



NERC Lessons Learned

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Incorrect IBR Primary Frequency Response Logic Caused Negative ACE

- A sustained low-frequency (59.93 Hz) event lasting approximately 10 minutes.
- In response to the event, the ISO attempted to restore the frequency by increasing the real power dispatch automatic generation control (AGC) setpoints on the grid to all participating resources, including Energy Storage Resources.
- After the fact, the ISO identified incorrect primary frequency response (PFR) response from several ESRs due to incorrect PFR droop offset.

- Upon identifying the PFR logic issue, the ESR owner and the SCADA power plant controller (PPC) provider requested written clarification from the ISO.
- ISO stated that the PFR droop offset should be “additive” to the AGC dispatch setpoint and that the control should not freeze and disregard AGC setpoints while the frequency is outside of the deadband.
- After receiving the clarification, the SCADA provider revised and updated the PPC PFR logic the following day.

- The SCADA Plant Power Controller provider reiterated that its PFR function was designed in line with the Large Generation Interconnection Agreement requirements and NERC standards.
- No documentation currently directs ESRs to correct the programming to set the PFR droop settings as additive to the dispatch setpoints while providing regulation, but this event suggests an opportunity for the industry to determine a droop setting calculation method for general use.

- https://www.nerc.com/pa/rrm/ea/Lessons%20Learned%20Document%20Library/LL20240501_Incorrect_IBR_Primary_Frequency_Response_Logic_Caused_Negative_ACE.pdf

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