



Process for Performing Relay Work (settings/design) for Interconnection Lines in the PJM system

Mission: To develop and maintain an “auditable” and “defensible” process where companies sharing an interconnection line (100 kV and above) will follow prescribed communication checks to ensure that all companies involved are aware of and agree to any relay setting or relay design related work being performed.

Reason: In the final DOE/NERC report of the August 14, 2003 blackout, Recommendation 5 states:

Establish a Program to Track Implementation of Recommendations. The August 14 blackout shared a number of contributing factors with prior large-scale blackouts, including:

- Conductors contacting trees
- Ineffective visualization of power system conditions and lack of situational awareness
- Ineffective communications
- Lack of training in recognizing and responding to emergencies
- Insufficient static and dynamic reactive power supply
- Need to improve relay protection schemes and coordination

The third and sixth bullets mentioned above are the main drivers for this initiative. Although there is no documented evidence that there was any communication breakdown between utilities from a protection standpoint, the intent of the recommendation is to ensure that all work being performed between companies is properly documented and tracked.

Major Tasks/Activities

- The RS will develop and maintain a centralized, readily accessible central repository that will store interconnection relay settings. Each PJM company will be responsible for updating/uploading their own *in service* relay settings. This repository of data exists on the PJM secure website.
- The RS will add a new line item to the monthly meeting minutes which will document communications between companies regarding the specific relay work being performed. The meeting minutes will reflect the following checks, which indicate the work progression and agreement between parties.
 - **Phase 1 - Notification of work and agreement of scope.** The initiating TO will notify the TOs affected by the proposed work. The requirement for this phase to be considered complete is an agreement by all affected parties of the general description of work to be performed and an agreement of the approximate work schedule.
 - **Phase 2 –Agreement on relay setting/design changes.** During this phase, the proposed relay settings should be exchanged for review by all TOs affected by the proposed work. The requirement for this phase to be considered complete is an



agreement by all affected TOs of the adequacy of proposed relay setting modifications and/or specific design modifications.

- **Phase 3 – Commissioning complete.** During this phase, the final PJM company relay settings should be uploaded to the “interconnection relay setting database”. The requirement for this phase to be considered complete is an agreement by all affected TOs that the final relay settings and/or design modifications have been agreed to, have been tested by qualified technicians using good testing practices (ref. PJM RTTF documents “Transmission Line Relay Testing” and “Commissioning of Protection & Control Systems on PJM Interconnected Lines”), and have been placed into service.

Note - This process is to be utilized for relay work on tie lines between separate companies, both PJM and non-PJM. If the same PJM relay group is performing the relay work at both ends of the line, then this process need not be followed. For example, a transmission owner performing the relay work at both ends of a tie line between a transmission company and an IPP/NUG need not formally communicate and document the steps above.

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