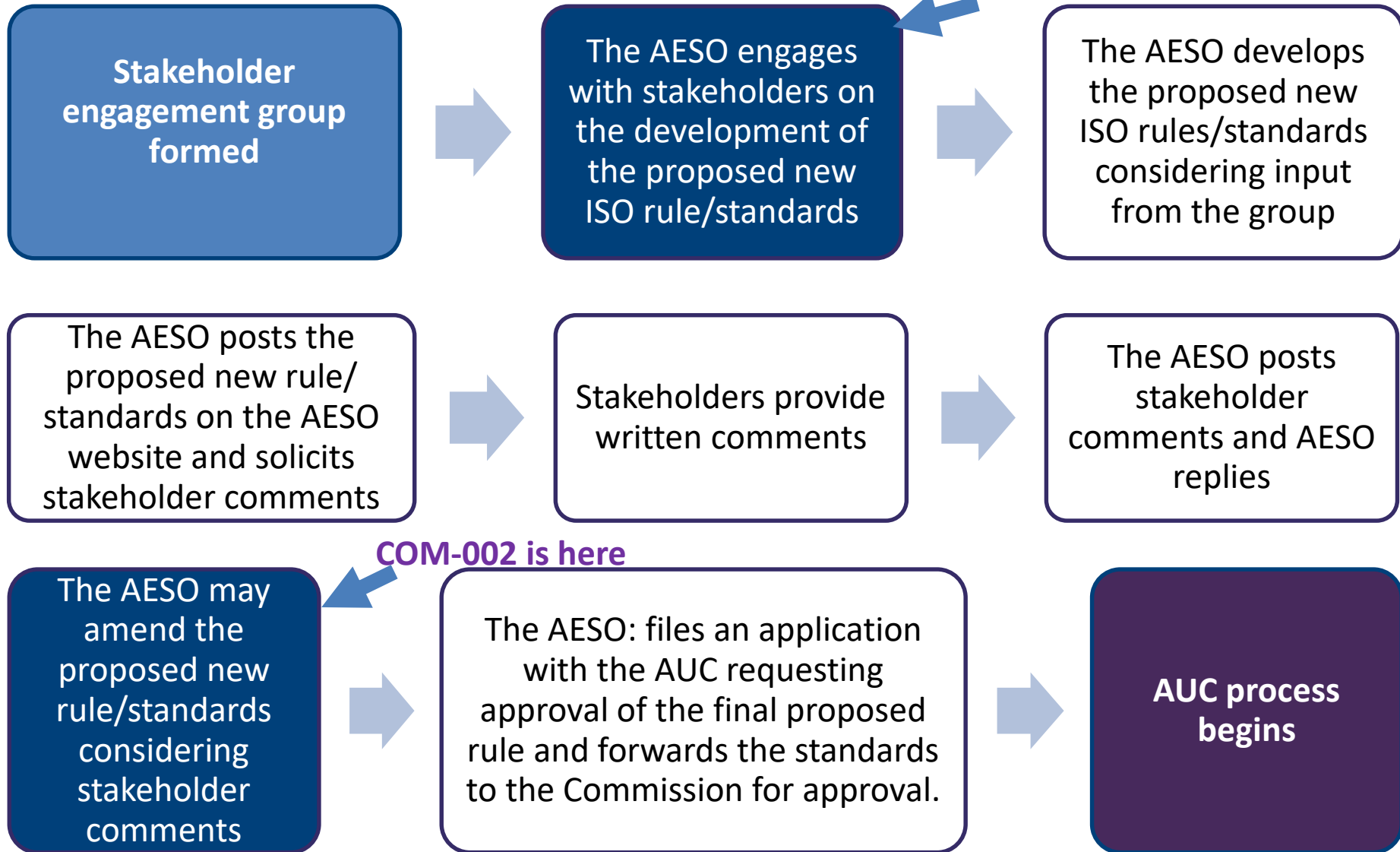
- Section 20 of the *Electric Utilities Act* grants authority to the AESO to develop ISO rules.
- AUC Rule 017, *Procedures and Process for Development of ISO Rules and Filing of ISO Rules with the Alberta Utilities Commission*, sets out the requirements for the development of ISO rules, including:
 - Stakeholder engagement requirements; and
 - AUC application requirements.

Reliability Standards Development

- Sections 19 and 21 of the *Transmission Regulation* sets out the process for the AESO to review and forward reliability standards to the AUC for adoption in Alberta, including:
 - Requirement to consult impacted market participants; and
 - NERC reliability standards review process requirements.

