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General Concerns

Capability Requirements

There are many standards that include requirements that are duplicated in the proposed certification standards and then again in readiness audits. These are all ‘capability’ requirements – they require that a process, procedure, or tool be in place. To meet higher level requirements, these ‘capability’ requirements must be met. Could we suggest removing the ‘capability’ requirements on the basis that these are supporting requirements that are already addressed in at least two other places, and are fundamental to meeting other performance requirements?

Role of RRO

Should we assume that the next (approved) version of the Functional Model will include specific tasks for the RRO that were originally intended for the Planning Authority?

Many of the planning standards are left with requirements assigned to the RRO because the Planning Authority wasn’t clearly understood in the Functional Model. In many situations, planning data is provided to the RRO, but there are no requirements for the RRO to use the data unless the RRO is also the Planning Authority.

Definitions Needing Work:

- Bulk Power System versus Bulk Electric System
- Reliability
- Gross and Net Real and Reactive Power – currently region-specific
- Net capability
- Gross capability.
- Testing
- Simulation
- Controllable DSM

Compliance:

Compliance needs to be revised for all approved standards to remove levels of non-compliance.

Data:

Multiple Standards Requiring Data – some for planning horizon, some for operating horizon – can these be consolidated into a single set of requirements in a single standard?

EOP-005 – System Restoration Plans

1. Add LSEs to Applicability
2. Add a requirement for a blackstart agreement between the transmission operator and the generator owner - include items such as identification of generator owner/operator facilities required to participate in the blackstart plan; when and how quickly a blackstart unit must respond; and what cranking path requires energization
3. Add a requirement for a cranking path agreement between the transmission operator and the generator owner/operator
4. Condense the requirements and measures - R1 the requirement to develop the restoration plan and all the components required of that plan; and R2 the requirement to prove and document that the plan works. Then, two measurements would follow: one to assess the contents of the plan and one to assess the simulation or testing of the plan.
5. Need to resolve the issue of the elements on the Attachment – are these mandatory or not – there is a mismatch between R1 and levels of non-compliance
6. R3 – revise to place emphasis for TOP on restoring local transmission system as preparation for restoring the integrity of the Interconnection.
7. R4 – Add LSEs
8. R5 – replace ‘periodic’ with a specific periodicity for testing
9. R6 – add specificity to frequency and scope of required training
10. R11.5 - replace the word, ‘may’ with: The affected Transmission Operators shall not resynchronize the isolated area(s) with the surrounding area(s) until the following conditions are met: the voltage, frequency, and phase angle permit, the affected reliability coordinator(s) and the adjacent areas are notified, and reliability coordinator approval is given.
11. Delete R11.5.4. It does not seem reasonable or logical for a control area to be required to shed 5,000 MWs of load, for example, in order for their neighbor to reconnect 1,000 MWs of their own load.
12. R11.5. Should exclude islands within a system that do not affect surrounding areas.

FAC-001 – Facility Connection Requirements

1. There is no requirement that facility connection requirements be used.
2. There is no set criteria that must be included in the connection requirements – just a list of topics that must be addressed.
3. Consider revising this so that the RRO has some requirements for facility connections in addition to those of the transmission owner.
4. In a market environment it is very possible that not every generator will provide Frequency Response (FRR) services. Thus, the governor and governor deadband should be a requirement to interconnect to a power system. Generators that provide FRR shall have responsive governor and prime mover.

FAC-002 – Coordination of Plans for New Generation, Transmission, and End-User Facilities

1. This standard requires facility owners to work together with the Planning Authority and Transmission Planner to do an assessment to verify there is no adverse impact on reliability before a new facility can be connected to the grid. There is no obvious connection to FAC-001.
2. The standard does not involve the RRO in the coordination effort – if the FM is revised, the requirements should probably involve the RRO.
3. The assessment is done by the PA and/or TP

MOD-013 – Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures

1. Revise the Applicability section to include the named entities in R1
2. R1 - What is the reason for required reporting of "net energy for load data"? Computer simulation models used to validate past events and conduct future system reliability assessments use demand data. The requirement for "net energy for load data" should be omitted.
3. R.1.2.2 requires unit-specific data for generators installed after 1990. the justification for this requirement is not clear. Data for sister units should be allowable regardless of the date of installation.
4. R1.2 should be clarified to refer to wind generator plants (not individual wind generators).
5. R1.3, the terms static VAR controllers and static compensators are different terms for the same device.
6. R2 - review of the data requirements and reporting procedures (five years) is too long – recommend this interval be 3 years

