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. The Standards Committee (SC) approved the Standard Authorization Request (SAR) for posting on March 1, 2007.
- 2. The SAR was posted for comment from March 19 through April 17, 2007.
- 3. The SC sought SAR drafting team nominations April 18 through May 2, 2007.
- 4. The SAR drafting team posted reply comments to industry comments received on the first posting of the SAR on June 8, 2007.
- 5. Standard drafting team appointed by SC Executive Committee on June 28, 2007.
- 6. Version 1 draft of COM-003-1 Standard posted November 2009 for Informal Comments closed January 15, 2010.
- 7. Version 2 draft of COM-003-1 Standard posted May 2012 for Formal Comments, Initial Ballot closed June 20, 2012.
- 8. Version 3 draft of COM-003-1 Standard posted August 2012 for Formal Comments, Ballot closed September 22, 2012.
- 9. Version 4 draft of COM-003-1 Standard posted November 2012 for Formal Comments, Ballot closed December 13, 2012.
- 10. Version 5 draft of COM-003-1 Standard posted March 2013 for Formal Comments, Ballot closed April 5, 2013.
- 11. Version 6 draft of COM-003-1 Standard posted June 2013 for Formal Comments, Ballot closed July 19, 2013.
- 12. COM-003-1 renumbered as COM-002-4. Version 1 draft of COM-002-4 Standard posted October 2013 for Formal Comments, Ballot closed November 7, 2013.
- 13. On December 12, 2013, the Standards Committee approved a waiver of the Standard Processes Manual to shorten the formal comment and ballot period, from 45 days to 30 days.

Description of Current Draft:

This is the <u>firstsecond</u> draft of a revised standard (<u>seventheighth</u> posting of a communications standard) requiring the use of standardized communication protocols during normal and emergency operations to improve situational awareness and shorten response time. The <u>standard</u> drafting team is posting this standard for a <u>15-shortened 30</u> day <u>concurrent Formal formal</u> Comment <u>period</u> and 10 day Ballot period per the Standards Committee wavier.

Future Development Plan:

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COM-002-4 Operating Personnel Communications Protocols

Anticipated Actions	Anticipated Date
1. Additional ballot of Standard	-October 2013 January 2014
2. Final ballot of Standard.	November 2013 February 2014
3. Board adopts standard-	November 2013 TBD



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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.

Operating Instruction — A command by operating personnel responsible for the Real-time generation control and operation of the interconnected Bulk Electric System to change or preserve the state, status, output, or input of an Element of the Bulk Electric System or Facility of the Bulk Electric System. (A discussion of general information and of potential options or alternatives to resolve Bulk Electric System operating concerns is not a command and is not considered an Operating Instruction. A Reliability Directive is one type of an Operating Instruction..)



A. Introduction

1. **Title:** Operating Personnel Communications Protocols

2. Number: COM-002-4

3. **Purpose:** To tightenimprove communications for the issuance of Operating Instructions with predefined communications protocols to reduce the possibility of miscommunication that could lead to action or inaction harmful to the reliability of the Bulk Electric System (BES).

4. **Applicability:**

4.1. Functional Entities

- 4.1.1 **Balancing Authority**
- **4.1.2** Distribution Provider
- **4.1.3** Reliability Coordinator
- **4.1.4** Transmission Operator
- **4.1.5** Generator Operator
- 5. (Proposed) Effective Date: The standard shall become effective on the first day of the first calendar quarter that is twelve (12) months after the date that the standard is approved by an applicable governmental authority or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is twelve (12) months after the date the standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.

B. Requirements

- R1. Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall havedevelop documented communications protocols for its operating personnel that issue and receive Operating Instructions. The protocols shall, at a minimum: [Violation Risk Factor: Low][Time Horizon: Long-term Planning]
 - 1.1. Require the issuer of a Reliability Directive to identify the action as a Reliability Directive to the receiver.
 - 1.2.1.1. Require the issuer and receiver of its operating personnel that issue and receive an oral or written Operating Instruction to use the English language, unless agreed to otherwise. An alternate language may be used for internal operations.
 - 1.3.1.2. Require the issuer of its operating personnel that issue an oral two-party, person-to-person Operating Instruction-to-wait for a response from the receiver. Once a response is received, or if no response is received, require the issuer to take one of the following actions:

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- Confirm the receiver's response if the repeated information is correct.
- Reissue the Operating Instruction if the repeated information is incorrect, if the receiver does not issue a response, or if requested by the receiver.
 - Require the receiver of Take an alternative action if a response is
 <u>not received or if the Operating Instruction was not understood by</u>
 the receiver.
- **1.4.1.3.** Require its operating personnel that receive an oral two-party, personto-person Operating Instruction to take one of the following actions:
 - Repeat, not necessarily verbatim, the Operating Instruction and wait
 forreceive confirmation from the issuer that the repetitionresponse was
 correct.
- Request that the issuer reissue the Operating Instruction.
 - Request that the issuer reissue the Operating Instruction.
- 1.5. Require the issuer of an its operating personnel that issue a written or oral single-party to multiple-party burst Operating Instruction to verbally or electronically confirm receipt by at least one receiver when issuingor verify that the Operating Instruction through awas received by at least one-way burst messaging system used to communicate a common message to multiple parties in a short time period (e.g., an all call system).
- 1.6.1.4. Require the receiver of an oralthe Operating Instruction to request clarification from the issuer if the communication is not understood when receiving the Operating Instruction through a one-way burst messaging system used to communicate a common message to multiple parties in a short time period (e.g., an all call system).
- **1.7.1.5.** Specify the instances that require time identification when issuing an oral or written Operating Instruction and the format for that time identification.
- **1.8.1.6.** Specify the nomenclature for Transmission interface Elements and Transmission interface Facilities when issuing an oral or written Operating Instruction.
- 2.0. Specify Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall conduct initial training for each of its operating personnel responsible for the instances where alpha-numeric clarifiers are required when Real-time operation of the interconnected Bulk Electric System on the documented communications protocols developed in Requirement R1 prior to that individual operator issuing an oral-Operating Instruction and the format for those clarifiers.
- R3.R2. Each Distribution Provider and Generator Operator shall have documented communications protocols. The protocols shall, at a minimum: [Violation Risk Factor: Low][Time Horizon: Long-term Planning]
 - **2.1.** Require the receiver of an oral or written Operating Instruction to respond using the English language, unless agreed to otherwise. An alternate language may be

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- usedEach Distribution Provider and Generator Operator shall conduct initial training for internal operations.
- 2.2.R3. Require the receiver of each of its operating personnel who can receive an oral two-party, person-to-person Operating Instruction prior to that individual operator receiving an oral two-party, person-to-person Operating Instruction to take one of the following actions: either: [Violation Risk Factor: Low][Time Horizon: Long-term Planning]
 - Repeat, not necessarily verbatim, the Operating Instruction and wait for receive confirmation from the issuer that the repetition response was correct..., or
 - Request that the issuer reissue the Operating Instruction.
 - **2.0.** Require the receiver of an oral Operating Instruction to request clarification from the issuer if the communication is not understood when receiving the Operating Instruction through a one-way burst messaging system used to communicate a common message to multiple parties in a short time period (*e.g.*, an all call system).
- R5.R4. Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall implement the documented communications protocols developed in Requirement R1. at least once every twelve (12) calendar months: [Violation Risk Factor: HighMedium][Time Horizon: Real time Operations] Planning]
 - Each Distribution Provider and Generator Operator 4.1. Assess adherence to the documented communications protocols in Requirement R1 by its operating personnel that issue and receive Operating Instructions, provide feedback to those operating personnel and take corrective action, as appropriate to address deviations from the documented protocols.
 - 4.2. Assess the effectiveness of its documented communications protocols in Requirement R1 for its operating personnel that issue and receive Operating Instructions and modify its documented communication protocols, as necessary.
- R6-R5. Each Balancing Authority, Reliability Coordinator, and Transmission Operator that issues an oral two-party, person-to-person Operating Instruction during an Emergency, excluding written or oral single-party to multiple-party burst Operating Instructions, shall implement the documented communications protocols developed in Requirement R2.either: [Violation Risk Factor: High][Time Horizon: Real-time Operations]
 - Confirm the receiver's response if the repeated information is correct (in accordance with Requirement R6).
 - Reissue the Operating Instruction if the repeated information is incorrect or if requested by the receiver, or
 - Take an alternative action if a response is not received or if the Operating Instruction was not understood by the receiver.

