

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 SAR on June 8, 2007
5. Standard drafting team appointed by SC Executive Committee on June 28, 2007

Description of Current Draft:

This is the first draft of a new standard requiring the use of standardized communication protocols during normal and emergency operations to improve situational awareness and shorten response time. The drafting team requests posting for a 45-day comment period.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Drafting team considers comments, makes conforming changes, posts for 30-day comment period.	March 16 to April 15, 2010
2. Drafting team considers comments, makes conforming changes, requests SC approval to proceed to pre-ballot comment period.	May 15, 2010
3. First ballot of standards.	June 2010
4. Recirculation ballot of standards.	July 2010
5. Board adopts standards.	August or November 2010

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.

When using terms or phrases contained in the Reliability Standards Glossary of Terms for communications it should be cited as the source. When used in written communications, terms or phrases contained in the Reliability Standards Glossary of Terms are capitalized.

Communications Protocol — A framework of rules that govern how verbal and written information is exchanged.

Three-part Communication — A Communications Protocol where information is verbally stated by a party initiating a communication, the information is repeated back correctly to the party that initiated the communication by the second party that received the communication, and the same information is verbally confirmed to be correct by the party who initiated the communication.

Interoperability Communication — Communication between two or more entities to exchange reliability-related information to be used by the entities to change the state or status of an element or facility of the Bulk Electric System.

Introduction

1. **Title:** Operating Personnel Communications Protocols
2. **Number:** COM-003-1
3. **Purpose:** To timely convey reliability-related information effectively, accurately, and consistently in order to ensure mutual understanding by all key parties, especially during alerts and emergencies.
4. **Applicability:**
 - 4.1. Transmission Operator
 - 4.2. Transmission Owner
 - 4.3. Balancing Authority
 - 4.4. Reliability Coordinator
 - 4.5. Generator Operator
 - 4.6. Distribution Provider
 - 4.7. Transmission Service Provider
 - 4.8. Load Serving Entity
5. **(Proposed) Effective Date:**

First day of first calendar quarter, one calendar year following applicable regulatory approval; or, in those jurisdictions where no regulatory approval is required, the first day of the first calendar quarter a year from the date of Board of Trustee adoption.

Requirements

- R1.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall develop a written Communications Protocol Operating Procedure (CPOP) for Interoperability Communications among personnel responsible for Real-time generation control and Real-time operation of the interconnected Bulk Electric System. The CPOP shall include but is not limited to all elements described in Requirements R2 through R7 to ensure effective Interoperability Communications.
[Violation Risk Factor: Low][Time Horizon: Long Term Planning]
- R2.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall use pre-defined system condition terminology as defined in Attachment 1-COM-003-1 for verbal and written Interoperability Communications.
[Violation Risk Factor: High][Time Horizon: Real Time]
- R3.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall use the English language for verbal and written Interoperability Communications. Responsible Entities may use an alternate language for internal communications. *[Violation Risk Factor: High][Time Horizon: Real time]*
- R4.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall use Central Standard Time (24 hour format) as the common

time zone for verbal and written Interoperability Communications. *[Violation Risk Factor: High][Time Horizon: Real time]*

- R5.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall use Three-part Communications when issuing a directive during verbal Interoperability Communications. *[Violation Risk Factor: High][Time Horizon: Real time]*
- R6.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall use the North American Treaty Organization (NATO) phonetic alphabet as identified in Attachment 2-COM-003-1 when issuing directives, notifications, directions, instructions, orders or other reliability related operating information that involves alpha-numeric information during verbal Interoperability Communications. *[Violation Risk Factor: High][Time Horizon: Real time]*
- R7.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall use pre-determined, mutually agreed upon line and equipment identifiers for verbal and written Interoperability Communications. *[Violation Risk Factor: High][Time Horizon: Real time]*

