

# Alberta Reliability Standard

## Transmission Operations

### TOP-001-AB-6

#### A. Introduction

1. Title: Transmission Operations
2. Number: TOP-001-AB-6
3. Purpose: To prevent instability, uncontrolled separation, or **cascading** outages that adversely impact the reliability of the **Interconnection** by ensuring prompt action to prevent or mitigate such occurrences.
4. Applicability:
  - 4.1. Functional Entities
    - 4.1.1. the **ISO**;
    - 4.1.2. the **operator** of a **transmission facility**;
    - 4.1.3. the **operator** of a **generating unit** and **operator** of an **aggregated generating facility**;
    - 4.1.4. the **operator** of an **electric distribution system**.
5. Effective Date: January 1, 2028

#### B. Requirements and Measures

- R1.** Each **operator** of a **transmission facility** must act to maintain the **reliability** of the **operator** of a **transmission facility's** area via its own actions or by issuing operating instructions. *[Alberta Risk Rating: High] [Time Horizon: Same-Day Operations, Real-time Operations]*
- M1.** Each **operator** of a **transmission facility** must have and provide evidence, which may include dated operator logs, dated records, dated and time-stamped voice recordings or dated transcripts of voice recordings, electronic communications, or equivalent documentation, that will be used to determine that it acted to maintain the **reliability** of the **operator** of a **transmission facility's** area via its own actions or by issuing operating instructions.
- R2.** The **ISO** must act to maintain the **reliability** of its area via its own actions or by issuing operating instructions. *[Alberta Risk Rating: High] [Time Horizon: Same-Day Operations, Real-time Operations]*
- M2.** The **ISO** must have and provide evidence, which may include dated operator logs, dated records, dated and time-stamped voice recordings or dated transcripts of voice recordings, electronic communications, or equivalent documentation, that will be used to determine that it acted to maintain the **reliability** of its area via its own actions or by issuing operating instructions.
- R3.** Each **operator** of a **generating unit** connected to an **electric distribution system**, **operator** of an **aggregated generating facility** connected to an **electric distribution system**, and **operator** of an **electric distribution system** must comply with each operating instruction issued by its **operator** of a **transmission facility**, unless such action cannot be physically implemented or it would violate safety,

# Alberta Reliability Standard

## Transmission Operations

### TOP-001-AB-6

equipment, regulatory, or statutory requirements. *[Alberta Risk Rating: High] [Time Horizon: Same-Day Operations, Real-Time Operations]*

- M3.** Each **operator** of a **generating unit** connected to an **electric distribution system**, **operator** of an **aggregated generating facility** connected to an **electric distribution system**, and **operator** of an **electric distribution system** must make available upon request, evidence that it complied with each operating instruction issued by the **operator** of a **transmission facility** unless such action could not be physically implemented or it would have violated safety, equipment, regulatory, or statutory requirements. Such evidence may include dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence in electronic or hard copy format. In such cases, the **operator** of a **generating unit** connected to an **electric distribution system**, **operator** of an **aggregated generating facility** connected to an **electric distribution system**, or **operator** of an **electric distribution system** must have and provide copies of the safety, equipment, regulatory, or statutory requirements as evidence for not complying with the **operator** of a **transmission facility**'s operating instruction. If such a situation has not occurred, the **operator** of a **generating unit** connected to an **electric distribution system** and **operator** of an **aggregated generating facility** connected to an **electric distribution system**, or **operator** of an **electric distribution system** may provide an attestation.
- R4.** Each **operator** of a **generating unit** connected to an **electric distribution system**, **operator** of an **aggregated generating facility** connected to an **electric distribution system**, and **operator** of an **electric distribution system** must inform its **operator** of a **transmission facility** of its inability to comply with an operating instruction issued by its **operator** of a **transmission facility**. *[Alberta Risk Rating: High] [Time Horizon: Same-Day Operations, Real-Time Operations]*
- M4.** Each **operator** of a **generating unit** connected to an **electric distribution system**, **operator** of an **aggregated generating facility** connected to an **electric distribution system**, and **operator** of an **electric distribution system** must make available upon request, evidence which may include dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or equivalent evidence in electronic or hard copy format, that it informed its **operator** of a **transmission facility** of its inability to comply with its operating instruction issued. If such a situation has not occurred, the **operator** of a **generating unit** connected to an **electric distribution system**, **operator** of an **aggregated generating facility** connected to an **electric distribution system**, or **operator** of an **electric distribution system** may provide an attestation.
- R5.** Each **operator** of a **transmission facility**, **operator** of a **generating unit**, **operator** of an **aggregated generating facility**, and **operator** of an **electric distribution system** must comply with each operating instruction issued by the **ISO**, unless such action cannot be physically implemented or it would violate safety, equipment, regulatory, or statutory requirements. *[Alberta Risk Rating: High] [Time Horizon: Same-Day Operations, Real-Time Operations]*
- M5.** Each **operator** of a **transmission facility**, **operator** of a **generating unit**, **operator** of an **aggregated generating facility** and **operator** of an **electric distribution system** must make available upon request, evidence that it complied with each operating instruction issued by the **ISO** unless such action could not be physically implemented or it would have violated safety, equipment, regulatory, or statutory requirements. Evidence may include dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence in electronic or hard copy format. In such cases, the **operator** of a **transmission facility**, **operator** of a **generating unit**, **operator** of an **aggregated generating facility** and **operator** of an **electric distribution system** must have and provide copies of the safety, equipment, regulatory, or statutory

