

### Standard Development Roadmap

*This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.*

#### Development Steps Completed:

1. Transmission Operator Certification SAR submitted — October 7, 2002.
2. Transmission Operator Certification SAR authorized for posting — November 20, 2002.
3. SAR drafting team appointed — January 6, 2003.
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6. Transmission Operator Certification SAR authorized by SAC for standard development — September 8, 2003.
7. Standard drafting team appointed — September 24, 2003.
8. Transmission Operator Certification Standard first posting — January 3, 2005 to February 18, 2005.

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**Agreement:** A contract or other document delineating an arrangement that expresses assent by two or more parties to the same object. This arrangement determines a course of action to be followed by all parties involved in the situation. The key components of the agreement must identify the ability, intent, and authority of the parties. The requirement for an agreement can be satisfied in a variety of ways, including but not limited to: contracts, designation of authority documents, policies, and procedures.

[Above definition is proposed to replace the existing definition of Agreement in the Reliability Standards Glossary of Terms:]

**Transmission Operator Area:** A collection of electrical facilities which a Transmission Operator is responsible for controlling or directing operations.

## A. Introduction

1. **Title:** **Transmission Operator Certification — Certification**
2. **Number:** ORG-001-1
3. **Purpose:** To ensure that each entity that performs the transmission operation function is certified as a NERC Transmission Operator by the NERC Regional Reliability Organization using the NERC Certification Process for Transmission Operators.
4. **Applicability**
  - 4.1. Entity seeking certification as a Transmission Operator
  - 4.2. Regional Reliability Organization
5. **(Proposed) Effective Date:** April 1, 2006

## B. Requirements

- R1. The entity that intends to perform the transmission operations function shall obtain certification as a NERC Transmission Operator by satisfying all of the requirements identified in the NERC Transmission Operator Certification Standards:
  - Transmission Operator Certification — Certification
  - Transmission Operator Certification — Agreements
  - Transmission Operator Certification — Personnel
  - Transmission Operator Certification — Data Acquisition and Monitoring
  - Transmission Operator Certification — System Analysis
  - Transmission Operator Certification — Emergency Operations
  - Transmission Operator Certification — Loss of Control Center Functionality
  - Transmission Operator Certification — Restoration
- R2. The entity seeking certification as a Transmission Operator shall apply for certification in accordance with and adhere to the administrative requirements of the NERC Certification Process for Transmission Operators.
- R3. A Transmission Operator may delegate tasks, but shall retain responsibility for all tasks. Each entity seeking certification as a Transmission Operator shall identify any task for which it is responsible that will be performed by another entity and shall ensure that the entity has the capability to perform the tasks. The entity, to which a task is delegated, shall be subject to review.
- R4. The Transmission Operator shall have procedures, processes, and tools for adhering to NERC Reliability Standards including reporting requirements.
- R5. The awarding of certification to the Transmission Operator shall be based on satisfying all of the requirements defined in the NERC Transmission Operator Certification Standards identified in Requirement R1.
- R6. The NERC Regional Reliability Organizations shall administer the certification process using the NERC Certification Process for Transmission Operators.
- R7. The process for certification shall include an on-site visit of the Transmission Operator's control center facilities.

**C. Measures**

- M1.** The Transmission Operator shall meet Requirement R1.
- M2.** The Transmission Operator shall have available for inspection, documentation to meet Requirements R2 through R4.
- M3.** The Regional Reliability Organization shall administer the certification process in adherence with Requirements R5 through R7.