Measures

- M1.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall have and provide for review, its written CPOP that includes all elements described in Requirements R2 through R7.
- M2.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall have and provide evidence that pre-defined system condition terminology contained in Attachment 1-COM-003-1 was used for verbal and written Interoperability Communications. Evidence may include but is not limited to voice recordings, transcripts, operating logs, or on site observations.
- M3.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall have and provide evidence that the English language was used for verbal and written Interoperability Communications. Responsible Entities may use an alternate language for internal operations. Evidence may include but is not limited to voice recordings, transcripts, operating logs, or on site observations.
- M4.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall provide evidence that the Central Time Zone was used for verbal and written Interoperability Communications. Evidence may include but is not limited to voice recordings, transcripts, operating logs, or on site observation.
- M5.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall provide evidence that Three-part Communications was used

when issuing directives during verbal Interoperability Communications. Evidence may include but is not limited to voice recordings, transcripts, operating logs, or on site observations.

- M6.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider provides evidence that the NATO phonetic alphabet was used when issuing directives, notifications, directions, instructions, orders or other reliability related operating information that involves alpha-numeric information or for clarification during verbal Interoperability Communications. Evidence may include but is not limited to voice recordings, transcripts, operating logs, or on site observations.
- M7.** Each Reliability Coordinator, Balancing Authority, Transmission Owner, Transmission Operator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider provides documented evidence such as a list or a one-line diagram acknowledged and used by the affected parties that confirms there is mutual agreement on the names/identifiers of lines and equipment. Evidence of use may include but is not limited to voice recordings, transcripts, operating logs, or on site observations.

Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity

1.2. Compliance Monitoring Period and Reset

Not Applicable

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

Each Transmission Operator, Transmission Owner, Balancing Authority, Reliability Coordinator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- Each Transmission Operator, Transmission Owner, Balancing Authority, Reliability Coordinator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall retain its current, in force

document and any documents in force for Requirement 1, Measure 1 since the last compliance audit.

- Each Transmission Operator, Transmission Owner, Balancing Authority, Reliability Coordinator, Generator Operator, Transmission Service Provider, Load Serving Entity and Distribution Provider shall retain for Requirement 2 through 7, Measure 2 through 7, dated operator logs for the most recent 12 months and voice recordings or transcripts of voice recordings for the most recent 3 months.

If a Transmission Operator, Transmission Owner, Balancing Authority, Reliability Coordinator, Generator Operator, Transmission Service Provider, Load Serving Entity or Distribution Provider is found non-compliant, it shall keep information related to the non-compliance until found compliant.

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

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R #	VRF	Lower	Moderate	High	Severe
R1	Low		The responsible entity developed a CPOP but failed to incorporate one of the elements contained in R2 through R7.	The responsible entity developed a CPOP but failed to incorporate two or more elements contained in R2 through R7.	The responsible entity failed to develop a written CPOP.
R2	High				The responsible entity failed to use pre-defined system condition terminology (Attachment 1-COM-003-1) for verbal and written Interoperability Communications.
R3	High				The responsible entity failed to use the English language for verbal and written Interoperability Communications.
R4	High				The responsible entity failed to use Central Standard Time (24 hour format) as the common time zone for verbal and written Interoperability Communications.
R5	High				The responsible entity failed to use Three-part Communications when issuing a directive during verbal Interoperability Communications.
R6	High				The responsible entity failed to use the North American Treaty Organization (NATO) phonetic alphabet when issuing notifications, directions, instructions, orders and other reliability related operating information that involves alpha-numeric information or for clarification during verbal Interoperability Communications.
R7	High				The responsible entity failed to use pre-determined, mutually understood line and equipment identifiers for verbal and written Interoperability Communications.

Regional Variances

None

Version History

Version	Date	Action	Change Tracking

Attachment 1 — COM-003-1 — Operating State Alert Levels

This Attachment 1-COM-003-1 defines normal, alert, and emergency operating conditions as they relate to Transmission Loading, Physical and Cyber Security. These definitions for Transmission Loading, Physical and Cyber Security Alert states align with the Emergency Energy Alert (EEA) states (as already described in NERC Reliability Standard EOP-002-2.1). The time frame for declaration of these Alert states shall be consistent with the approach used to declare EEAs and would normally apply to Real Time declarations and not forecast conditions.