# Alberta Reliability Standard

## Transmission Operations

### TOP-001-AB-6

requirements as evidence for not complying with the **ISO's** operating instruction. If such a situation has not occurred, the **operator** of a **transmission facility**, **operator** of a **generating unit**, **operator** of an **aggregated generating facility** or **operator** of an **electric distribution system** may provide an attestation.

- R6.** Each **operator** of a **transmission facility**, **operator** of a **generating unit**, **operator** of an **aggregated generating facility** and **operator** of an **electric distribution system** must inform the **ISO** of its inability to comply with an operating instruction issued by the **ISO**. *[Alberta Risk Rating: High] [Time Horizon: Same- Day Operations, Real-Time Operations]*
- M6.** Each **operator** of a **transmission facility**, **operator** of a **generating unit**, **operator** of an **aggregated generating facility** and **operator** of an **electric distribution system** must make available upon request, evidence which may include dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or equivalent evidence in electronic or hard copy format, that it informed the **ISO** of its inability to comply with its operating instruction. If such a situation has not occurred, the **operator** of a **transmission facility**, **operator** of a **generating unit**, **operator** of an **aggregated generating facility** or **operator** of an **electric distribution system** may provide an attestation.
- R7.** Each **operator** of a **transmission facility** must assist other **operators** of **transmission facilities** within its **reliability coordinator area**, if requested and able, provided that the requesting **operator** of a **transmission facility** has implemented its comparable **operating procedures**, unless such assistance cannot be physically implemented or would violate safety, equipment, regulatory, or statutory requirements. *[Alberta Risk Rating: High] [Time Horizon: Real-Time Operations]*
- M7.** Each **operator** of a **transmission facility** must make available upon request, evidence that comparable requested assistance, if able, was provided to other **operators** of **transmission facilities** within its **reliability coordinator area** unless such assistance could not be physically implemented or would have violated safety, equipment, regulatory, or statutory requirements. Evidence may include dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence in electronic or hard copy format. If no request for assistance was received, the **operator** of a **transmission facility** may provide an attestation.
- R8.** Each **operator** of a **transmission facility** must inform **the ISO** and each known impacted **operator** of a **transmission facility**, of its actual or expected operations that could result in an **emergency**. *[Alberta Risk Rating: High] [Time Horizon: Operations Planning, Same-Day Operations, Real-Time Operations]*
- M8.** Each **operator** of a **transmission facility** must make available upon request, evidence that it informed the **ISO**, and each known impacted **operator** of a **transmission facility** of its actual or expected operations that could result in an **emergency**. Evidence may include dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence. If no such situations have occurred, the **operator** of a **transmission facility** may provide an attestation.
- R9.** The **ISO** must notify known impacted interconnected entities of all **planned outages**, and unplanned outages of 30 minutes or more, for telemetering and control equipment, monitoring and assessment capabilities, and associated communication channels between the affected entities. *[Alberta Risk Rating: Medium] [Time Horizon: Operations Planning, Same-Day Operations, Real-Time Operations]*