**D. Compliance**

**1. Compliance Monitoring Process**

**1.1. Compliance Monitoring Responsibility**

**1.1.1** Regional Reliability Organization for Requirements R1 through R4.

**1.1.2** NERC for Requirements R5 through R7.

**1.2. Compliance Monitoring Period and Reset Timeframe**

None

**1.3. Data Retention**

Regional Reliability Organization — None

NERC — Regional Reliability Organization letter of certification approval

**1.4. Additional Compliance Information**

None

**2. Levels of Non-Compliance**

**2.1. Level 1:** Not Applicable

**2.2. Level 2:** Not Applicable

**2.3. Level 3:** Not Applicable.

**2.4. Level 4:** Not Applicable

**E. Regional Differences**

None identified

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[Above definition is proposed to replace the existing definition of Agreement in the Reliability Standards Glossary of Terms:]

**Transmission Operator Area:** A collection of electrical facilities which a Transmission Operator is responsible for controlling or directing operations.

## A. Introduction

1. **Title:** Transmission Operator Certification — Agreements
2. **Number:** ORG-002-1
3. **Purpose:** To ensure that the entity seeking certification as a Transmission Operator has agreements in place that define its responsibilities, authority, and interaction with entities that are necessary to perform its transmission operations function.
4. **Applicability**
  - 4.1. Entities seeking certification as a Transmission Operator
5. **(Proposed) Effective Date:** April 1, 2006

## B. Requirements

- R1. The Transmission Operator shall have an executed copy of the NERC Confidentiality Agreement to which the Transmission Operator is bound.
  - R1.1. The Transmission Operator shall confirm that all its personnel who have access to information that is deemed confidential in conjunction with the NERC Confidentiality Agreement have been trained and understand their obligations under the agreement.
- R2. The Transmission Operator shall have agreements that define the responsibilities and authority of that Transmission Operator with respect to its Reliability Coordinator, Generator Owner, Generator Operator, Planning Authority, Distribution Providers, Transmission Owners, Transmission Service Provider(s), Balancing Authorities, Transmission Planners, and adjacent Transmission Operators for the defined Transmission Area that addresses:
  - R2.1. The Transmission Operators commitment to:
    - R2.1.1. Provide facility and operational data to the Reliability Coordinator.
    - R2.1.2. Provide real-time operational data to the Reliability Coordinator.
    - R2.1.3. Provide transmission maintenance and construction plans to the Reliability Coordinator and Planning Authority.
    - R2.1.4. Implement corrective actions as directed by the Reliability Coordinator.
    - R2.1.5. Notify the Reliability Coordinator of the implementation of the Transmission Operator's emergency procedures.
    - R2.1.6. Operate the transmission system within the generator facility ratings.
      - R2.1.6.1. Notify Generator Operators of transmission system problems that may affect generator operation.
    - R2.1.7. Operate the transmission system within the transmission facility ratings.
    - R2.1.8. Provide information and capability to curtail and shed load during emergencies to the Planning Authority.
    - R2.1.9. Implement DC tie operations.
    - R2.1.10. Reduce voltage or shed load if needed to ensure balance in real-time as requested by the Balancing Authority or Reliability Coordinator.
    - R2.1.11. Obtain generation facility data, real-time operational data and generator maintenance plans.

- R2.1.12.** Obtain facility ratings and transmission maintenance and construction plans.
- R2.1.13.** Obtain transmission system protection and control information, including special protection systems.
- R2.2.** The Reliability Coordinator's commitment to provide reliability analyses to the Transmission Operator.
- R2.3.** The Generator Owner's commitment to provide voltage support.
- R2.4.** The Generator Operator's commitment to:
  - R2.4.1.** Provide reactive supply.
  - R2.4.2.** Report immediate changes in status of automatic voltage regulators and power system stabilizers.
  - R2.4.3.** Provide real-time operating information.
- R2.5.** The Distribution Provider's commitment to implement voltage reduction and shed load.
- R2.6.** The Transmission Planner's commitment to define and communicate transmission system protection and control information, including special protection systems.
- R2.7.** Commitment of both the Transmission Operator and adjacent Transmission Operators to coordinate:
  - R2.7.1.** Transmission line flows on interconnected facilities.
  - R2.7.2.** Transmission operations and maintenance outages.