Communication ISO rules and Reliability Standards (Standards) Status

Section 502.4, Section 502.17, and COM-001 are now here



COM-002 is here

Overview of the AESO's Current Proposed Approach

- Proposed New COM-002-AB-4 remains the same as when the consultation was completed in April 2019.
 - The AESO does not plan to consult further on this standard.
- Proposed Amended Section 502.4 was further revised to streamline the rule.
 - These updated will be described at this session.
- NERC COM-001 and Section 502.17 was decoupled.
 - COM-001-AB-3 was presented at ARCDG in December 2019 and the AESO received some initial feedback that will be addressed at this session.
 - Proposed new Section 502.17 was revised to take into account stakeholder feedback and remove NERC COM-001 provisions. This will be discussed at this session.



Update on the Proposed Amended Section 502.4

- Over the past few months, the AESO has further revised its draft of the proposed amended Section 502.4 that was consulted on in March 2019.
- In addition to the voice communication requirements being removed, the AESO determined other provisions could be removed for one of more of the following reasons:
 - Section 103.14, *Waivers and Variances* (“Section 103.14”), can be used by market participants to apply for a waiver or variance to any 502 series ISO rule.
 - There were provisions under the *New and Existing Systems* subsection that granted the AESO authority that was never used and is no longer needed. As a result, the rule no longer applies to the ISO.
 - Carry overs from the original OPPs that were no longer needed.
 - Minor update to account for the fact that the capacity market is not moving forward.

Applicability

- 1 Section 502.4 applies to:
 - (a) a **pool participant** who may receive a **dispatch** or a **directive** through the energy market or **ancillary services** market.

Automated Dispatch and Messaging System

- 2 A **pool participant** must have an Automated Dispatch and Messaging System at each location at which the **pool participant** may receive a **dispatch** or a **directive**.

Systems Operating Requirements

- 3 A **pool participant** must continuously operate its Automated Dispatch and Messaging System in accordance with **good electric industry practice**.



Draft Proposed New COM-001-AB-3 And Stakeholder Feedback Review

- R1 – “determines to be necessary to maintain reliability” was left in the standard as the proposed new Section 502.17 clearly states what is necessary for market participants to adhere to
- R2/R4 – ISO and TFO designate backup interpersonal communication – how can they both designate?
- Interpersonal communication definition – is it intended to be voice, why can’t we just say voice?
- Proposed Amended Section 502.4 will cover Automated Dispatch and Messaging System (ADAMS) messaging only and Proposed New Section 502.17 will cover voice communications

The purpose of this reliability standard is to establish interpersonal communication capabilities necessary to maintain reliability.

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

- a) the **operator** of a **transmission facility**;
- 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;
- c) the **operator** of an **aggregated generating facility** directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat;
- d) the **operator** of an **electric distribution system**, that is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat; and
- e) the **ISO**.

The AESO applied COM-001-AB-3 to the operators of transmission facilities, operators of all generating units and aggregated generating facilities (AGFs) directly connected to the transmission system, and to operators of electric distribution systems, that are directly connected to the transmission system or to transmission facilities within the City of Medicine Hat, rather than those that are part of the bulk electric system, in order to meet the AESO's mandate to maintain the reliable operation of the interconnected electric system in accordance with the *Electric Utilities Act* (EUA).

R1 The **ISO** must, as it determines to be necessary to maintain reliability, have primary interpersonal communication capability with the following entities, unless the **ISO** detects a failure of its primary interpersonal communication capability, in which case requirement R10 applies:

- a) each **operator** of a **transmission facility** within its area;
- b) each adjacent **reliability coordinator** within the **WECC**;
- c) each **operator** of an **electric distribution system** within its area and is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat;

- d) each **operator** of **generating unit** within its area and is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat;
- e) each **operator** of an **aggregated generating facility** within its area and is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat; and
- f) each **adjacent balancing authority**; and
- g) each adjacent **interconnected transmission operator**.

Added: “primary” to interpersonal communication capability throughout to align with terminology found in the proposed new Section 502.17, as well as Section 502.8 of the ISO rules, *SCADA Technical and Operating Requirements* (“Section 502.8”).

Replaced: “alternative” with “backup” for backup interpersonal communication capability throughout to align with Section 502.17 and Section 502.8 terminology.

MR1 Evidence of having primary interpersonal communication capability as required in requirement R1 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.