- R6. Each Balancing Authority, Distribution Provider, Generator Operator, and
 Transmission Operator that receives an oral two-party, person-to-person Operating
 Instruction during an Emergency, excluding written or oral single-party to multipleparty burst Operating Instructions, shall either: [Violation Risk Factor: High][Time
 Horizon: Real-time Operations]
 - Repeat, not necessarily verbatim, the Operating Instruction and receive confirmation from the issuer that the response was correct, or
 - Request that the issuer reissue the Operating Instruction.
- ——Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall implement a method to evaluate the communications protocols developed in Requirement R1 that: [Violation Risk Factor: Low][Time Horizon: Operations Planning]
- <u>R7.</u> Assesses adherence to the communications protocolsthat issues a written or oral single-party to provide feedback to issuers and receiversmultiple-party burst Operating Instruction during an Emergency shall confirm or verify that the Operating Instruction was received by at least one receiver of Operating Instructions. <a href="https://doi.org/10.1001/jhearth-jea
 - **5.2.** Assesses the effectiveness of the communications protocols and modifies those protocols, as necessary.

C. Measures

- **M1.** Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall provide its documented communications protocols developed for Requirement R1.
- M2. Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall provide training records related to its documented communications protocols developed for Requirement R1 such as attendance logs, agendas, learning objectives, or course materials in fulfillment of Requirement R2.
- M2.M3. Each Distribution Provider and Generator Operator shall provide its documented communications protocols developed for Requirement R2.initial training records for its operating personnel such as attendance logs, agendas, learning objectives, or course materials in fulfillment of Requirement R3.
- M3.M4. Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall provide evidence that it implemented the documented communication protocols which may include, but is not limited to, descriptions of the management practices in place that provide the entity reasonable assurance that protocols established in Requirement R1 are being followed by personnel responsible for the real-time generation control and operation of the interconnected Bulk Electric System, spreadsheets, memos, or logs, evidencing periodic, independent review of operating personnel's adherence to the protocols established in Requirement R1 and the remediation of noted exceptions in fulfillment of Requirement R5 of its assessments, including spreadsheets, logs or other evidence of feedback, findings of effectiveness

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- and any changes made to its documented communications protocols developed for Requirement R1 in fulfillment of Requirement R4. The entity shall provide evidence that it took appropriate corrective actions as part of its assessment for all instances where an operating personnel's non-adherence to the protocols developed in Requirement R1 is the sole or partial cause of an Emergency and for all other instances where the entity determined that it was appropriate to take a corrective action to address deviations from the documented protocols developed in Requirement R1.
- M4. Each Distribution Provider and Generator Operator shall provide evidence that it implemented the documented communication protocols—which may include, but is not limited to, descriptions of the management practices in place that provide the entity reasonable assurance that protocols established in Requirement R2 are being followed by personnel responsible for the real-time generation control and operation of the interconnected Bulk Electric System, spreadsheets, memos, or logs, evidencing periodic, independent review of operating personnel's adherence to the protocols established in Requirement R2.
- M5. Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall provide descriptions and associated evidence of the management practices in place that demonstrate a review of communications with operating personnel responsible for the real-time generation control and operation of the interconnected Bulk Electric System and evidence that the entity evaluates the effectiveness of its documented communications protocols in fulfillment of Requirement R5. Each Reliability Coordinator, Transmission Operator, and Balancing Authority that issued an oral twoparty, person-to-person Operating Instruction during an Emergency, excluding oral single-party to multiple-party burst Operating Instructions, shall have evidence that the issuer either: 1) confirmed that the response from the recipient of the Operating Instruction was correct; 2) reissued the Operating Instruction if the repeated information was incorrect or if requested by the receiver; or 3) took an alternative action if a response was not received or if the Operating Instruction was not understood by the receiver. Such evidence may include, but is not limited to, dated and timestamped voice recordings, or dated and time-stamped transcripts of voice recordings, or dated operator logs in fulfillment of Requirement R5.
- M6. Each Balancing Authority, Distribution Provider, Generator Operator, and
 Transmission Operator that was the recipient of an oral two-party, person-to-person
 Operating Instruction during an Emergency, excluding oral single-party to multipleparty burst Operating Instructions, shall have evidence to show that the recipient either
 repeated, not necessarily verbatim, the Operating Instruction and received confirmation
 from the issuer that the response was correct, or requested that the issuer reissue the
 Operating Instruction in fulfillment of Requirement R6. Such evidence may include,
 but is not limited to, dated and time-stamped voice recordings dated operator logs, an
 attestation from the issuer of the Operating Instruction, voice recordings (if the entity
 has such recordings), memos or transcripts.
- M5.M7. Each Balancing Authority, Reliability Coordinator and Transmission Operator that issued a written or oral single or multiple-party burst Operating Instruction during an Emergency shall provide evidence that the Operating Instruction was received by at least one receiver. Such evidence may include, but is not limited to, dated and time-