### **C. Measures**

- M1.** The Transmission Operator shall have available for inspection agreement(s) that meet Requirements R1 and R2.

### **D. Compliance**

#### **1. Compliance Monitoring Process**

##### **1.1. Compliance Monitoring Responsibility**

Regional Reliability Organization

##### **1.2. Compliance Monitoring Period and Reset Timeframe**

None

##### **1.3. Data Retention**

None

##### **1.4. Additional Compliance Information**

None

#### **2. Levels of Non-Compliance**

**2.1. Level 1:** Not Applicable

**2.2. Level 2:** Not Applicable

**2.3. Level 3:** Not Applicable

**2.4. Level 4:** Not Applicable

**E. Regional Differences**

None identified

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## A. Introduction

1. **Title:** **Transmission Operator Certification - Personnel**
2. **Number:** ORG-003-1
3. **Purpose:** To ensure that the entity seeking certification as a Transmission Operator has operating personnel that have been trained and are NERC certified to perform Transmission Operator real-time responsibilities.
4. **Applicability**
  - 4.1. Entities seeking certification as a Transmission Operator
5. **(Proposed) Effective Date:** April 1, 2006

## B. Requirements

- R1. The Transmission Operator shall have NERC-certified personnel to perform any of the real-time Transmission Operator responsibilities 24 hours a day, seven days a week. Personnel shall have a current certification credential applicable to the Transmission Operations function. If any of these real-time tasks are delegated, the personnel performing these tasks shall also be certified.
  - R1.1. Tasks considered real-time Transmission Operator responsibilities include:
    - Monitor, operate or direct the operations of the transmission system within equipment and facility ratings.
    - Deploy reactive resources to maintain acceptable voltage profiles.
    - Notify Generator Operators of transmission system problems.
    - Request Reliability Coordinator to mitigate equipment overloads.
    - Coordinate load shedding with, or as directed by, the Reliability Coordinator.
    - Direct load shedding.
    - Implement DC tie operations
- R2. The Transmission Operator shall provide its operating personnel with training that addresses all of the procedures, processes, and tools associated with performing the Transmission Operator responsibilities identified in Requirement R1.
  - R2.1. The Transmission Operator shall have training records identifying when the training occurred, who attended the training, and the material that was covered.

## C. Measures

- M1. The Transmission Operator shall have available for inspection, record of all certification for personnel identified in Requirement R1.
- M2. The Transmission Operator shall have available for inspection, record of all training activities for personnel identified in Requirement R2.

## D. Compliance

1. **Compliance Monitoring Process**
  - 1.1. **Compliance Monitoring Responsibility**  
Regional Reliability Organization

**1.2. Compliance Monitoring Period and Reset Timeframe**

None

**1.3. Data Retention**

None

**1.4. Additional Compliance Information**

None

**2. Levels of Non-Compliance**

**2.1. Level 1:** Not Applicable

**2.2. Level 2:** Not Applicable

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**E. Regional Differences**

None identified

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## A. Introduction

1. **Title:** Transmission Operator Certification — Data Acquisition and Monitoring
2. **Number:** ORG-004-1
3. **Purpose:** To ensure that each entity seeking certification as a Transmission Operator has real-time transmission, generation, and protection and control data in order to adequately monitor the transmission system.
4. **Applicability**
  - 4.1. Entity seeking certification as a Transmission Operator
5. **(Proposed) Effective Date:** April 1, 2006

