

A. Introduction

- 1. Title:** **Disturbance Monitoring Equipment Installation and Data Reporting**
- 2. Number:** PRC-018-1
- 3. Purpose:** Ensure that Disturbance Monitoring Equipment (DME) is installed and that Disturbance data is reported in accordance with regional requirements to facilitate analyses of events.
- 4. Applicability**
 - 4.1.** Transmission Owner.
 - 4.2.** Generator Owner.
- 5. Effective Dates:** Phased in over four years after BOT adoption:
Requirements 1 and 2:
 - a. 50% compliant two years after initial issuance of regional requirements per RELIABILITY STANDARD PRC-002 Requirement 5.
 - b. 75% compliant three years after initial issuance of regional requirements per reliability standard PRC-002 R5.
 - c. 100% compliant four years after initial issuance of regional requirements per reliability standard PRC-002 R5.Requirements 3 through 6:
 - d. 100% compliant six months after BOT adoption for already installed DME.
 - e. 100% compliant six months after installation for DMEs installed to meet Regional Reliability Organization requirements per reliability standard PRC-002 Requirements 1, 2 and 3.

B. Requirements

- R1.** Each Transmission Owner and Generator Owner required to install DMEs by its Regional Reliability Organization (reliability standard PRC-002 Requirements 1-3) shall have DMEs installed that meet the following requirements:
 - R1.1.** Internal Clocks in DME devices shall be synchronized to within 2 milliseconds or less of Universal Coordinated Time scale (UTC)
 - R1.2.** Recorded data from each Disturbance shall be retrievable for ten calendar days..
- R2.** The Transmission Owner and Generator Owner shall each install DMEs in accordance with its Regional Reliability Organization's installation requirements (reliability standard PRC-002 Requirements 1 through 3).
- R3.** The Transmission Owner and Generator Owner shall each maintain, and report to its Regional Reliability Organization on request, the following data on the DMEs installed to meet that region's installation requirements (reliability standard PRC-002 Requirements 1.1, 2.1 and 3.1):
 - R3.1.** Type of DME (sequence of event recorder, fault recorder, or dynamic disturbance recorder).
 - R3.2.** Make and model of equipment.

- R3.3.** Installation location.
- R3.4.** Operational status.
- R3.5.** Date last tested.
- R3.6.** Monitored elements, such as transmission circuit, bus section, etc.
- R3.7.** Monitored devices, such as circuit breaker, disconnect status, alarms, etc.
- R3.8.** Monitored electrical quantities, such as voltage, current, etc.
- R4.** The Transmission Owner and Generator Owner shall each provide Disturbance data (recorded by DMEs) in accordance with its Regional Reliability Organization's requirements (reliability standard PRC-002 Requirement 4).
- R5.** The Transmission Owner and Generator Owner shall each archive all data recorded by DMEs for Regional Reliability Organization-identified events for at least three years.
- R6.** Each Transmission Owner and Generator Owner that is required by its Regional Reliability Organization to have DMEs shall have a maintenance and testing program for those DMEs that includes:
 - R6.1.** Maintenance and testing intervals and their basis.
 - R6.2.** Summary of maintenance and testing procedures.

C. Measures

- M1.** The Transmission Owner and Generator Owner shall each have evidence that DMEs it is required to have meet the functional requirements specified in Requirement 1 and are installed in accordance with its associated Regional Reliability Organization's requirements (R2).
- M2.** The Transmission Owner and Generator Owner shall each maintain the data listed in Requirements 3.1 through 3.8 for the DMEs installed to meet its Regional Reliability Organization's DME installation requirements.
 - M2.1** The Transmission Owner and Generator Owner shall each have evidence it provided this DME data to its Regional Reliability Organization within 30 calendar days of a request.
- M3.** The Transmission Owner and Generator Owner shall each have evidence it retained and provided recorded Disturbance data to entities in accordance with its associated Regional Reliability Organization's Disturbance data reporting requirements. (R4 R5)
- M4.** Each Transmission Owner and Generator Owner that is required to install DMEs to meet its Regional Reliability Organization's DME installation requirements, shall have an associated DME maintenance and testing program as defined in Requirement 6.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Compliance Monitor – British Columbia Utilities Commission

Compliance Monitor's Administrator – Western Electricity Coordinating Council

1.2. Compliance Monitoring Period and Reset Time Frame

One calendar year.

1.3. Data Retention

The Transmission Owner and Generator Owner shall each retain any Disturbance data provided to the Regional Reliability Organization (Requirement 4) for three years.

The Compliance Monitor's Administrator shall retain any audit data for three years, except where the records contain Restricted Information (as defined in the Rules of Procedure).

1.4. Additional Compliance Information

The Transmission Owner and Generator Owner shall demonstrate compliance through self-certification or audit (periodic, as part of targeted monitoring or initiated by complaint or event), as determined by the Compliance Monitor.

2. Levels of Non-Compliance

2.1. Level 1: There shall be a level one non-compliance if any of the following conditions is present:

2.1.1 DMEs that meet all the Regional Reliability Organization's installation requirements (in accordance with Requirement 2) were installed at 90% or more but not all of the required locations.

2.1.2 Recorded Disturbance data that meets all Regional Reliability Organization's Disturbance data requirements (in accordance with Requirement 4) was provided for 90% or more but not all of the required locations.

2.1.3 Data on required DMEs was incomplete (in accordance with R3)

2.1.4 Documentation of the DME maintenance and testing program provided was incomplete as required in R6, but records indicate maintenance and testing did occur within the identified intervals for the portions of the program that were documented.

2.2. Level 2: There shall be a level two non-compliance if any of the following conditions is present:

2.2.1 DMEs that meet all Regional Reliability Organization's installation requirements (in accordance with R2) were installed at 80% or more but less than 90% of the required locations.

2.2.2 Recorded Disturbance data that meets all Regional Reliability Organization's Disturbance data requirements (in accordance with R4) was provided for 80% or more but less than 90% of the required locations.

2.2.3 Recorded Disturbance data was not provided to all required entities (in accordance with R4)

2.2.4 Archived data was not retained for three years (in accordance with Requirement 5).

2.2.5 Documentation of the DME maintenance and testing program provided was complete as required in R6, but records indicate that maintenance and testing did not occur within the defined intervals.

2.3. Level 3: There shall be a level three non-compliance if any of the following conditions is present:

- 2.3.1 DMEs that meet all Regional Reliability Organization's installation requirements (in accordance with R2) were installed at 70% or more but less than 80% of the required locations.
 - 2.3.2 Recorded Disturbance data that meets all Regional Reliability Organization's Disturbance data requirements (in accordance with R4) was provided for 70% or more but less than 80% of the required locations.
 - 2.3.3 Documentation of the DME maintenance and testing program provided was incomplete as required in R6, and records indicate implementation of the documented portions of the maintenance and testing program did not occur within the identified intervals.
- 2.4. **Level 4:** There shall be a level four non-compliance if any one of the following conditions is present:
- 2.4.1 DMEs that meet all Regional Reliability Organization's installation requirements (in accordance with R2) were installed at less than 70% of the required locations.
 - 2.4.2 Recorded Disturbance data that meets all Regional Reliability Organization's Disturbance data requirements (in accordance with R4) was provided for less than 70% of the required locations.
 - 2.4.3 DMEs that meet all functional requirements (in accordance with R1) were not installed at all required locations.
 - 2.4.4 **Documentation of the DME maintenance and testing program was not provided, or no evidence that the testing program did occur within the identified intervals**

E. **Regional Differences**

None identified.