# Alberta Reliability Standard

## Transmission Operations

### TOP-001-AB-6

- M9.** The **ISO** must make available upon request, evidence that it notified known impacted interconnected entities of all **planned outages**, and unplanned outages of 30 minutes or more, for telemetering and control equipment, monitoring and assessment capabilities, and associated communication channels. Evidence may include dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence. If such a situation has not occurred, the **ISO** may provide an attestation.
- R9.A1.** The **operator** of a **transmission facility** must notify the **ISO** and known impacted interconnected entities of all **planned outages**, and unplanned outages of 30 minutes or more, for telemetering and control equipment, monitoring and assessment capabilities, and associated communication channels between the affected entities. *[Alberta Risk Rating: Medium] [Time Horizon: Operations Planning, Same-Day Operations, Real-Time Operations]*
- M9.A1.** The **operator** of a **transmission facility** must make available upon request, evidence that it notified the **ISO** and known impacted interconnected entities of all **planned outages**, and unplanned outages of 30 minutes or more, for telemetering and control equipment, monitoring and assessment capabilities, and associated communication channels. Evidence may include dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence. If such a situation has not occurred, the **operator** of a **transmission facility** may provide an attestation.
- R10.** Each **operator** of a **transmission facility** must perform the following for determining **system operating limit** exceedances within the **operator** of a **transmission facility's** area: *[Alberta Risk Rating: High] [Time Horizon: Real-Time Operations]*
- 10.1.** Monitor **transmission facilities** within the **operator** of a **transmission facility's** area;
  - 10.2.** Monitor the status of **remedial action schemes** within the **operator** of a **transmission facility's** area;
  - 10.3.** Monitor non-**bulk electric system** facilities within the **operator** of a **transmission facility's** area identified as necessary by the **operator** of a **transmission facility**;
  - 10.4.** Obtain and utilize status, voltages, and flow data for **transmission facilities** outside the **operator** of a **transmission facility's** area identified as necessary by the **operator** of a **transmission facility**;
  - 10.5.** Obtain and utilize the status of **remedial action schemes** outside the **operator** of a **transmission facility's** area identified as necessary by the **operator** of a **transmission facility**; and
  - 10.6.** Obtain and utilize status, voltages, and flow data for non-**bulk electric system** facilities outside the **operator** of a **transmission facility's** area identified as necessary by the **operator** of a **transmission facility**.
- M10.** Each **operator** of a **transmission facility** must have, and provide upon request, evidence that may include energy management system description documents, computer printouts, supervisory control and data acquisition (SCADA) data collection, or other equivalent evidence that will be used to confirm that it monitored or obtained and utilized data as required to determine any **system operating limit** exceedances within the **operator** of a **transmission facility's** area.
- R11.** The **ISO** must monitor its area, including the status of **remedial action schemes** that impact generation or load, in order to maintain generation-load-interchange balance within its area and

# Alberta Reliability Standard

## Transmission Operations

### TOP-001-AB-6

support **interconnection** frequency. *[Alberta Risk Rating: High] [Time Horizon: Real-Time Operations]*