Reliability Coordinator Notifications for Physical Security Emergency Alerts		
<p>Condition YELLOW: The Reliability Coordinator is notified of a verified actual or imminent physical threat affecting any ONE site within the RC Area:</p> <ul style="list-style-type: none"> ▪ Control center ▪ Generating facility ▪ Substation ▪ Transmission line 	<p>Condition ORANGE: The Reliability Coordinator is notified of a physical attack at any ONE site within the RC Area:</p> <ul style="list-style-type: none"> ▪ Control center ▪ Generating facility ▪ Substation ▪ Transmission line 	<p>Condition RED: The Reliability Coordinator is notified of a physical attack at multiple sites within the RC Area:</p> <ul style="list-style-type: none"> ▪ Control center ▪ Generating facility ▪ Substation ▪ Transmission line
<p>Make Initial Notifications: “This is the Reliability Coordinator. At (insert time) there is a Physical Security Emergency Alert – PSEA Level One within (identify RC, TOP or BA area)”</p>	<p>Make Initial Notifications: “This is the Reliability Coordinator. At (insert time) there is a Physical Security Emergency Alert – PSEA Level Two within (identify RC, TOP, or BA area)”</p>	<p>Make Initial Notifications: “This is the Reliability Coordinator. At (insert time) there is a Physical Security Emergency Alert – PSEA Level Three within (identify RC, TOP, or BA area)”</p>
<p>Notify all the following functional entities within the Reliability Coordinator Area:</p> <ul style="list-style-type: none"> ▪ Balancing Authorities ▪ Distribution Service Providers ▪ Generator Operators ▪ Transmission Operators ▪ Transmission Owners 		
<p>Notify the following functional entities outside the Reliability Coordinator Area:</p> <ul style="list-style-type: none"> ▪ All Reliability Coordinators using “CIP Free Form” category of RCIS 		
<p>Notify the following entities:</p> <ul style="list-style-type: none"> ▪ NERC (ES-ISAC) via the RCIS. Under “External Links” use “ES-ISAC Site”. 		
<p>Additional Communications:</p> <ul style="list-style-type: none"> ▪ Post the declaration of the alert level along with the location of the affected facility to other parties as required by internal communication procedure, OE-417 Form, law enforcement, etc. 		

<p>Make Final Notifications: “At (insert time) the Physical Security Emergency Alert – PSEA Level One (identify RC, BA or TOP Area) has been curtailed”</p>	<p>Make Final Notifications: “At (insert time) the Physical Security Emergency Alert – PSEA Level Two within (identify RC, TOP or BA Area) has been curtailed”</p>	<p>Make Final Notifications: “At (insert time) the Physical Security Emergency Alert – PSEA Level Three within (identify RC, TOP, or BA Area) has been curtailed</p>
<p>Notify all the following within the Reliability Coordinator Area:</p> <ul style="list-style-type: none"> ▪ Balancing Authorities ▪ Distribution Service Providers ▪ Generator Operators ▪ Transmission Operators ▪ Transmission Owners 		
<p>Notify the following outside the Reliability Coordinator Area: All Reliability Coordinators using “CIP Free Form” category of RCIS. Notify ES-ISAC of end of Alert and any other entities initially notified.</p>		
<p>Additional Communications:</p> <ul style="list-style-type: none"> ▪ Remove the declaration of the alert level from the RCIS and other entities initially notified. 		