stamped voice recordings, dated operator logs, electronic records, voice recordings (if the entity has such recordings), memos or transcripts.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

As defined in the NERC Rules of Procedure, "Compliance Enforcement Authority" means NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards.

1.2. Data Retention

The following evidence retention periods identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask an entity to provide other evidence to show that it was compliant for the full time period since the last audit.

Each Balancing Authority, Distribution Provider, Generator Operator, Reliability Coordinator, and Transmission Operator shall each keep data or evidence for each applicable Requirement for the current calendar year and one previous calendar year, with the exception of voice recordings which shall be retained for a minimum of 90 calendar days, unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

If a Balancing Authority, Distribution Provider, Generator Operator, Reliability Coordinator, or Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until mitigation is complete and approved or for the time period specified above, whichever is longer.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

Compliance Monitoring and Assessment Processes

Compliance Audit

Self-Certification

Spot Checking

Compliance Investigation

Self-Reporting

Complaint

1.3. Additional Compliance Information

None



R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	Long-term Planning	Low	The responsible entity did not specify the instances that require time identification when issuing an oral or written Operating Instruction and the format for that time identification, as required in Requirement R1, Part 1.75 OR The responsible entity did not specify the-nomenclature for Transmission interface Elements and Transmission interface Facilities when issuing an oral or written Operating Instruction, as required in Requirement R1, Part 1.86.	The responsible entity did not require the issuer and receiver of an oral or written Operating Instruction to use the English language, unless agreed to otherwise, as required in Requirement R1, Part 1.21. An alternate language may be used for internal operations.	The responsible entity did not include Requirement R1, Part 1.54 in its documented communication protocols. OR The responsible entity did not include Requirement R1, Part 1.6 in its documented communications protocols.	The responsible entity did not include Requirement R1, Part 1.42 in its documented communications protocols OR The responsible entity did not include Requirement R1, Part 1.3 in its documented communications protocols OR The responsible entity did not include Requirement R1, Part 1.4 in its documented communications protocols OR The responsible entity did not include Requirement R1, Part 1.4 in its documented communications protocols OR The responsible entity did not develop any documented communications protocols as required in Requirement R1.

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			The responsible entity did not specify the instances where alpha numeric clarifiers are required when issuing an oral Operating Instruction and the format for those clarifiers, as required in Requirement R1, Part 1.9.			
R #	Time Horizon	VRF		Violatio	n Severity Levels	
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R2	Long-term Planning	Low	N/A	The responsible entity did not require the receiver of an oral or written	The An individual operator responsible for the Real-time operation of	The An individual operator responsible for the Real-time operation of the interconnected

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					ations protocols developed in Requirement R1.	OR The responsible entity did not develop any documented communications protocols as required in Requirement R2.
R3	Real-time Operations Long-term Planning	HighLo w	N/A	N/A	The An individual operator at the responsible entity demonstrates a consistent pattern of not using the documented communications protocols developed in Requirement R1 for received an Operating Instructions that are not Reliability Directives. Instruction prior to being trained.	The responsible entity did not use the documented communications protocols developed in Requirement R1 when issuing or receiving a Reliability Directive. An individual operator at the responsible entity received an Operating Instruction during an Emergency prior to being trained.