## B. Requirements

- R1. The Transmission Operator shall have data reporting requirements for its Transmission Operator Area that include: data required, periodicity of transmittal, format of submission, and time frame.
- R2. The Transmission Operator shall have procedures, processes, and tools for acquiring:
  - R2.1. Generation facility data
  - R2.2. Generator real-time operational data
  - R2.3. Generator maintenance plans
  - R2.4. Transmission facility data
  - R2.5. Transmission real-time operational data
  - R2.6. Transmission maintenance and construction plans
  - R2.7. System protection and control information, including special protection schemes
  - R2.8. Generator reactive supply
  - R2.9. Status of automatic voltage regulator
- R3. The Transmission Operator shall have procedures, processes, and tools to:
  - R3.1. Provide its Transmission Operator Area information, in real-time, to the Reliability Coordinator.
  - R3.2. Coordinate transmission maintenance and construction plans with the Reliability Coordinator.
  - R3.3. Coordinate with adjacent Transmission Operators.
- R4. The Transmission Operator shall have procedures, processes, and tools for monitoring its Transmission Operator Area with real-time data that includes:
  - R4.1. Frequency
  - R4.2. Voltages
  - R4.3. Transmission facility flows — both real and reactive
  - R4.4. Transmission facility statuses
  - R4.5. Generator MW and MVAR output

- R4.6. Phase angles (if applicable)
- R4.7. Special protection system statuses (if applicable)
- R4.8. Equipment dynamic ratings (if applicable)
- R4.9. Transformer load tap changers position (if applicable)
- R4.10. Phase shifter settings (if applicable)

**C. Measures**

- M1. The Transmission Operator shall have available for inspection its established data reporting requirements identified in Requirement R1.
- M2. The Transmission Operator shall demonstrate that it can follow its procedure, process, or use its tools to collect the data or information identified in Requirement R2 and R4.
- M3. The Transmission Operator shall demonstrate that it can provide and coordinate the elements identified in Requirement R3.

**D. Compliance**

**1. Compliance Monitoring Process**

**1.1. Compliance Monitoring Responsibility**

Regional Reliability Organization

**1.2. Compliance Monitoring Period and Reset Timeframe**

None

**1.3. Data Retention**

None

**1.4. Additional Compliance Information**

None

**2. Levels of Non-Compliance**

- 2.1. Level 1: Not Applicable
- 2.2. Level 2: Not Applicable
- 2.3. Level 3: Not Applicable
- 2.4. Level 4: Not Applicable

**E. Regional Differences**

None identified

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**A. Introduction**

1. **Title:** Transmission Operator Certification — System Analysis
2. **Number:** ORG-005-1
3. **Purpose:** To ensure that the entity seeking certification as a Transmission Operator has the ability to perform system analyses, develop contingency plans, coordinate actions, and operate its Transmission Operator Area within established limits.
4. **Applicability**
  - 4.1. Entity seeking certification as a Transmission Operator
5. **(Proposed) Effective Date:** April 1, 2006

**B. Requirements**

- R1. The Transmission Operator shall perform real-time reliability analysis and alert operating personnel to limit violations.
- R2. The Transmission Operator shall perform contingency analyses, develop contingency plans and coordinate these plans with its Reliability Coordinator.
- R3. The Transmission Operator shall communicate real-time actions to its Reliability Coordinator.
- R4. The Transmission Operator shall determine and arrange for the required reactive resources to ensure voltage support.
- R5. The Transmission Operator shall develop operating limits (thermal, voltage, and stability) for use in real-time operations.

**C. Measures**

- M1. The Transmission Operator shall have available for inspection its procedures, processes, and tools to meet Requirements R1 through R5.

**D. Compliance**

1. **Compliance Monitoring Process**
  - 1.1. **Compliance Monitoring Responsibility**  
Regional Reliability Organization
  - 1.2. **Compliance Monitoring Period and Reset Timeframe**  
None
  - 1.3. **Data Retention**  
None
  - 1.4. **Additional Compliance Information**  
None
2. **Levels of Non-Compliance**
  - 2.1. **Level 1:** Not Applicable
  - 2.2. **Level 2:** Not Applicable
  - 2.3. **Level 3:** Not Applicable
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**E. Regional Differences**

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## A. Introduction

1. **Title:** Transmission Operator Certification — Emergency Operations
2. **Number:** ORG-006-1
3. **Purpose:** To ensure that the entity seeking certification as a Transmission Operators has the capability for continued operations during Emergency conditions.
4. **Applicability:**
  - 4.1. Entity seeking certification as a Transmission Operator
5. **(Proposed) Effective Date:** April 1, 2006