Attachment 1 — COM-003-1 — Operating State Alert Levels (continued)

Reliability Coordinator Notifications for Cyber Security Emergency Alerts		
<p>Condition YELLOW: The Reliability Coordinator is notified of a identified actual or imminent cyber threat affecting any ONE site within the RC Area:</p> <ul style="list-style-type: none"> ▪ Control center ▪ Generating facility ▪ Substation ▪ Transmission line 	<p>Condition ORANGE: The Reliability Coordinator is notified of a cyber attack at any ONE site within the RC Area:</p> <ul style="list-style-type: none"> ▪ Control center ▪ Generating facility ▪ Substation ▪ Transmission line 	<p>Condition RED: The Reliability Coordinator is notified of a cyber attack at multiple sites within the RC Area:</p> <ul style="list-style-type: none"> ▪ Control center ▪ Generating facility ▪ Substation ▪ Transmission line
<p>Make Initial Notifications: “This is the Reliability Coordinator. At (insert time) there is a Cyber Security Emergency Alert – CEA Level One within (identify RC, TOP or BA area)”</p>	<p>Make Initial Notifications: “This is the Reliability Coordinator. At (insert time) there is a Cyber Security Emergency Alert – CEA Level Two within (identify RC, TOP, or BA area)”</p>	<p>Make Initial Notifications: “This is the Reliability Coordinator. At (insert time) there is a Cyber Security Emergency Alert – CEA Level Three within (identify RC, TOP, or BA area)”</p>
<p>Notify all the following functional entities within the Reliability Coordinator Area:</p> <ul style="list-style-type: none"> ▪ Balancing Authorities ▪ Distribution Service Providers ▪ Generator Operators ▪ Transmission Operators ▪ Transmission Owners 		
<p>Notify the following functional entities outside the Reliability Coordinator Area:</p> <ul style="list-style-type: none"> ▪ All Reliability Coordinators and CIP Participants using “CIP Free Form” category of RCIS. 		
<p>Notify the following entities:</p> <ul style="list-style-type: none"> ▪ NERC (ES-ISAC) via the RCIS. Under “External Links” use “ES-ISAC Site”. 		
<p>Additional Communications:</p> <ul style="list-style-type: none"> ▪ Post the declaration of the alert level along with the location of the affected facility to other parties as required by internal communication procedure, OE-417 Form, law enforcement, etc. 		
<p>Make Final Notifications: “At (insert time) the Cyber Security Emergency Alert – CEA Level One (identify RC, BA or TOP Area) has been curtailed”</p>	<p>Make Final Notifications: “At (insert time) the Cyber Security Emergency Alert – CEA Level Two within (identify RC, TOP or BA Area) has been curtailed”</p>	<p>Make Final Notifications: “At (insert time) the Cyber Security Emergency Alert – CEA Level Three within (identify RC, TOP, or BA Area)” has been curtailed</p>
<p>Notify all the following within the Reliability Coordinator Area:</p> <ul style="list-style-type: none"> ▪ Balancing Authorities 		

- Distribution Service Providers
- Generator Operators
- Transmission Operators
- Transmission Owners

Notify the following outside the Reliability Coordinator Area:

All Reliability Coordinators and CIP Participants using “CIP Free Form” category of RCIS. Notify ES-ISAC of end of Alert and any other entities initially notified

Additional Communications:

- Remove the declaration of the alert level from the RCIS and any other entities initially notified.

Attachment 1 — COM-003-1 — Operating State Alert Levels (continued)