- M11.** The **ISO** must have, and provide upon request, evidence that may include energy management system description documents, computer printouts, SCADA data collection, or other equivalent evidence that will be used to confirm that it monitors its area, including the status of **remedial action schemes** that impact generation or load, in order to maintain generation-load-interchange balance within its area and support **interconnection** frequency.
- R12.** Intentionally left blank.
- M12.** Intentionally left blank.
- R13.** Intentionally left blank.
- M13.** Intentionally left blank.
- R14.** The **ISO** must initiate its **operating plan** to mitigate a **system operating limit** exceedance identified as part of its real-time monitoring or real-time assessment. *[Alberta Risk Rating: High] [Time Horizon: Real-time Operations]*
- M14.** The **ISO** must have evidence that it initiated its **operating plan** for mitigating **system operating limit** exceedances identified as part of its real-time monitoring or real-time assessments. Evidence may include dated computer logs showing times the **operating plan** was initiated, dated checklists, or other evidence. Other evidence may include: system logs/records showing successfully mitigated **system operating limit** exceedances in conjunction with **operating plans** (e.g. mutually agreed operating protocols between **operators** of **transmission facilities** and the **ISO**, operating procedures, operating processes, operating policies, generator redispatch logs, equipment settings for automatically switched equipment and **reactive power**/voltage control devices, switching schedules, etc.)
- R15.** Each **operator** of a **transmission facility** must inform the **ISO** of actions taken to return the system to within limits when a **system operating limit** has been exceeded in accordance with the **ISO's** **system operating limit** methodology. *[Alberta Risk Rating: Medium] [Time Horizon: Real-Time Operations]*
- M15.** Each **operator** of a **transmission facility** must make available evidence that it informed the **ISO** of actions taken to return the system to within limits when a **system operating limit** was exceeded in accordance with the **ISO's** system operating methodology. Such evidence may include dated operator logs, electronic communications, voice recordings or transcripts of voice recordings, or dated computer printouts. If such a situation has not occurred, the **operator** of a **transmission facility** may provide an attestation.
- R16.** Each **operator** of a **transmission facility** must provide its operating personnel with the authority to approve **planned outages** and maintenance of its telemetering and control equipment, monitoring and assessment capabilities, and associated communication channels between affected entities. *[Alberta Risk Rating: High] [Time Horizon: Operations Planning, Same-Day Operations, Real-time Operations]*

# Alberta Reliability Standard

## Transmission Operations

### TOP-001-AB-6

- M16.** Each **operator** of a **transmission facility** must have, and provide upon request, evidence that may include a documented procedure or equivalent evidence that will be used to confirm that the **operator** of a **transmission facility** has provided its operating personnel with the authority to approve **planned outages** and maintenance of telemetering and control equipment, monitoring and assessment capabilities, and associated communication channels between affected entities.
- R17.** Intentionally left blank.
- M17.** Intentionally left blank.
- R18.** The **ISO** and each **operator** of a **transmission facility** must operate to the most limiting parameter in instances where there is a difference in **system operating limits**. *[Alberta Risk Rating: High] [Time Horizon: Operations Planning, Same-Day Operations, Real-time Operations]*
- M18.** The **ISO** and each **operator** of a **transmission facility** must have, and provide upon request, evidence that may include operator logs, voice recordings, electronic communications, or equivalent evidence that will be used to determine if it operated to the most limiting parameter in instances where there is a difference in **system operating limits**.
- R19.** Reserved.
- M19.** Reserved.
- R20.** Each **operator** of **transmission facility** must have data exchange capabilities, with redundant and diversely routed data exchange infrastructure within the **operator's** primary **control centre**, for the exchange of real-time data with **ISO**, and the entities it has identified it needs data from in order for it to perform its real-time monitoring. *[Alberta Risk Rating: High] [Time Horizon: Same-Day Operations, Real-time Operations]*
- M20.** Each **operator** of a **transmission facility** must have, and provide upon request, evidence that may include system specifications, system diagrams, or other documentation that lists its data exchange capabilities, including redundant and diversely routed data exchange infrastructure within the **operator's** primary **control centre**, for the exchange of real-time data with **ISO**, and the entities it has identified it needs data from in order to perform its real-time monitoring as specified in the requirement.
- R21.** Each **operator** of a **transmission facility** must test its primary **control centre** data exchange capabilities specified in Requirement R20 for redundant functionality at least once every 90 **days**. If the test is unsuccessful, the **operator** of a **transmission facility** must initiate action within two hours to restore redundant functionality. *[Alberta Risk Rating: Medium] [Time Horizon: Operations Planning]*
- M21.** Each **operator** of a **transmission facility** must have, and provide upon request, evidence that it tested its primary **control centre** data exchange capabilities specified in Requirement R20 for the redundant functionality, or experienced an event that demonstrated the redundant functionality; and, if the test was unsuccessful, initiated action within two hours to restore redundant functionality as specified in Requirement R21. Evidence may include dated and time-stamped test records, operator logs, voice recordings, or electronic communications.