R2 The **ISO** must designate a backup interpersonal communication capability with the following entities:

- a) each **operator** of a **transmission facility** within its area, as the **ISO** determines to be necessary to maintain reliability;
- b) each **adjacent balancing authority**; and
- c) each adjacent **reliability coordinator** within the **WECC**.

MR2 Evidence of designating a backup interpersonal communication capability as required in requirement R2 exists. 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.

R3 Each **operator** of a **transmission facility** must have primary interpersonal communication capability with the following entities, unless the **operator** of a **transmission facility** detects a failure of its primary interpersonal communication capability in which case requirement R10 shall apply:

- a) the **ISO**;
- b) each **operator** of an **electric distribution system** within its area and is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat;
- c) each **operator** of **generating unit** within its area and is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat;

- d) each operator of an **aggregated generating facility** within its area and is directly connected to the **transmission system** or to **transmission facilities** within the City of Medicine Hat;
- e) each adjacent **operator** of a **transmission facility** that is synchronously connected; and
- f) each adjacent **operator** of a **transmission facility** that is asynchronously connected.

MR3 Evidence of having primary interpersonal 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.

R4 Each **operator** of a **transmission facility** must designate a backup interpersonal communication capability with the following entities:

- a) the **ISO**;
- b) each adjacent **operator** of a **transmission facility** that is synchronously connected; and
- c) each adjacent **operator** of a **transmission facility** that is asynchronously connected.

MR4 Evidence of designating a backup interpersonal communication capability as required in requirement R4 exists. 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.

R5 Intentionally left blank.

NERC R5 - Each Balancing Authority shall have Interpersonal Communication capability with the following entities...

Reason for Difference:

Added primary interpersonal communication requirements from requirement R5 for balancing authorities to requirement R1 as in the Alberta industry structure the ISO performs the function of both the reliability coordinator and the balancing authority.

MR5 Intentionally left blank.

R6 Intentionally left blank.

NERC R6 - Each Balancing Authority shall designate an Alternative Interpersonal Communication capability with the following entities...

Reason for Difference:

Added backup interpersonal communication requirements from requirement R6 for balancing authorities to requirement R1 as in the Alberta industry structure the ISO performs the function of both the reliability coordinator and the balancing authority.

MR6 Intentionally left blank.

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

- a) the **ISO**; and
- b) the **operator** of a **transmission facility** to which it connects.

MR7 Evidence of having primary interpersonal 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.

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

- a) the **ISO**; and
- b) the **operator** of a **transmission facility** to which it connects.

MR8 Evidence of having primary interpersonal 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.

R9 The **ISO** and each **operator** of a **transmission facility** must test its backup interpersonal communication capability at least once each calendar month. If the test is unsuccessful, the responsible entity must initiate action to repair or designate a replacement backup interpersonal communication capability within 2 hours.

MR9 Evidence of testing backup interpersonal 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 designate a replacement of backup interpersonal 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.

R10 The **ISO** and each **operator** of a **transmission facility** must notify entities as identified in requirements R1 and R3, respectively within 60 minutes of the detection of a failure of its primary interpersonal communication capability that lasts 30 minutes or longer.

MR10 Evidence of notifying entities 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.

R11 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 interpersonal communication capability must consult 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 interpersonal communication capability.

MR11 Evidence of consulting with each entity affected by the failure of its primary interpersonal 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.

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 interpersonal communication capabilities for the exchange of information necessary for the reliable operation of the **transmission system** and the City of Medicine Hat electric system. This includes primary interpersonal communication capabilities between **control centres** within the same functional entity and between a **control centre** and field personnel.

MR12 Evidence of having internal primary interpersonal 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.

R13 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; must have internal primary interpersonal communication capabilities for the exchange of information necessary for the reliable operation of the **transmission system** and the City of Medicine Hat electric system. This includes communication capabilities between **control centres** within the same functional entity, and between a **control centre** and field personnel.

MR13 Evidence of having internal primary interpersonal 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.



Draft Proposed New Section 502.17 and Stakeholder Feedback Review

- Following the July 2019 stakeholder session, the AESO requested specific feedback from stakeholders. This is what the AESO heard and took into consideration:
 - Concerns about utility orderwire
 - as selected medium versus alternatives (benefits/consultation).
 - 300 MW threshold for generation
 - comparison to other jurisdictions.
 - cost (implementation/operational)
 - implementation timeline
 - Preference for balanced architecture for utility orderwire.
 - Concerns on availability targets and external dependencies.
 - Concerns on extended power duration and scope clarity.
 - Concerns regarding lack of clarity on roles and responsibilities.

