

## **Recognition of Automatic Sectionalizing Schemes (from PJM Manual M-03)**

Several PJM transmission owners use line and substation designs that automatically switch equipment in order to isolate faulted system elements (e.g., a line or a transformer) from unfaulted elements. Within the protection schemes for these system elements, sufficient fault detection and control capability is provided to automatically isolate the faulted element and then restore remaining equipment to service.

Recognition of these design features is integrated into PJM operational systems by the selective utilization of short term (load dump) thermal ratings when performing contingency analysis for the loss of the multiple element configuration and utilizing emergency thermal ratings for contingency analysis for the individual elements of the multiple element configuration. This analytical approach ensures that following the normal operation of the automatic sectionalizing scheme, there will be no violations of emergency thermal ratings and that there will be no violations of load dump thermal ratings during the period when the multiple element contingency has occurred. The *Voltage and Stability Operating Guidelines* outlined in Section 3 of this manual will continue to be applied with the analysis for these criteria utilizing the loss of the multiple element configuration.

The identification and qualifying analysis for automatic sectionalizing schemes follows these process steps:

- The transmission owner identifies a candidate automatic sectionalizing scheme and provides PJM with specific information to permit analysis of the scheme. Technical information provided for the candidate scheme includes:
  - A description of the transmission elements currently monitored as a multiple element contingency
  - A description of those elements that will be isolated and either remain out of service or restored for successful operation of the automatic sectionalizing scheme
- PJM performs analysis to ensure that there are no voltage collapse or stability concerns with the operation of the transmission system utilizing the candidate scheme and the associated load dump ratings.

If the candidate scheme passes the qualifying analysis, PJM staff, with input from the Transmission Owner, develops appropriate documentation and discusses the candidate scheme at the following PJM Committees:

- System Operation Subcommittee and Dispatcher Training Task Force
- Operating Committee
- Planning Committee
- Market Implementation Committee
- Markets and Reliability Committee

Documentation for the candidate scheme will include:

- Descriptive information on the scheme as provided by the transmission owner
- Any proposed manual revisions to provide on-going documentation of the scheme and its operational characteristics.

Following discussion of the candidate scheme with the Committees, PJM will proceed with the implementation of appropriate system changes to recognize the scheme with the formal integration of the scheme into PJM systems occurring not earlier than 90 days after the final committee review. PJM will conduct an annual review of automatic sectionalizing schemes to ensure that the results of the initial qualifying analysis remain in effect.