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R #	Time Horizon	VRF	Violation Severity Levels			
	ПОПДОП		Lower VSL	Moderate VSL	High VSL	Severe VSL
R4	Real-time Operations Planning	HighMe dium	N/AThe responsible entity assessed adherence to the documented communications protocols in Requirements R1 by its operating personnel that issue and receive Operating Instructions and provided feedback to those operating personnel and took corrective action, as appropriate AND The responsible entity assessed the effectiveness of its documented communications protocols in Requirement R1 for its operating personnel that issue and receive Operating	N/AThe responsible entity assessed adherence to the documented communications protocols in Requirement R1 by its operating personnel that issue and receive Operating Instructions, but did not provide feedback to those operating personnel OR The responsible entity assessed adherence to the documented communications protocols in Requirements R1 by its operating personnel that issue and receive Operating Instructions and provided feedback to those operating personnel but did not take corrective action, as appropriate OR The responsible entity assessed the effectiveness of its documented communications protocols	The responsible entity demonstrates a consistent pattern of did not using assess adherence to the documented communications protocols developed in Requirement R2 for in Requirements R1 by its operating personnel that issue and receive Operating Instructions that are OR The responsible entity did not Reliability Directives assess the effectiveness of its documented communications protocols in Requirement R1 for its operating personnel that issue and receive Operating Instructions.	The responsible entity did not useassess adherence to the documented communications protocols developed in Requirements R1 by its operating personnel that issue and receive Operating Instructions AND The responsible entity did not assess the effectiveness of its documented communications protocols in Requirement R2 when receiving a Reliability Directive.R1 for its operating personnel that issue and receive Operating Instructions.

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		documented			
		communication			
<u>R#</u>	<u>VRF</u>				
		Lower VSL	Moderate VSL	<u>High VSL</u>	Severe VSL

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			protocols, as necessary AND The responsible entity exceeded twelve (12) calendar months between assessments.	in Requirement R1 for its operating personnel that issue and receive Operating Instructions, but did not modify its documented communication protocols, as necessary.		
<u>R #</u>	<u>Time</u> Horizon	<u>VRF</u>	Violation Severity Levels			
			<u>Lower VSL</u>	Moderate VSL	<u>High VSL</u>	Severe VSL

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R5	Real-time Operations Planning	LowHig h	N/A	N/AThe responsible entity that issued an Operating Instruction during an Emergency did not take one of the following actions:	N/A	The responsible entity that issued an Operating Instruction during an Emergency did not implement a method for evaluating its communications protocols as specified take one of the following actions: • Confirmed the receiver's response if the repeated information was correct (in accordance with Requirement R5R6). • Reissued the Operating Instruction if the repeated information was incorrect or if requested by the receiver. • Took an alternative action if a response was not received or if the Operating Instruction was not understood by the receiver. AND Instability, uncontrolled separation, or cascading failures occurred as a result.
<u>R #</u>	<u>Time</u> Horizon	<u>VRF</u>	Violation Severity Levels			
	1101111011		Lower VSL	Moderate VSL	High VSL	Severe VSL

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<u>R6</u>	Real-time Operations	High	N/A	The responsible entity did not repeat, not necessarily verbatim, the Operating Instruction during an Emergency and receive confirmation from the issuer that the response was correct, or request that the issuer reissue the Operating Instruction when receiving an Operating Instruction.	N/A	The responsible entity did not repeat, not necessarily verbatim, the Operating Instruction during an Emergency and receive confirmation from the issuer that the response was correct, or request that the issuer reissue the Operating Instruction when receiving an Operating Instruction AND Instability, uncontrolled separation, or cascading failures occurred as a result.
<u>R7</u>	Real-time Operations	High	N/A	The responsible entity that that issued a written or oral single-party to multiple-party burst Operating Instruction during an Emergency did not confirm or verify that the Operating Instruction was received by at least one receiver of the Operating Instruction.	N/A	The responsible entity that that issued a written or oral single-party to multiple-party burst Operating Instruction during an Emergency did not confirm or verify that the Operating Instruction was received by at least one receiver of the Operating Instruction AND Instability, uncontrolled separation, or cascading failures occurred as a result.

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E. Regional Variances

None-

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed "Proposed" from Effective Date	Errata
1	February 7, 2006	Adopted by Board of Trustees	Added measures and compliance elements
2	November 1, 2006	Adopted by Board of Trustees	Revised in accordance with SAR for Project 2006-06, Reliability Coordination (RC SDT). Retired R1, R1.1, M1, M2 and updated the compliance monitoring information. Replaced R2 with new R1, R2 and R3.
2a	February 9, 2012	Interpretation of R2 adopted by Board of Trustees	Project 2009-22
3	November 7, 2012	Adopted by Board of Trustees	

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