MOD-016 – Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management

1. Purpose – revise to add 'best available' where noted. Ensure that accurate, actual demand data is available to support assessments and validation of past events and databases. Forecast demand data is needed to perform future system assessments to identify the need for system reinforcements for continued reliability. In addition, to assist in proper real-time operating, **best available** load information related to controllable demand-side management (DSM) programs is needed. A clear definition of forecast demand is needed.
2. R1 - Transmission providers who serve customers who have retail access may have difficulty obtaining documentation identifying the scope and details of actual and forecast data. These transmission providers' can provide the actual and forecast data using their own data sets, but they may not have access to an individual retail choice customer's documentation for historical and forecast data. Often concerns about loss of competitive advantage or confidentiality issues are expressed about providing the data to the transmission provider.
3. R1.2 – needs to identify the type of forecast
4. R1.2 - revise to recognize that service territories may host multiple LSEs
5. R2 and R3 – clarify what entity is providing the approval
6. Add specificity to identify what must be considered in identifying the demand load forecast– is this expected to be the 'peak' demand and should it include such factors as economic, demographic, and customer trends; conservation, improvements in the efficiency of electrical energy use, and other changes in the end uses of electricity; and weather effects? Should the peak demand load forecast have a 50% probability of not being exceeded (expected peak demand)? This load forecast is commonly referred to as the 1-in-2 peak load forecast.
7. There is a disconnect between LSE load forecasting and planning and the control area reporting as a major issue in the reporting of quality load and resources data to WECC. Confidentiality issues and other communication issues have contributed to making this an issue of concern therefore the following are action needs:
 1. Expand the applicability to include Load Serving Entities and Purchasing/Selling entities
 2. Explicitly state that LSEs are required to provide the documentation for actual and load forecast data for the loads they serve to the PAs and RROs.
 3. Where Purchasing/ Selling entities are retail access customers who perform load forecasts, specify that these entities also need to provide similar documentation to PAs and RROs.

MOD-024 - Verification of Generator Gross and Net Real Power Capability

1. No requirement for the RRO to demonstrate that its procedures result in accurate information of gross and net real power capability of generators for steady state models
2. It is not clear in R3 to whom the Generator Owner will report the information.
3. Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit.

MOD-025 - Verification of Generator Gross and Net Reactive Power Capability

1. These standards do not provide for uniform testing of generator capability. The determination of which units are tested, how frequently they are tested, and the criteria used for determining capability are left to individual regions.
2. Fundamental guidelines outlining some basic requirements (e.g. all units over 20 MW shall be tested annually under conditions that permit full net output of the unit for normal operation) are lacking.
3. There is no clear reason for regional variations in capability testing. A generator in Georgia does not have more or less capability than an identical unit applied across the Florida line, despite the fact that one is in SERC and the other in FRCC.
4. R1.5.1: The benefit of verifying maximum capability of generators to absorb VARs at seasonal real power generation capability is unclear, particularly if this standard applies to virtually all generators. For the vast majority of units, the need to absorb VARs occurs during low-load conditions, when unit real power production is below maximum capability and the unit's ability to absorb VARs is greater. Therefore, the single datum for unit VAR absorption capability determined pursuant to this standard seems to be of little practical use, except for relatively few generators in a limited set of circumstances.
5. It is not clear in R3 to whom the Generator Owner will report the information.
6. Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit.
7. Severity of non-compliance should be based on the percentage of the generator owner's total generation capability comprised of units required to be verified, rather than on the percentage (number) of generating units. Exempt units should be excluded from the total generation capability for determining level of non-compliance.

PRC-002 – Define Regional Disturbance Monitoring and Reporting Requirements

1. There is no criteria that the RROs must use in specifying the process for identifying locations where DMEs are required

PRC-003 – Regional Requirements for Transmission and Generation Protection System Misoperations

1. Enhance the applicability section to clarify that the systems addressed by the requirements are limited to:
 - All transmission circuits 200 kV and above
 - All transmission circuits 100 kV to 200 kV operationally significant circuits, as defined by the RROs
 - Generator protection systems, whose misoperations impact the bulk electric system
2. The RRO should be required to demonstrate that the requirements developed in accordance with R1 produce the desired result.
3. In R1.2 change format to content.

PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations

1. This standard should apply to all protection systems on the Bulk Electric System (BES) not just those that 'impact' the BES

PRC-005 – Transmission and Generation Protection System Maintenance and Testing

1. PRC 003 to 005 only address generator (and transmission) protective systems, without defining this term.
2. Need to add language to ensure the Regional Requirements focus on the most impactful scenarios
3. Modify applicability to clarify that the requirements are applicable to the following:
 - All protection systems on the bulk electric system.
 - All generation protection systems whose misoperations impact the bulk electric system
4. There is no performance requirement or measure of effectiveness of a maintenance program required by the standard.