- Utility Orderwire – Selection/Alternatives/Consultation
 - Utility orderwire system selected as the best backup given:
 - It is quick and effective dialing with dial tone
 - It has support for multiple lines and handsets
 - It has clear voice quality with no latency
 - In restoration event, field priority is utility controlled and aligned with restoration efforts
 - Known extended power capabilities and system alarming
 - Infrastructure specifically designed for power system operation
 - Solution has been proposed and discussed since 2018 (Telecom Work Group, ARCDG, July 2019 Stakeholder Session)
 - <https://www.aeso.ca/stakeholder-engagement/rules-standards-and-tariff/new-section-502-17-of-the-iso-rules-and/>

- Utility Orderwire – Selection/Alternatives/Consultation
 - Satellite as a backup voice communication system has the following limitations:
 - Introduces voice latency challenge
 - Dial complexity (11+ digits)
 - No dial tone and connection delay (10-15 seconds)
 - Limited multiple line support
 - Multiple systems and multiple numbers
 - In major restoration events having too many users could inhibit the operator from calling out

- Utility Orderwire – Selection/Alternatives/Consultation
 - Other alternatives considered by the AESO
 - Mobile land radio (push to talk)
 - *On utility telecommunication network or other high-availability network.*
 - *Separate systems on the TFOs and limited system capacity on existing system (upgrades ~\$20M+).*
 - *Alberta First Responder Radio Communications Systems (AFRRCS) can't be accessed by utilities based on spectrum licensing restrictions.*
 - Prioritized commercial network
 - *Used in different jurisdictions where utilities provided enhanced service and priority on the commercial networks.*
 - *Challenge given Alberta's broad geographic footprint.*
 - *Service level agreements and potential upgrades (\$++).*
 - Satellite VoIP using Terrestrial PBX
 - *Satellite deployment and data costs, voice latency (\$+)*

Draft Proposed New Section 502.17

Stakeholder Feedback (cont'd)

- Utility Orderwire - 300 MW threshold.
 - Larger generators have higher requirements because they have greater impact on Alberta system reliability.
 - Represent the majority of generation in small number of units (representing 17 control rooms).
 - Critical to restoration plan given their capacity, inertia and because the cool down of these units can further delay their return to service by 24 to 48 hours.
 - Threshold aligns with level in Section 502.8.

Size Category	Unit Count	Generation (MW)	Generation (%)
Less than 50MW	62	1273	7.8%
Equal and greater than 50MW, less than 300MW	52	5828	35.6%
Greater than and equal to 300MW	24	9282	56.7%
Total	129	16383	100%

- Utility Orderwire – Other Jurisdictions
 - In reviewing other jurisdictions the most common backups appear to be satellite and commercial phone with enhanced performance requirements.
 - Some factors that make Alberta unique and support requirements:
 - Massive geographical area to cover (large telecom systems).
 - Many different parties involved (several TFOs, several DFOs and many GFOs).
 - Economy heavily depends on electricity (restoration delay impact).
 - Single effective intertie to BC for restoration (generators are more critical).
 - Cold weather climate (delays impact personal safety).
 - Utility telecommunication network (existing infrastructure for power system operation).

- Utility Orderwire – Costs (Implementation/Operations)
 - Estimated implementation costs
 - Variety of estimates received and reviewed by the AESO.
 - Incorporating feedback and adding further scope clarification
 - *rough orderwire cost estimate is ~\$2.5 M*
 - Clarifications/assumptions
 - *AltaLink and ATCO will operate existing/planned PBXs as hubs.*
 - *Other TFOs and GFOs will connect phones to these PBXs.*
 - *Simplified connection/configuration/reduced hardware.*
 - *All required TFOs have the necessary telecom infrastructure.*
 - *9 of 17 control rooms have the necessary phone connections*
 - *6 of 8 remaining control rooms has the necessary telecom infrastructure.*
 - Proposed system project is being considered to implement the utility orderwire changes for existing facilities.

- Utility Orderwire – Costs (Implementation/Operations)
 - Operational Costs
 - Availability targets reduced and simplified based on feedback.
 - *Reduced target 98% aligns with Section 502.8 SCADA requirement.*
 - *7.3 days of outage per year*
 - *Should not result in significant operational or support costs for TFOs and GFOs.*
 - Minimal equipment for the GFO (phone/connection path) using existing telecommunication infrastructure, where possible.
 - Core infrastructure and PBXs already operationally covered by the TFO. Increased PBX usage.

