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SPP Southwest Power Pool

SPP Regional Trustee Update

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Southwest Power Pool

Review of BES Definition Thresholds

Areas Reviewed

- **100 kV bright-line (Core definition) – Assigned to Planning Executive Committee**
- **Generation threshold (Inclusions I2 and I4) MVA values associated with single unit and multiple unit facilities – Assigned to Reliability Assessment Subcommittee**
- **Reactive Power MVA level (Inclusion I5) – Assigned to System Analysis and Modeling Subcommittee**
- **Power flow allowed out of local networks**

Review of BES Definition Thresholds - Recommendations

100 kV Bright-Line

- **The definition of the BES should be easy to understand; and therefore, easy to administer as a "bright line".**
  - **Periodic recalculations of elements that could be classified as BES elements should be avoided.**
- **The Planning Executive Committee (PC ExCom) recommends the adoption and continued use of the 100 kV bright-line (Core definition)**

Review of BES Definition Thresholds - Recommendations

20/75 Generator Threshold

- **The Reliability Assessment Subcommittee (RAS) recommends keeping the existing thresholds in Inclusions I2 and I4 as currently defined.**
- **The RAS also recommends one enhancement to both Inclusions I2 and I4, as follows:**
  - **All generators, regardless of size, be required to submit modeling data to the appropriate Planning Coordinator to ensure accurate coverage of the facility in the development of local, regional, and interconnection wide models.**

Review of BES Definition Thresholds - Recommendations

Reactive Power Threshold

- **The System Analysis and Modeling Subcommittee (SAMS) has determined that devices included by Inclusion I5 are installed to support the BES, and therefore should be included in the BES.**
- **A threshold of zero MVAr is recommended for Inclusion I5.**

Review of BES Definition Thresholds - Recommendations

Powerflow out of LN Threshold

- **SAMS recommends revising existing Exclusion E3 for powerflow out of a local network (LN). (Enhancements in bold)**
  - **Real Power flows only into the LN from every point of connection to the BES for the system as planned and single contingency operation, and the LN does not transfer energy originating outside the LN for delivery through the LN to the BES**
- **SAMS also recommends the addition of another qualifier under Exclusion E3, which is that the gross load served by the LN is less than 300 MW.**

Proposed Improvements for NERC MOD Standards (MOD-010 through MOD-015)

Key Issues

- Needed MOD standards are not approved (MOD-011, -013, -014 and -015)
  - MOD-011 and MOD-013 provide detail around data needs
  - MOD-014 and MOD-015 address interconnection-wide modeling cases
- Approved standards require clarification
  - Flow of information between entities
  - Quality and usability of models
- MOD standards need to be strengthened
  - To support new standards and new technologies

Proposed Improvements for NERC MOD Standards (MOD-010 through MOD-015)

Recommendations

- **Reduce the quantity of MOD standards**
- **Add short circuit data**
- **Add requirements for data sharing responsibilities and data acceptability**

Revised Section 1600 TADS Data Requests

Revised Quarterly and Key Inventory Data Request

- Recommended Action
  - Responding to industry input, TADSWG, with PAS support, recommends the Planning Committee approve the following modifications to the proposed Section 1600 request timeline:
    - Reduce reporting of the initial inventory data fields from 6 to 2 (element identifier and circuit mileage) beginning six (6) months after the NERC Board of Trustee approval.
    - Other inventory data, including terminal type, will be delayed to fourteen (14) months after the NERC Board of Trustee approval.
    - Historical precursor elements and reconfiguration dates, prior to the start of reporting key inventory fields, will not be requested. This eliminates the labor intensive historical research effort originally proposed.

Revised Section 1600 TADS Data Requests

- **Modified Timeline**

Submission Due Date	TADS Element Outages (200 kV + Only)	Key Inventory (200 kV + Only)
30-Jun-13		• Element Identifier • Circuit Mileage
30-Sep-13	2013Q1 & Q2	
15-Nov-13	2013Q3	
15-Feb-14	2013Q4	Update All Key Inventory

Revised Section 1600 TADS Data Requests

Revised 100-199 kV Element Outage Data Request

- Recommended Action
  - TADSWG, with PAS support, recommends the Planning Committee approve the following modified data request with extended reporting timeline:
    - Report only sustained automatic outage data for BES elements operated at less than 200 kV
    - If FERC approves the BES definition in the first half of a year, sustained automatic outage data is required to be submitted for BES elements in the less than 200 kV voltage class commencing in the first reporting period of the next calendar year.
    - If FERC approves the BES definition in the second half of a year, sustained automatic outage data is required to be submitted for BES elements in the less than 200 kV voltage class commencing in the first reporting period of the second subsequent calendar year.