Reliability Coordinator Notifications for Transmission Emergency Alerts		
<p>Condition YELLOW: The Reliability Coordinator or Transmission Operator foresees or is experiencing conditions where all available generation resources are committed to respect the IROL and/or is concerned about its ability to respect the IROL.</p>	<p>Condition ORANGE: The Reliability Coordinator or Transmission Operator foresees or has implemented procedures up to, but excluding, interruption of firm load commitments.</p>	<p>Condition RED: The Reliability Coordinator or Transmission Operator foresees or has implemented firm load obligation interruption to respect an IROL.</p>
<p>Make Initial Notifications: “This is the Reliability Coordinator. At (insert time) there is a Transmission Emergency Alert – TEA Level One affecting the <i>(name of the interface; monitored and contingency element)</i>”</p>	<p>Make Initial Notifications: “This is the Reliability Coordinator. At (insert time) there is a Transmission Emergency Alert – TEA Level Two affecting the <i>(name of the interface; monitored and contingency elements; amount of MW relief; type of load management procedures that have been or expected to be implemented i.e., voltage reduction, curtailable load reductions; relief that has been (or is expected) to be implemented to respect the limit; any actions that are expected to last the next (length of time – hours/days).</i></p>	<p>Make Initial Notifications: “This is the Reliability Coordinator. At (insert time) there is a Transmission Emergency Alert – TEA Level Three affecting the <i>(name of the interface; monitored and contingency elements; amount of MW relief; amount of Firm Load curtailments that have been (or is expected) implemented to respect the limit; any actions that are expected to last the next (length of time – hours/days).</i>”</p>
<p>Notify all the following functional entities within the Reliability Coordinator Area:</p> <ul style="list-style-type: none"> ▪ Balancing Authorities ▪ Distribution Service Providers ▪ Generator Operators ▪ Transmission Operators ▪ Transmission Owners 		
<p>Notify the following functional entities outside the Reliability Coordinator Area:</p> <ul style="list-style-type: none"> ▪ All Reliability Coordinators using “Free Form” category of RCIS. 		
<p>Notify the following entities:</p> <ul style="list-style-type: none"> ▪ 		
<p>Additional Communications:</p> <ul style="list-style-type: none"> ▪ Post the declaration of the alert level along with the location of the affected facility to other parties as required by internal communication procedure, etc. 		
<p>Make Final Notifications: “At (insert time) the Transmission Emergency Alert – TEA Level One (identify RC, BA or TOP</p>	<p>Make Final Notifications: “At (insert time) the Transmission Emergency Alert – TEA Level Two within (identify RC,</p>	<p>Make Final Notifications: “At (insert time) the Transmission Emergency Alert – TEA Level Three within (identify RC, TOP, or BA Area)” has</p>

Area) has been curtailed"	TOP or BA Area) has been curtailed"	been curtailed
<p>Notify all the following within the Reliability Coordinator Area:</p> <ul style="list-style-type: none">▪ Balancing Authorities▪ Distribution Service Providers▪ Generator Operators▪ Transmission Operators▪ Transmission Owners		
<p>Notify the following outside the Reliability Coordinator Area: All Reliability Coordinators using "Free Form" category of RCIS</p>		
<p>Additional Communications:</p> <ul style="list-style-type: none">▪ Remove the declaration of the alert level from the RCIS and any other parties initially notified.		

Attachment 2 — COM-003-1

NATO Phonetic Alphabet or International Radiotelephony Spelling Alphabet

Character	Telephony	Pronunciation
A	Alpha	(al-fah)
B	Bravo	(brah-voh)
C	Charlie	(char-lee)
D	Delta	(dell-tah)
E	Echo	(eck-oh)
F	Foxtrot	(foks-trot)
G	Golf	(golf)
H	Hotel	(hoh-tel)
I	India	(in-dee-ah)
J	Juliet	(jew-lee-ett)
K	Kilo	(key-loh)
L	Lima	(lee-mah)
M	Mike	(mike)
N	November	(no-vem-ber)
O	Oscar	(oss-ker)
P	Papa	(pah-pah)
Q	Quebec	(keh-beck)
R	Romeo	(row-me-oh)
S	Sierra	(see-air-rah)
T	Tango	(tang-go)
U	Uniform	(you-nee-form)
V	Victor	(vik-ter)
W	Whiskey	(wiss-key)
X	X-Ray	(ecks-ray)
Y	Yankee	(yang-key)
Z	Zulu	(zoo-loo)
1	One	(wun)

Character	Telephony	Pronunciation
2	Two	(too)
3	Three	(tree)
4	Four	(fow-er)
5	Five	(fife)
6	Six	(six)
7	Seven	(sev-en)
8	Eight	(ait)
9	Nine	(nin-er)
0	Zero	(zee-row)