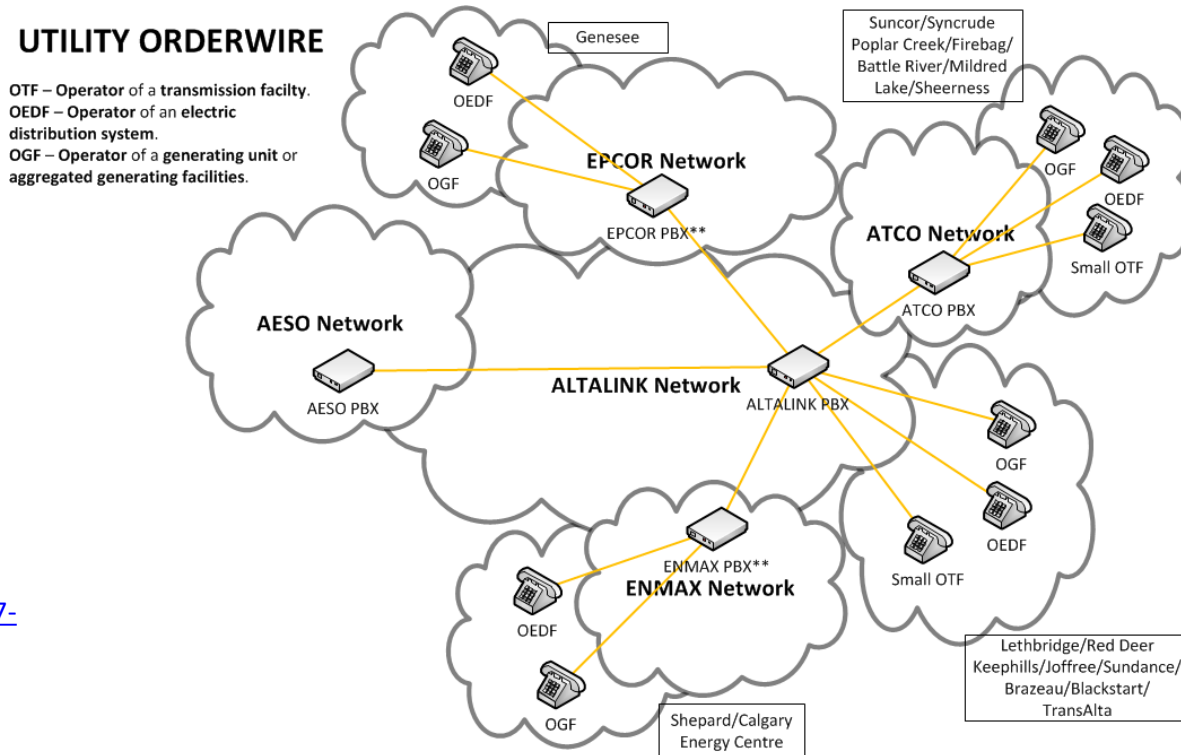
- Utility Orderwire – Implementation Timeline
 - Still targeting around 2 years for TFO and GFO.
 - Section 103.14 will be used to provide additional time as needed.
 - Will provide flexibility as necessary as implementation develops.

Draft Proposed New Section 502.17

Feedback/Concern Review

- Balanced Architecture

- Preference TFO hub option which reduces complexity for configurations and therefore minimizes overall cost.
- AltaLink and ATCO as primary hubs supporting other TFOs and GFOs.



Previous Stakeholder Session Slides

<https://www.aeso.ca/assets/Uploads/502.17-stakeholder-session-presentation.pdf>

- Availability
 - Based on feedback simplified to single target 98% which aligns with existing Section 502.8 SCADA requirements.
 - Applies only to utility orderwire, which as group, we have control over and covers the most critical facilities.
- Extended Power
 - Scope clarified to only backup voice communication equipment located within control centre or control room.
 - Reduced to 8 hours with the standard practice for substations in Alberta.

- Roles and Responsibilities
 - Transmission facility operators will carry and support the voice services of other downstream market participants
 - Market participants responsible for infrastructure and equipment reaching upstream market participants
 - Market participants responsible for the infrastructure and equipment they own/operate in their facilities
 - Joint use, service and interconnection agreements are expected handled between market participants
 - Architecture helps determine the role of each market participant.