Revised Section 1600 TADS Data Requests

Next Steps

- Provide 5-year trending analysis and risk assessment
- Demonstrate benefits and usefulness of TADS data collection as stated in 2007 TADS Phase I report
- Identify data fields that have not been used in any reliability studies
- Develop recommendations for reliability risk based standards from quantitative data

Demand Response Advisory Team (FMDRAT) Findings on Adding Demand Response Functions and Entities

Planning Committee requested the FMWG to assess the need to add a DR function and associated entity to the Functional Model

- **<u>Conclusions</u>**
- **Conclusion #1: There does not appear to be any Adverse Reliability Impact on the BES unique to DR resources for which there is no recourse**
- **Conclusion #2: Responsible Entities have measures in place to guard against the possibility that a DR resource does not fulfill its obligations to provide the agreed amount of reserves**
- **Conclusion #3: In long-term planning, most entities include contributions from DR to some extent, and that the uncertainties associated with DR's long-term commitment to remain "dispatchable" are typically accounted for (by applying a discount factor or probability analysis to DR's availability in resource adequacy assessments)**

Demand Response Advisory Team (FMDRAT) Findings on Adding Demand Response Functions and Entities

- **Conclusion #4: In operational planning, no known entities count on DR as a critical component of their operational plans, and that an additional DR functional entity will not change the current role or responsibility of the planning coordinator, resource planner, or operations planner (BAs)**
- **Conclusion #5: Reliability standards are not required to enforce DR compliance with contractual agreements or obligations, and that imposing reliability standards to force compliance with commercial agreements would be inappropriate, may not achieve the desired outcome, and in fact may discourage entities from participating in DR programs**
- **Conclusion #6: DR is a reactive component and a derivative product of the power system; it augments the capabilities of the BES thus increasing the effective utilization of the BES but it does not expand the system's capability to serve more load, and (unlike its generator counterpart) does not move spontaneously or in response to system changes for which reliability standards might be needed to ensure acceptable performance**

Demand Response Advisory Team (FMDRAT) Findings on Adding Demand Response Functions and Entities

DR Report Recommendations

- **Recommendation #1: DR functions and their associated functional entities not be defined and introduced to the Functional Model at this time**
- **Recommendation #2: FMWG continue to monitor DR development and identify if and when DR technology and penetration levels create a unique impact on BES reliability**

PC Activities Associated with SW Outage

<u>Status of Activities</u>

- There are 51 WECC activities currently underway, all with defined timelines that reflect a sense of urgency.
- WECC recognizes the need to resolve these issues expeditiously, it must ensure that well-reasoned, technically sound actions are not compromised in the interest of time.
- Consequently, the timeframe for completion of the activities range from 2011 to 2015.
- WECC has identified a number of Continent Wide activities that need to be addressed (background whitepaper)

PC Activities Associated with SW Outage

- <u>Potential PC Activities</u>
- WECC recommends that NERC identify technically-based criteria for identifying which sub-100-kV elements must be modeled in the real-time, next day, seasonal, and near- and long-term horizons (NERC2).
- WECC recommends that NERC consider developing guidelines or standard requirements identifying what base cases and parameters TOPs should use to conduct simulations (NERC3)
- WECC recommends that NERC review PRC-023-2 to determine whether there needs to be any additional inclusion of sub-200-kV relays (NERC 6).
- WECC recommends that NERC continue WECC believes that it is appropriate for NERC to continue to maintain the lead on this issue and WECC would propose to coordinate with NERC on this activity (NERC10)

Protection System Commissioning

- **Standards Committee requested that the PC (SPCS) research the need for a standard to address Protection System Commissioning.**

Background

- **The request originates from an event where an entity did not perform in-service testing when commissioning a new protection system**
- **An entity failed to employ proper commissioning testing practices during the installation of a new transformer**
- **Associated line relays were placed in service with the incorrect CT ratio**
- **The defect remained undetected until the occurrence of a severe system disturbance when the relaying operated incorrectly, greatly increasing the magnitude and scope of the disturbance**
- **Problem Statement:**
  - **Inadequate or improper testing at any time in the life cycle of a protection system may lead to a future misoperations**

Protection System Commissioning

- Proposed Goal Statement - "Require the creation and implementation of commissioning testing practices"
- SPCS believes the proposed goal will increase burden on entities without a commensurate reliability benefit
- SPCS proposes an alternate, more beneficial goal:
  - Improve existing commissioning practices through
    - analysis of protection system misoperations,
    - sharing of lessons learned, and
    - development of an industry reference document on protection system commissioning practices
- Most entities have commissioning processes in place
- Processes are based on years of experience and particular variations in construction and protection practices
- Requiring entities to document their practices and track implementation will not improve reliability
- A prescriptive standard would undermine existing practices with potential, unintended negative consequences

Protection System Commissioning

Proposed Actions

- Identify weak commissioning practices through analysis of protection system misoperations
  - Entities improve commissioning practices through PRC-004 and other corrective action plans
- Sharing of lessons learned
  - SPCS to draft a Lessons Learned document on proper verification of AC quantities during commissioning
- NERC should continue to alert industry of issues identified through analysis of misoperations and the event analysis process
- Develop industry reference document on protection system commissioning practices
  - SPCS to submit a formal request to IEEE Power System Relaying Committee (PSRC) upon approval of this report

Planning Committee Update

Questions