Reliability Guideline
Loss of Real-Time Reliability Tools Capability / Loss of Equipment Significantly Affecting ICCP Data

Applicability:
Balancing Authorities (BA)
Transmission Operators (TOP)
Reliability Coordinators (RC)

Introduction and Purpose:
It is in the interest of Bulk Electric System (BES) reliability for NERC to develop guidelines that are useful for sharing or enhancing industry practices that help maintain the reliability of the BES.

The Technical Committees of NERC; Operating Committee (OC), Planning Committee (PC) and the Critical Infrastructure Protection Committee (CIPC) per their charters¹ are authorized by the NERC Board of Trustees (Board) to develop Reliability (OC and PC) and Security Guidelines (CIPC) using the collective experience, expertise and judgment of industry subject matter experts. These guidelines are voluntary and intended to enhance NERC Reliability Standards and related requirements. Reliability guidelines are not to be used to provide binding norms or create parameters by which compliance to standards is monitored or enforced. While the incorporation of guideline practices are strictly voluntary, reviewing, revising, or developing a program using these practices is encouraged to promote the highest levels of reliability for the BES.

Responsibilities:

A. NERC as the FERC certified ERO² is responsible for the reliability of the BES and has a suite of tools to accomplish this responsibility, including but not limited to: lessons learned, reliability and security guidelines, assessments and reports, the Event Analysis program, the Compliance Monitoring and Enforcement Program and mandatory reliability standards.

B. Each entity as registered on the NERC compliance registry is responsible and accountable for maintaining reliability and compliance with the mandatory standards to maintain the reliability of their portions of the BES.

C. Entities should review this guideline in detail in conjunction with the periodic review of their internal processes and procedures and make any needed changes to their procedures based on their system design configuration and business practices.

¹ http://www.nerc.com/docs/docs/oc/OC_Charter_approved_02.16.10.pdf  
http://www.nerc.com/docs/pc/Board%20Approved%20PC%20Charter%20August%204%202011.pdf
Background:
With a goal of maintaining the reliability of the BES and promoting real-time situational awareness, BAs and TOPs should have established procedures for notifying their neighboring or contiguous entities and their RC during periods of operation in which essential Real-time tools capability is degraded or lost (e.g.: SCADA, State Estimation (SE), Contingency Analysis (CA), Automatic Generation Control (AGC) or loss of equipment significantly affecting Inter-control Center Communications Protocol (ICCP) data or ICCP data transfer). RCs should, in turn, have established procedures for notifying their neighboring RCs and affected entities within their RC Area during periods of operation in which essential Real-time tools capability is degraded or lost.

Overlap or redundant monitoring opportunities should be identified ahead of time. RCs, BAs and TOPs should identify areas of their BES footprint that may be monitored by other entities – this includes areas monitored by their RC as well as overlap areas with adjacent entities (capabilities may exist through redundant data streams or neighboring SE solutions). However, entities should clearly understand that data quality issues that exist on their systems may translate to their neighboring systems or host RC so overlap monitoring limitations should be recognized ahead of time.

Guideline Details

Essential Real Time Tools Capability Loss:
The RC should notify adjacent RCs, TOPs, and BAs within its RC Area when it loses essential Real-time tools capability. Once notified by an RC of problems with the RC Real-time tools, RC Area TOPs and BAs, or adjacent RC(s) should report any detected BES outages or abnormal BES conditions including abnormal conditions related to generation, loads or tie-line flows or SOL exceedances, to their (or the affected) RC until normal monitoring capabilities are restored. During this same time period, TOPs and BAs should also report any significant Real-time or post-contingent overloads or voltage limit deviations to their RC. Once normal monitoring capabilities are restored, normal notification processes should resume.

With an extended and continued loss of essential real-time tools, a BA/TOP should notify their RC and their neighboring entities (known impacted interconnected entities) of the tool problem or degradation being experienced as soon as practicable, but generally within 30 minutes of the loss. The notification should generally include the following:

- Provide a single point-of-contact and preferred method of communication
- Extent of the real time tool loss and systems impacted (to understand the magnitude)
- Plan and status for corrective actions to restore lost functionality
- Any requested assistance and plan for maintaining system monitoring and control
- Estimated time for restoration of functionality (if known)
- An agreed upon schedule for periodic updates

In addition to the initial notification, the following actions should be considered:

- Activate / establish alternate methods for communicating essential data (as applicable)
- Maintain communications as agreed to, to keep notified entities updated of the repair status
- Activate / establish a process to log or otherwise record or capture information or data (Real-time overloads, BES outages, significant contingencies, voltage excursions, SOL exceedances, etc.) obtained during the tool outage that cannot be logged, recorded, or captured through normal methods due to the outage being experienced
- Activate pre-defined operating protocols to minimize risk to the BES

**Significant ICCP Data Outages:**
Loss of Real-time updates of ICCP data can eventually affect state estimator solutions and degrade the accuracy or effectiveness of the tool for monitoring of the BES. (Note reference TOP-001-3: Each BA and TOP shall notify its RC and known impacted interconnected entities of all planned outages and unplanned outages of 30 minutes or more, for telemetering and control equipment, monitoring and assessment capabilities and associated communication channels between affected entities.)

**Planned Outages:**
The RC/BA/TOP should coordinate planned outages for equipment significantly affecting ICCP data transfer by notifying its neighboring entities (and for RCs, other RCs) in advance (generally 24 hours prior to a planned outage or as required in local procedures) to allow potentially impacted entities to coordinate planned work or activities. The RC/BA/TOP initiating the outage should also notify their neighboring entities and other affected RCs approximately one hour prior to the planned ICCP data outage in order to provide situational awareness regarding the activity and potential impact to tools.

**Unplanned Outages:**
Affected entities should be notified as soon as practicable of unplanned equipment outages that significantly affect ICCP data transfers or data quality.

**General Communication and Response Process:**
Once the initial notifications regarding essential real time tools capability loss or significant ICCP data outages, are made, the entity(ies) experiencing the loss or degraded capability should coordinate actions on their facilities to maintain the reliability of the BES. The RC or affected entities may deem it necessary to activate an operating plan or declare some type of operating protocol such as “conservative operations” to heighten awareness around the tool or data outage. This includes activation of any available overlap monitoring of BES Elements or entity Tie Lines.

All entities initially notified of the tool or ICCP data issue(s) should also be notified when the tool capabilities have been restored or the ICCP data transfers return to normal.

There can be different mechanisms set up for notification. Some of the examples include:
- Normal phone communication capabilities
- Emergency Hot Line System or “blast call” system
- NERC Reliability Coordinator Information System (RCIS)*
- WECCNet Messaging System** or its equivalent

*The system the RCs use to post messages and share operating information in Real-time is called the Reliability Coordinator Information System (RCIS).

**WECCNet Messaging System – A data messaging system used by WECC participating entities (e.g. utilities, RC), dispatchers and network administrators. The system is used to convey information related to WECC electrical system elements including, but not limited to; informational notices, outages, and emergency and abnormal conditions, as well as restorations.

**Revision History**

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<td>12/15/2015</td>
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