Proposed New Section 502.17

Draft Proposed New Section 502.17 Requirements Removed

- Independent or Redundant Backup
 - Satellite and orderwire are very independent by nature.
 - Individual facility failure can be mitigated.
 - Didn't want to drive unnecessary costs.
- Availability (except for orderwire)
 - Limited market participant control over satellite and commercial phone.
- Internal Communication Capabilities
 - Requirement now in proposed new COM-001-AB-3
- Loss of Primary Voice Communications System
 - Requirement now in proposed new COM-001-AB-3

- Out of Alberta
 - Waivers and Variances can be applied for through Section 103.14, if required.
- Temporary lower availability, as required
 - Temporary clause and more flexibility on per case basis
 - Waivers and Variances can be applied for through Section 103.14, if required.
- Extended Time to Comply
 - Waivers and Variances can be applied for through Section 103.14, if required.
 - Temporary clause and more flexibility on per case basis.

Draft Proposed New Section 502.17

1 Section 502.17 applies to:

(a) the following **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**;
- (v) a **pool participant**; and

(b) the **ISO**.

2 Each **market participant** must have a primary voice communication system 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;
- (c) automatically forwarded to another direct access telephone if the primary direct access telephone is unavailable and does not utilize voicemail; and
- (d) located at its **control centre** and control room.

3(1) Each **market participant** must have the type of backup voice communication systems identified in Appendix 1 for communicating with the **ISO**.

(2) Each **operator** of an **electric distribution system**, **operator** of a **generating unit**, and **operator** of an **aggregated generating facility** must have the type of backup voice communication system for communicating with each adjacent **market participant** as identified in Appendix 2.

(3) Each **operator** of a **transmission system** must have the type of backup voice communication system for communicating with each adjacent **market participant** as identified in Appendix 3.

(4) Each **operator** of a **generating unit** and **operator** of an **aggregated generating facility** must locate its backup voice communication system at its control room.

(5) Each **operator** of a **generating unit** and **operator** of an **aggregated generating facility** that controls its facility remotely must locate its backup voice communication system at its **control centre**.

(6) Each **operator** of an **electric distribution system** must have a backup voice communication system that is located at its **control centre**.

(7) Each **operator** of a **transmission facility** must have a backup voice communication system that is located at its **control centre**.

4(1) Each **market participant** must, where its backup voice communication system is a satellite telephone service, use an AESO approved satellite network system as identified in [*the AESO document that identifies the names of approved satellite network systems*].

(2) Each **market participant** must, where its backup voice communication system is an utility orderwire service, ensure that its backup voice communication system has an availability greater or equal to 98%.

(3) Each **market participant** must, where its backup voice communication system is a satellite telephone service or utility orderwire service, ensure that its backup voice communication equipment located within its **control centre** or control room remains operational for a minimum of 8 hours in the event of an extended power outage to its facilities.

5(1) Each **operator** of a **generating unit**, **operator** of an **aggregated generating facility**, and **operator** of an **electric distribution system** required to have 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 **operator** of a **generating unit**, **operator** of an **aggregated generating facility**, and **operator** of an **electric distribution system** must, if the monthly test conducted pursuant to subsection 5(1) is unsuccessful, initiate or coordinate action to repair, or designate a temporary replacement voice communication system, within 2 hours of the unsuccessful test.

Draft Proposed New Section 502.17

Proposed *Appendix 1 Requirements for Backup Voice Communication System with the ISO*

Market Participant Category	Market participant subcategory	Market Participant Backup Voice Communication System Options For Communicating with the ISO Control Centre
A pool participant	who may receive a dispatch for ancillary services or a directive.	<ul style="list-style-type: none"> (1) Utility orderwire service (2) Satellite telephone service (3) Direct access telephone service
An operator of a generating unit or aggregated generating facilities connected to the transmission system or to transmission facilities within the City of Medicine Hat where the maximum authorized real power is	less than 50 MW based on the total amount of generation controlled by the control centre or control room.	<ul style="list-style-type: none"> (1) Utility orderwire service (2) Direct access telephone service
	equal to or greater than 50 MW and less than 300 MW based on the total amount of generation controlled by the control centre or control room.	<ul style="list-style-type: none"> (1) Utility orderwire service (2) Satellite telephone service
	equal to or greater than 300 MW based on the total amount of generation controlled by the control centre or control room, where the total synchronous generation is less than 300 MW.	<ul style="list-style-type: none"> (1) Utility orderwire service (2) Satellite telephone service
	equal to or greater than 300 MW based on the total amount of synchronous generation controlled by the control centre or control room.	<ul style="list-style-type: none"> (1) Utility orderwire service

Draft Proposed New Section 502.17

Proposed *Appendix 1 Requirements for Backup Voice Communication System with the ISO (cont'd)*