# Alberta Reliability Standard

## Transmission Operations

### TOP-001-AB-6

**R22.** Reserved.

**M22.** Reserved.

**R23.** Intentionally left blank.

**M23.** Intentionally left blank.

**R24.** Intentionally left blank.

**M24.** Intentionally left blank.

**R25.** The ISO must use its **system operating limit** methodology when determining **system operating limit** exceedances for real-time assessments, real-time monitoring, and operational planning analysis. *[Alberta Risk Rating: High] [Time Horizon: Same-Day Operations, Real-time Operations, Operations Planning]*

**M25.** The ISO must have, and provide upon request, evidence that it used its **system operating limit** methodology when determining **system operating limit** exceedances for real-time assessments, real-time monitoring, and operational planning analysis. Evidence may include the ISO's **system operating limit** methodology, **operating plans**, **contingency** sets, alarming and study reporting thresholds, operator logs, voice recordings or other equivalent evidence.

#### C. Compliance

[Intentionally left blank.]

#### D. Regional Variances

Intentionally left blank.

#### E. Associated Documents

- AESO Information Document, #2025-002, *Transmission Operations* and any amendments made thereto from time to time.

**Operating plan** - An **operating plan** includes general operating processes and specific **operating procedures**. It may be an overview document which provides a prescription for an **operating plan** for the next-day, or it may be a specific plan to address a specific **system operating limit** or **interconnection reliability operating limit** exceedance identified in the operational planning analysis. Consistent with the NERC definition, **operating plans** can be general in nature, or they can be specific plans to address specific **reliability** issues. The use of the term **operating plan** in the revised TOP/IRO standards allows room for both. An **operating plan** references processes and procedures, including electronic data exchange, which are available to the system operator on a daily basis to allow the operator to reliably address conditions which may arise throughout the day. It is valid for tomorrow, the day after, and the day after that. **Operating plans** should be augmented by temporary operating guides which outline prevention/mitigation plans for specific situations which are identified day-to-day in an operational planning analysis or a real-time assessment (RTA). As the definition in the NERC *Glossary of Terms* states, a restoration plan is an example of an **operating plan**. It contains all the overarching principles that the system operator needs to work his/her way through the restoration process. It is not a specific

# Alberta Reliability Standard

## Transmission Operations

### TOP-001-AB-6

document written for a specific blackout scenario but rather a collection of tools consisting of processes, procedures, and automated software systems that are available to the operator to use in restoring the system. An **operating plan** can in turn be looked upon in a similar manner. It does not contain a prescription for the specific set-up for tomorrow but contains a treatment of all the processes, procedures, and automated software systems that are at the operator's disposal. The existence of an **operating plan**, however, does not preclude the need for creating specific action plans for specific **system operating limit** or **interconnection reliability operating limit** exceedances identified in the operational planning analysis. When a **reliability coordinator** performs an operational planning analysis, the analysis may reveal instances of possible **system operating limits** or **interconnection reliability operating limit** exceedances for pre- or post-**contingency** conditions. In these instances, **reliability coordinators** are expected to ensure that there are plans in place to prevent or mitigate those **system operating limits** or **interconnection reliability operating limits**, should those operating conditions be encountered the next day. The **operating plan** may contain a description of the process by which specific prevention or mitigation plans for day-to-day **system operating limit** or **interconnection reliability operating limit** exceedances identified in the operational planning analysis are handled and communicated. This approach could alleviate any potential administrative burden associated with perceived requirements for continual day-to-day updating of "the **operating plan** document" for compliance purposes.

#### Version History

| Version | Effective Date | Description of Changes |
|---------|----------------|------------------------|
| AB-6    | 2028-01-01     | Initial release.       |