

PJM RELAY SUBCOMMITTEE

MISSION

To ensure that all PJM bulk power facilities, 200 kV and higher and all transmission facilities 100 kV to 200 ~~kV~~ kV critical to the reliability of the Bulk Electric System (BES) as defined by NERC Standard PRC-023 and as determined by PJM System Planning, are adequately protected.

The Relay Subcommittee (RS) ~~is responsible~~ reports to the PJM Planning Committee (PC) in all matters related to the application, design, performance, periodic testing and operation of protective relays, relay systems and associated equipment as utilized on the ~~200 kV and higher, interconnected, bulk power system and all transmission facilities 100 kV to 200 kV critical to the reliability of the BES as defined by PRC-023 and~~ facilities noted above as determined by PJM System Planning and of PJM ~~M~~member companies.

PARTICIPATION REQUIREMENTS

- Participation in the RS is limited to those PJM Member companies who are signatories to the Operating Agreement and are a NERC registered Transmission Owner or Generation Owner as defined by NERC within the PJM region.
- Designated individuals from NERC and its Regional Entities (e.g. Reliability First Corporation, SERC) are also permitted to attend.
- As needed, guest presenters may be permitted to attend for portions of the meetings as agreed to by the RS Members. This will be noted on the agenda and minutes.
- Participants require CEII (Critical Energy Infrastructure Information) clearance for meeting attendance and related materials.

RESPONSIBILITIES

To fulfill ~~this~~ its mission, the RS must develop principles, procedures and standards for protective relaying and associated equipment, which are consistent with:

1. established planning and operating principles, procedures and standards relating to the adequacy and reliability of 200 kV and higher bulk power facilities and all transmission facilities 100 kV to 200 kV critical to the reliability of the BES as defined by NERC Standard PRC-023, and
- 4-2. ~~those principles, procedures and standards determined established~~ by PJM System Planning, of PJM ~~Members of the PJM Interconnection,~~ and of its interconnections with neighboring systems.

RESPONSIBILITIES

1. The RS shall maintain the "PJM Relay Subcommittee Protective Relaying Philosophy and Design Guide" and ~~the "PJM Protection Standards"~~ (recommend corresponding revisions to PJM Manual 07: PJM Protection Standards) document, which establish the minimum acceptable relay protection for generator units, interconnection lines and associated transmission facilities. ~~These documents are~~ Manual 07 is to be reviewed ~~at least once every four~~ three years and submitted to the PC for ~~approval~~ endorsement.
2. Investigate new protective devices and philosophies. Arrange for, and attend, educational type seminars with vendors or consultants for updates on state-of-the-art equipment and methodologies.

~~3. Assign and oversee Relay Testing Subcommittee (RTS) projects. Reports and recommendations submitted by the RTS will be reviewed by the RS and where appropriate will be forwarded to the PC for approval. As needed establish special sessions to assign relay testing work activities. Maintain a relay testing contact list, including a relay testing coordination lead, to engage Transmission Owner representatives for participation as needed. Review reports and recommendations developed in the relay testing special sessions and where appropriate, recommend to the PC for endorsement.~~

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4. Review established guidelines for determination of load limitations for protective relays and systems.
5. Interface with other PJM Committees and ~~Subcommittees~~ Groups in joint studies or provide assistance to these other Groups as required for their studies and investigations (Examples of these studies would be stability studies, Transient Network Analyzer studies, etc.).
6. Periodically share system protection challenges with RS ~~m~~Members.
7. Review major disturbances, both internal and external to PJM, and determine any relevance to PJM facilities.
8. Review Misoperations on BES equipment.
9. Review all new 765 kV and 500 kV installations, as well as any Special Protection Systems/Remedial Action Schemes that impacts PJM bulk power facilities 200 kV and higher. Results of the review, including any non-conforming designs, should be noted in the Relay Subcommittee meeting ~~minutes~~ materials. Lower voltage bulk facilities only require review if there is a question to compliance with the standards at the discretion of the associated Relay Subcommittee ~~m~~Member.
10. Consult with manufacturers on specific equipment problems as required.

~~11. Carry out all assignments delegated to the RS by the PC.~~

~~12. Develop and maintain a "Coordination of Protection on Shared Facilities" process, for facilities 100 kV and higher, to support PJM compliance activities associated with NERC standard PRC-001. This process defines milestones that must be agreed to by two or more transmission or generation owners when relay work (settings/design) is to be performed on either terminal of an inter-tie line or an interface with a generating company, and includes maintaining the Shared Facilities table and the tie line relay setting repository.~~

~~13.11.~~ Interface with NERC, DOE, and regional reliability organizations, as necessary.

~~14.12.~~ Review all Special Protection Systems/Remedial Action Schemes additions, removals, operations and mis-operations.

13. Each PJM ~~M~~member Transmission Owner and Generator Owner (as defined by NERC) shall identify instances where a relay component of a Protection System on any BES Facility is non-redundant as defined under TPL-001-4 Category P5. All identified instances shall be documented and annually reported to PJM for analysis and incorporation into the appropriate planning and operational assessments.

~~15.14.~~ Reviewing NERC standards and supporting data requests associated with the standards.

ADMINISTRATIVE

- ~~1. The RS is responsible to the PC in all matters related to the application, design, performance, periodic testing and operation of protective relays, relay systems and associated equipment as utilized on the PJM system, 200 kV and higher.~~
- ~~2.1. The RS will be chaired by a representative from PJM one of the PJM member companies on a two-year rotation basis.~~
- ~~2. On a two-year rotation basis, a representative from one of the PJM member companies will be appointed to record minutes. This representative will then become the RS chairman as mentioned above.~~
- ~~3. All Subcommittees will adhere to Manual 34: PJM Stakeholder Process rules of procedure and code of conduct.~~
- ~~3.4. RS members must refrain from forwarding meeting attendance information or sharing meeting materials beyond RS authorized attendees.~~

CORE COMPETENCIES

Each RS member should have the authority to commit resources in order to support the requirements of the Relay Subcommittee.

1. Should be knowledgeable in basic relaying fundamentals with experience in the protection of high voltage transmission systems.
2. Must have the ability to participate in RS meetings.

Approved by the PJM Planning Committee on November 14, 2019