Market Participant Category	Market participant subcategory	Market Participant Backup Voice Communication System Options For Communicating with the ISO Control Centre
An operator of a generating unit	providing a black start capability service.	(1) Utility orderwire service
An operator of a transmission facility	that operates a transmission facility unless it only operates a radial circuit.	(1) Utility orderwire service
	that only operates a radial circuit.	(1) Utility orderwire service (2) Satellite telephone service (3) Direct access telephone service
An operator of an electric distribution system	who contributes load additions for black start capability process requirements.	(1) Utility orderwire service (2) Satellite telephone service (3) Direct access telephone service

Draft Proposed New Section 502.17: Proposed Appendix 2 Requirements for Backup Voice Communication System with Adjacent TFOs – Operator of a Non-Transmission Facility

Market Participant Category	Market Participant Subcategory	Market Participant Backup Voice Communication System Options For Communicating With The Adjacent Operator Of A Transmission Facility
An 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 maximum authorized real power is:	less than 50 MW based on the total amount of generation controlled by the control centre or control room.	(1) Utility orderwire service (2) Direct access telephone service
	equal to or greater than 50 MW and less than 300 MW based on the total amount of generation controlled by the control centre or control room.	(1) Utility orderwire service (2) Satellite telephone service
	equal to or greater than 300 MW based on the total amount of generation controlled by the control centre or control room, where the total synchronous generation is less than 300 MW.	(1) Utility orderwire service (2) Satellite telephone service
	equal to or greater than 300 MW based on the total amount of synchronous generation controlled by the control centre or control room.	(1) Utility orderwire service

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Market Participant Category	Market Participant Subcategory	Market Participant Backup Voice Communication System Options For Communicating With The Adjacent Operator Of A Transmission Facility
An operator of a generating unit	providing a black start capability service.	(1) Utility orderwire service
An operator of an electric distribution system		(1) Utility orderwire service (2) Satellite telephone service (3) An operator of electric distribution system connected only to a substation that is part of a radial circuit may use direct access telephone service, except those who contribute load additions for black start capability.

Draft Proposed New Section 502.17: Proposed Appendix 3 Requirements for Backup Voice Communication System with Adjacent Market Participant – Operator of a Transmission Facility



Market Participant Category	Adjacent Market Participant	Adjacent Market Participant Subcategory	Operator of a Transmission Facility Backup Voice Communication System Options For Communicating With Each Adjacent Market Participant
An operator of a transmission facility	An operator of a generating unit or 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	less than 50 MW based on the total amount of generation controlled by the control centre or control room.	(1) Utility orderwire service (2) Direct access telephone service
		equal to or greater than 50 MW and less than 300 MW based on the total amount of generation controlled by the control centre or control room.	(1) Utility orderwire service (2) Satellite telephone service
		equal to or greater than 300 MW based on the total amount of generation controlled by the control centre or control room, where the total synchronous generation is less than 300 MW.	(1) Utility orderwire service (2) Satellite telephone service
		equal to or greater than 300 MW based on the total amount of synchronous generation controlled by the control centre or control room.	(1) Utility orderwire service

**Draft Proposed New Section 502.17: Proposed Appendix 3
 Requirements for Backup Voice Communication System with Adjacent
 Market Participant – Operator of a Transmission Facility (cont'd)**



Market Participant Category	Adjacent Market Participant	Adjacent Market Participant Subcategory	Operator of a Transmission Facility Backup Voice Communication System Options For Communicating With Each Adjacent Market Participant
An operator of a transmission facility	An operator of a generating unit	providing a black start capability service.	(1) Utility orderwire service
	An operator of a transmission facility	that operates a transmission facility unless it only operates a radial circuit.	(1) Utility orderwire service (2) An operator of a transmission facility that only operates a radial circuit may use satellite telephone service or direct access telephone service
		that only operates a radial circuit.	(1) Utility orderwire service (2) Sateillite telephone service (3) Direct access telephone service
	An operator of an electric distribution system		(1) Utility orderwire service (2) Satellite telephone service (3) An operator of electric distribution system connected only to a substation that is part of a radial circuit may use direct access telephone service, except those who contribute load additions for black start capability.



