

Lesson Learned

Automatic Generation Control (AGC) Freeze

Primary Interest Groups

Balancing Authorities
Distribution Providers
Generator Operators
Reliability Coordinators
Transmission Operators

Problem Statement

An entity experienced an Automatic Generation Control (AGC) application freeze that lasted for one hour due to bad telemetry data inputs which could not be completely identified and corrected.

Details

Data telemetry input into System Operations telemetry equipment was carried on Supervisory Control and Data Acquisition (SCADA) Remote Terminal Unit (RTU) modems which failed at the System Operations Center. When the AGC's application primary telemetry points failed, the AGC application switched over to the alternate data channels. Most telemetry points properly switched over to their alternate data channels, however, several did not switch over. Not all telemetry points had an alternate signal, and it was not clear which inputs had switched over correctly. It was also discovered during the analysis that not all telemetry points were able to be overridden by the operator with manual data input.

Corrective Actions

The entity identified and addressed the following causes:

- The need to quickly identify interchange telemetry circuits that have failed and to be able to manually override bad data points.
- Update alternate channels with up-to-date source data which correctly indicates on the "Generation Tie-Line Status" display. A "Generation Tie-Line Status" display allows operators to see the status of tie-line input data and override individual incorrect tie-line data with manual input if necessary.

Lesson Learned

Regardless of failures in SCADA equipment, System Operators need robust tools to quickly and accurately identify interchange telemetry points which reflect incorrect or bad data values. System Operators must have the capability to manually input and override any incorrect telemetry data points to minimize interruption to AGC operation.

System Operators scheduled training should include: how to recognize and identify incorrect telemetry data values and how to manually override any incorrect data values on the “Generation Tie-Line Status” display. The training should meet the goal of providing the System Operator the ability to quickly identify and correct bad telemetry data values to minimize interruption to AGC operation.

A totally independent backup AGC application with different sources of data, telemetry circuits, *etc.* should be available to the System Operator to run if the primary AGC application fails. Training on the use of the backup AGC application should be part of a System Operator’s scheduled training.

For more information please contact:

Earl Shockley
Director of Event Analysis and Investigations
earl.shockley@nerc.net
404-446-2560

Steve Ashbaker
WECC – Director Operations
ashbaker@wecc.biz
801-883-6840

Source of Lesson Learned: Western Electricity Coordinating Council

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