Alberta Reliability Standard
Reliability Coordination - Facilities
IRO-002-AB-2

1. Purpose

The **ISO** needs information, tools and other capabilities to perform its responsibilities.

2. Applicability

This **reliability standard** applies to:

(a) the **ISO**.

3. Requirements

R1 The **ISO** must have adequate communications facilities (voice and data links) to appropriate entities within its area. These communications facilities must be staffed and available to act in addressing a real-time emergency condition.

R2 The **ISO** must provide, or arrange provisions for, data exchange to **reliability coordinators** or **transmission operators** and **balancing authorities** via a secure network.

R3 The **ISO** must have multi-directional communications capabilities with each **operator** of a **transmission facility** within the **interconnected electric system**, and with neighboring **reliability coordinators**, for both voice and data exchange as required to meet reliability needs of the **Interconnection**.

R4 The **ISO** must have detailed real-time monitoring capability of its area and sufficient monitoring capability of its surrounding areas to ensure that potential or actual **system operating limit** or **interconnection reliability operating limit** violations are identified. The **ISO** must have monitoring systems that provide information that can be easily understood and interpreted by the **ISO**'s operating personnel, giving particular emphasis to alarm management and awareness systems, automated data transfers, and synchronized information systems, over a redundant and highly reliable infrastructure.

R5 The **ISO** must monitor **system elements** of the **bulk electric system** that could result in **system operating limit** or **interconnection reliability operating limit** violations within its area. The **ISO** must monitor both **real power** and **reactive power** system flows, and **operating reserves**, and the status of **system elements** of the **bulk electric system** that are or could be critical to **system operating limit** s and **interconnection reliability operating limit** s and system restoration requirements within its area.

R6 The **ISO** must have adequate analysis tools such as state estimation, pre and post-contingency analysis capabilities (thermal, stability, and voltage), and **wide-area** overview displays.

R7 The **ISO** must continuously monitor its area. The **ISO** must have provisions for backup facilities that must be exercised if the main monitoring system is unavailable. The **ISO** must ensure **system operating limit** or **interconnection reliability operating limit** monitoring and derivations continue if the main monitoring system is unavailable.

R8 The **ISO** must control its analysis tools (referred to in requirement R6), including approvals for planned maintenance. The **ISO** must have procedures in place to mitigate the effects of analysis tool outages.

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.

MR1 Evidence may include, but is not limited to, a document that lists communications facilities (voice and data links) with applicable entities within its area.

Evidence of having personnel available to act in addressing a real-time emergency condition as required in requirement R1 exists. Evidence may include, but is not limited to, shift schedules.

MR2 Evidence of providing or arranging provisions as required in requirement R2 exists. Evidence may include, but is not limited to, network description documentation.

MR3 The **ISO** may have evidence that could include, but is not limited to, a document that lists multi-directional communications facilities with each **operator** of a **transmission facility** and with neighboring **reliability coordinators**, that will be used to confirm that it has multi-directional communications facilities, for both voice and data exchange, in accordance with requirement R3.

MR4 The **ISO** may have evidence that could include, but is not limited to, energy management system description documents, computer printouts, SCADA data collection system communications performance or equivalent evidence to demonstrate that it has real-time monitoring capability of its area and monitoring capability of its surrounding areas to identify potential or actual **system operating limit** or **interconnection reliability operating limit** violations.

MR5 Evidence of monitoring **bulk electric system elements** and both **real power** and **reactive power** system flows, and **operating reserves**, and the status of **system elements** of the **bulk electric system** as required in requirement R5 exists. Evidence may include, but is not limited to, SCADA displays, single line diagram print screens or other equivalent evidence.

MR6 The **ISO** may have evidence that could include, but is not limited to, EMS displays, or other equivalent evidence to show that it has analysis tools in accordance with requirement R6.

MR7 The **ISO** may have evidence such as equipment documentation, operating procedures, or other equivalent evidence to show that it has a backup monitoring facility that can be used to identify and monitor **system operating limit** s and **interconnection reliability operating limits**.

MR8 The **ISO** may have evidence that could include, but is not limited to, a documented procedure for approval of planned maintenance to analysis tools (referred to in requirement R6).

The **ISO** may have procedures that are used to mitigate the effects of analysis tool outages as specified in requirement R8.

Revision History

Effective Date	Description
2015-04-01	Initial release.
2016-08-30	Inclusion of the defined term **system element**.