Draft Proposed New Section 502.17 Proposed Definitions

- **“utility orderwire service”** means an electric utility controlled and operated private voice communications system that leverages the utility telecommunication network infrastructure and passive telecommunication infrastructure where continued operation, during an extended power outage, can be assured and restoration activities are control by utility market participants.

where

- Utility telecommunications infrastructure examples include: fibre, microwave radio, routers, phone switches, batteries, generators
- Passive telecommunication infrastructure examples include: leased dark fibre, tower access

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Proposed Radial Circuit Definition

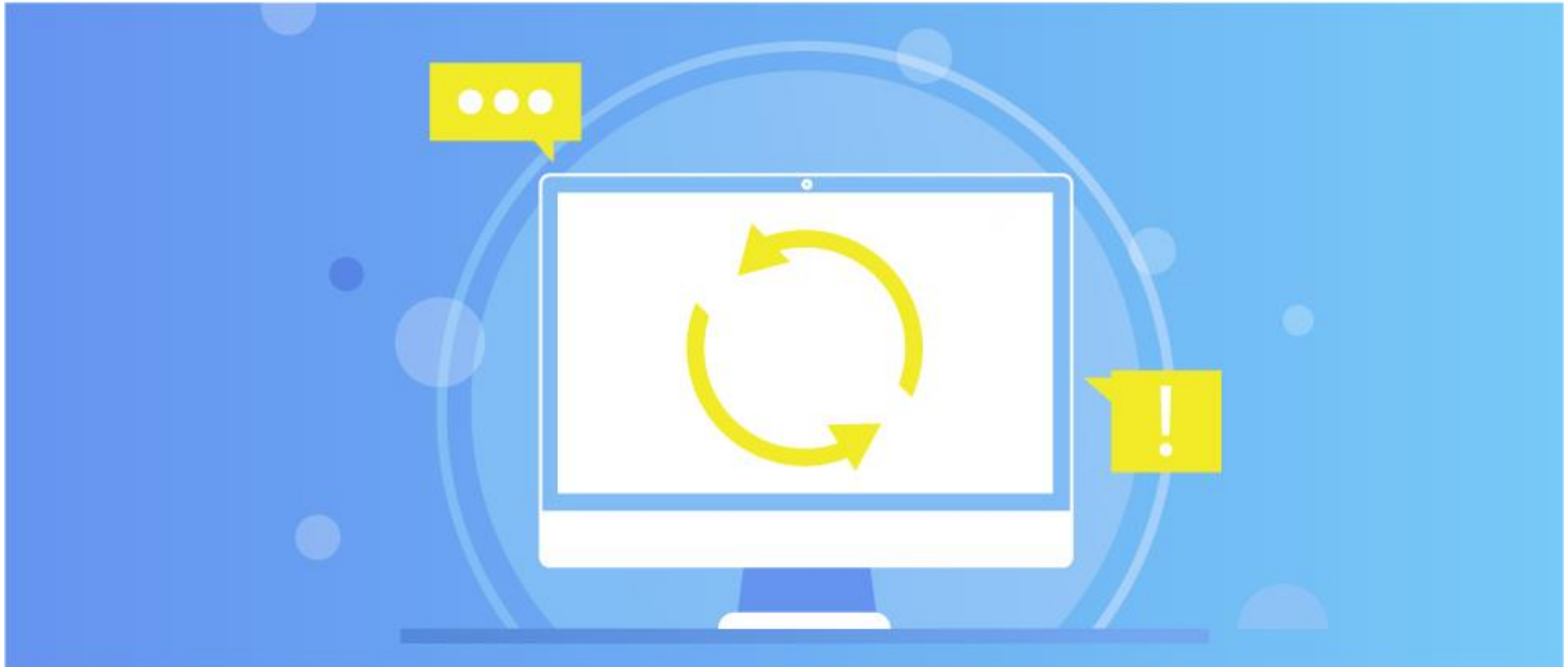
- Proposed “radial circuit” definition is with the Commission for approval for use with the reliability standards. This will ensure consistency across the reliability standards and the ISO rules.

- **“radial circuit”** means an arrangement of contiguous system elements energized at 50 kV or higher that:
 - (a) extend from a system element on the networked transmission system in a linear or branching configuration;
 - (b) connect to one or more of a load facility, a generating unit, or an aggregated generating facility; and
 - (c) comprise the only circuit by which power can flow between the networked transmission system and the facilities identified in item (b) under normal operating conditions, and includes an arrangement where the circuit energized at 50 kV or higher is connected to another circuit energized at 50 kV or higher, either through a switching device that is operated normally open or through facilities energized.

Related System Project

- A proposed system project is being considered to implement the utility orderwire changes for existing facilities.
- SCADA changes are also being considered as part of the system project.
 - Both changes are planned to address an operational risk.
 - Further details to come on whether this project will proceed and what the scope of the project will be.

Next Steps



- **Twitter:** @theAESO
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Thank you