## B. Requirements

- R1. The Transmission Operator shall have procedures or processes that define its responsibilities, authority, and actions for responding, communicating status, and coordinating operations during an Emergency that address when the Transmission Operator:
  - R1.1. Is unable to meet its voltage and reactive requirements.
  - R1.2. Is experiencing an actual Emergency.
  - R1.3. Has experienced or is informed of an actual or suspected act of sabotage that affects a physical or cyber asset within its Transmission Operator Area.
  - R1.4. Takes actions under an anticipated or actual Emergency.
    - R1.4.1. Coordinate with adjacent Transmission Operators.
  - R1.5. Is directed to take action to mitigate an Interconnection Reliability Operating Limit violation.
  - R1.6. Must shed load when directed by the Balancing Authority or Reliability Coordinator.

## C. Measures

- M1. The Transmission Operator shall demonstrate that it can follow its procedures, processes, or use its tools to operate during Emergency conditions as identified in Requirement R1.

## D. Compliance

1. **Compliance Monitoring Process**
  - 1.1. **Compliance Monitoring Responsibility**

Regional Reliability Organization
  - 1.2. **Compliance Monitoring Period and Reset Timeframe**

None
  - 1.3. **Data Retention**

None
  - 1.4. **Additional Compliance Information**

None
2. **Levels of Non-Compliance**
  - 2.1. **Level 1:** Not Applicable

2.2. Level 2: Not Applicable

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2. Transmission Operator Certification SAR authorized for posting — November 20, 2002.
3. SAR drafting team appointed — January 6, 2003.
4. Transmission Operator Certification SAR first posting — December 1, 2002 to January 10, 2003.
5. Transmission Operator Certification SAR second posting — May 15, 2003 to June 13, 2003.
6. Transmission Operator Certification SAR authorized by SAC for standard development — September 8, 2003.
7. Standard drafting team appointed — September 24, 2003.
8. Transmission Operator Certification Standard first posting — January 3, 2005 to February 18, 2005.

### Description of Current Draft:

This is the second posting of the Transmission Operator Certification Standards. These standards have been drafted based on the SARs and updated based on the comments received during the first and second postings of the Balancing Authority Certification Standard and the first posting of the Transmission Operator Certification Standards.

To address comments received from the previous postings of the BA and TOP standards and to maintain consistency with the current NERC Reliability Standards, the term Reliability Authority has been replaced throughout the certification standards with the term Reliability Coordinator. All references to the Interchange Authority have been removed from the certification standards.

### Future Development Plan:

Anticipated Actions	Anticipated Date
1. The drafting team will consider and respond to comments received during the current posting and revise the draft standard as needed.	July 2005
2. It may be necessary to post this standard for a third time if changes are made after receiving the comments from this second posting.	August 2005
3. Ballot standards.	October 2005
4. BOT adoption.	February 6, 2006
5. Proposed effective date.	April 1, 2006

### Definitions of Terms Used in Standard

*This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.*

**Transmission Operator Area:** A collection of electrical facilities which a Transmission Operator is responsible for controlling or directing operations.

## A. Introduction

1. **Title:** Transmission Operator Certification — Loss of Control Center Functionality
2. **Number:** ORG-007-1
3. **Purpose:** To ensure that the entity seeking certification as a Transmission Operator has the capability for continued operations during loss of its control center functionality.
4. **Applicability:**
  - 4.1. Entity seeking certification as a Transmission Operator
5. **(Proposed) Effective Date:** April 1, 2006