PRC-010 – Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program

MEL Observations:

1. PRC-010 is a very weak standard – it only requires documentation and, in very broad terms, ‘coordination’ – it doesn’t specify any level of desired performance or any specific scope for coordination. There should be some details to identify what the coordination must achieve – such as verification that the UVLS will trip when voltage drops to a specified voltage and verification that only a specified amount of load will be tripped and that other special protection systems will not be activated by the UVLS program.
2. There is no requirement that identifies the desired performance of a UVLS program (what voltage set points and timing are acceptable?).
3. What is the reliability-related need for the RRO to collect data on misoperations and operations of UVLS programs? Is this information used for anything?

PRC-018 – Disturbance Monitoring Equipment Installation and Data Reporting

(none)

PRC-020 – Under-Voltage Load Shedding Program Database

1. The reliability-related need for the RRO to have the data isn’t clear

PRC-021 – Under-Voltage Load Shedding Program Data

None

PRC-022 – Under-Voltage Load Shedding Program Performance

1. Consider incorporating into this family of standards a requirement that each TO should study, and implement if found effective, a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES.
2. The TO should also be required to demonstrate that its UVLS program is coordinated with adjacent TOs.
3. The reliability-related need for the RRO to collect data on operations and misoperations isn’t clear – should this be revised and made available instead to the Compliance Monitor or to the Planning Authority?

VAR-001 - Voltage and Reactive Control

1. No requirement for verifying that the reactive resources are truly available.
2. No criteria for what is an acceptable reactive margin.
3. R3, R6, R10 go beyond the control of the responsible entity noted.
 - R3, the Transmission Operator only has the reactive resources that exist in the area-- how does the TO "acquire sufficient reactive resources" if existing resources are not adequate?
 - Should R3 be assigned to the TP?
 - Should the word "acquire" in R3 be replaced with the word "operate"?
 - R6 and R10.1 presume that sufficient reactive resources are available.
4. R3 covers normal and contingency conditions, while R10 mentions only first contingency conditions. Is there a reason for this difference?
5. R3 Suggest changing the phrase... "to protect the voltage" to "maintain the voltage"
6. What does the second sentence in R3 mean by the phrase 'transmission operator's share of the reactive requirements of interconnecting transmission circuits'. What would be the reactive requirements of transmission circuits?
7. R5 This requirement is an Open Access Transmission Tariff requirement and does not belong in a reliability standard.
8. Will R6 also apply to wind generation absorbing reactive power at the point of interconnection?
9. R7 obligates Transmission Operators to know the status of all reactive power sources including AVRs and PSSs. Clarify that this means the generator is available and if dispatched will operate in voltage control mode and with the PSS active.
10. R7 and R8 – consider adding more specificity to distinguish the TOP's authority to direct others to operate (Each Transmission Operator shall operate owned devices or direct the operation of, within their normal operating parameters and capabilities, capacitive and inductive reactive resources within its area-including reactive generation scheduling; transmission line and reactive resource switching; and, if necessary, load shedding- to maintain system and Interconnection voltages within established limits.)
11. Consolidate R8 and R9
12. R9.1 This requirement is not feasible. Cannot dictate where generation resources are to be disbursed or located.
13. R10 remove "first" so as not to limit this requirement to first contingency conditions. As written with or without removing "first", R10 provides no additional information not already required in R3.
14. R10.1, does 'disperse and locate' mean the same as 'dispatch'? If so, changing the wording to 'dispatch' would make the meaning clearer.
15. R11 –Redundant with TOP-007
16. The language in the measures and compliance sections such as "2.1.2 One incident of failing to maintain a voltage or reactive power schedule" is too vague and does not specify any duration that is acceptable or unacceptable to be off schedule.
17. VAR-001 requirements (R1, R2, R7, R8, R9, R10, and R12) are redundant to the TOP standards.

VAR-002 - Generator Operation for Maintaining Network Voltage Schedules

1. R5 of VAR-002: Recognizing that such action would require the generator to change its loading level or cycle, the transmission operator should not rely on tap position changes on a step-up transformer with a no-load tap changer (NLTC) for periodic or seasonal system control, unless there is an explicit voluntary arrangement with the Generator Operator. For each instance of an urgent directive for such action, the transmission operator must justify its action to affected parties.

TPL-001 through TPL-004

1. Add a requirement to verify that there are sufficient reactive resources
2. Add a requirement to identify where UVLS should be installed