## B. Requirements

- R1. The Transmission Operator shall have procedures, processes, tools, or facilities to continue to operate in accordance with NERC standards related to Loss of Control Center Functionality under the single occurrence for each of the following conditions:
  - Evacuation of control center building
  - Loss of communications<sup>1</sup>
  - Loss of monitoring and assessment systems functionality
  - Loss of Supervisory Control and Data Acquisition system data
  - Loss of control center support functions, i.e. air conditioning, power, or water
- R2. The Transmission Operator shall have procedures or processes and tool(s) to operate in accordance with NERC Standards for a Transmission Operator during the conditions identified in Requirement R1 and shall address the following:
  - R2.1. Acquiring generation facility data, real-time operational data and generator maintenance plans.
  - R2.2. Acquiring transmission facility data, real-time operational data and maintenance and construction plans.
  - R2.3. Providing its Transmission Operator Area information, in real-time, to the Reliability Coordinator.
  - R2.4. Providing and coordinating transmission maintenance and construction plans with the Reliability Coordinator.
  - R2.5. Coordinating with adjacent Transmission Operators.
  - R2.6. Performing real-time reliability analysis.
  - R2.7. Performing contingency analyses, develop contingency plans, and coordinate these plans with its Reliability Coordinator.
  - R2.8. Determining and arranging for the required reactive resources to ensure voltage support.
  - R2.9. Communicating real-time actions to its Reliability Coordinator.

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<sup>1</sup> Loss of communications is meant to include all communications other than that associated with SCADA data (internet, administrative and operational voice, etc)

**R2.10.** Monitoring its Transmission Operator Area with real-time data.

**C. Measures**

**M1.** The Transmission Operator shall have available for inspection its procedures, processes, tools or facilities to meet Requirements R1 and R2.

**D. Compliance**

**1. Compliance Monitoring Process**

**1.1. Compliance Monitoring Responsibility**

Regional Reliability Organization

**1.2. Compliance Monitoring Period and Reset Timeframe**

None

**1.3. Data Retention**

None

**1.4. Additional Compliance Information**

None

**2. Levels of Non-Compliance**

**2.1. Level 1:** Not Applicable

**2.2. Level 2:** Not Applicable

**2.3. Level 3:** Not Applicable

**2.4. Level 4:** Not Applicable

**E. Regional Differences**

None identified

**Version History**

Version	Date	Action	Change Tracking
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### Standard Development Roadmap

*This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.*

#### Development Steps Completed:

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5. Proposed effective date.	April 1, 2006

### **Definitions of Terms Used in Standard**

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**A. Introduction**

1. **Title:** Transmission Operator Certification — Restoration
2. **Number:** ORG-008-1
3. **Purpose:** To ensure that the entity seeking certification as a Transmission Operator has a detailed restoration plan for implementation after a system shutdown.
4. **Applicability:**
  - 4.1. Entity seeking certification as a Transmission Operator
5. **(Proposed) Effective Date:** April 1, 2006

**B. Requirements**

- R1. The Transmission Operator shall have a restoration plan that defines its responsibilities, authority, and actions in responding, communicating status, and coordinating with the Reliability Coordinator, Balancing Authority(ies), Generator Operator(s), Distribution Providers, and adjacent Transmission Operators following a partial or total system shutdown.
- R2. The Transmission Operator shall provide its restoration plan to its Reliability Coordinator.

**C. Measures**

- M1. The Transmission Operator shall have available for inspection the documentation specified in Requirements R1 and R2.

**D. Compliance**

1. **Compliance Monitoring Process**
  - 1.1. **Compliance Monitoring Responsibility**  
Regional Reliability Organization
  - 1.2. **Compliance Monitoring Period and Reset Timeframe**  
None
  - 1.3. **Data Retention**  
None
  - 1.4. **Additional Compliance Information**  
None
2. **Levels of Non-Compliance**
  - 2.1. **Level 1:** Not Applicable
  - 2.2. **Level 2:** Not Applicable
  - 2.3. **Level 3:** Not Applicable
  - 2.4. **Level 4:** Not Applicable

**E. Regional Differences**

None identified

**Version History**

Version	Date	Action	Change Tracking
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