PRC-006-SPP-01 Compared to FERC Order 672 Criteria

In FERC Order No. 672, the Commission identified criteria it uses to analyze proposed reliability standards to ensure they are just, reasonable, not unduly discriminatory or preferential, and in the public interest. The discussion below identifies these criteria and explains how the proposed regional reliability standard PRC-006-SPP-01 meets or exceeds the criteria.

1. Proposed reliability standards must be designed to achieve a specified reliability goal.

   Order No. 672 at P 321. The proposed Reliability Standard must address a reliability concern that falls within the requirements of section 215 of the FPA. That is, it must provide for the reliable operation of Bulk-Power System facilities. It may not extend beyond reliable operation of such facilities or apply to other facilities. Such facilities include all those necessary for operating an interconnected electric energy transmission network, or any portion of that network, including control systems. The proposed Reliability Standard may apply to any design of planned additions or modifications of such facilities that is necessary to provide for reliable operation. It may also apply to Cybersecurity protection.

PRC-006-SPP-01 is designed to ensure that automatic Underfrequency Load Shedding (UFLS) protection schemes designed by the Planning Coordinator and implemented by applicable Distribution Providers and Transmission Owners in the SPP region are coordinated to effectively mitigate the consequences of an underfrequency event.

2. Proposed reliability standards must be applicable to users, owners, and operators of the bulk power system, and not others.

   Order No. 672 at P 322. The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others.

PRC-006-SPP-01 is applicable to Planning Coordinators, UFLS entities, and Generator Owners in the SPP RE region. The term “UFLS entities” in NERC standard PRC-006-1 refers to all entities that are responsible for the ownership, operation, or control of automatic UFLS equipment as required by the UFLS program established by the Planning Coordinators. Such entities may include Distribution Providers and Transmission Owners.

3. Proposed reliability standards must consider any other relevant factors.

   Order No. 672 at P 323. In considering whether a proposed Reliability Standard is just and reasonable, we will consider the following general factors, as well as other factors that are appropriate for the particular Reliability Standard proposed.

The PRC-006-SPP-01 Minority Report, prepared by the SPP UFLS standard drafting team (SDT), presents an overview of the issues identified in comments submitted in consideration of the proposed standard. All comments and concerns were addressed using processes in the SPP RE Standards Development Process Manual. This manual defines the fair and open process for adoption, approval, revision, reaffirmation, and deletion of an SPP regional reliability standard. Standards provide for the reliable regional and sub-regional planning and operation of the Bulk Power System, consistent with Good Utility Practice within SPP RE’s geographical footprint.
4. Proposed reliability standards must contain a technically sound method to achieve the goal.

Order No. 672 at P 324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal. Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO’s process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons.

PRC-006-SPP-01 adds specificity for development and implementation of regional UFLS schemes that is not contained in the NERC Automatic UFLS standard, PRC-006-1. The requirements in PRC-006-SPP-01 were developed by SDT members who collectively have the technical expertise and experience to develop a technically sound standard. The technical basis for PRC-006-SPP-01 was vetted through industry technical experts through five comment periods and two ballots.

5. Proposed reliability standards must be clear and unambiguous as to what is required and who is required to comply.

Order No. 672 at P 325. The proposed Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability.

PRC-006-SPP-01 establishes clear and unambiguous requirements for all applicable entities:

Requirement 1 requires each UFLS entity that has a total forecasted peak Load greater than or equal to 100 MW to develop and implement an automatic UFLS program according to the Planning Coordinator specifications.

Requirement 2 requires each UFLS entity that has a total forecasted peak Load less than 100 MW to develop and implement an automatic UFLS program according to the Planning Coordinator specifications.

Requirement 3 requires each UFLS entity electing to use underfrequency islanding schemes to design those islanding schemes to operate after all three steps of UFLS have been exhausted and the frequency continues to fall to 58.5 Hz or below. For islanding schemes designed to operate at or below 58.5 Hz and 58.0 Hz, the minimum time delay shall be 2 seconds. For islanding schemes designed to operate below 58.0 Hz, no time delay is required.

Requirement 4 requires the Planning Coordinator to perform and document a UFLS technical assessment within one year after a performance characteristic change to PRC-006 or changes to the boundaries of a specified island are identified.

Requirement 5 requires each UFLS entity to maintain and submit the specified UFLS data to the Planning Coordinator within 30 calendar days upon request from the Planning Coordinator.

Requirement 6 requires each Generator owner to maintain and submit the specified data to the Planning Coordinator within 30 calendar days upon request from the Planning Coordinator.
Requirement 7 requires each Generator Owner to verify that their generating unit will not trip above the specified Generator underfrequency curve and below the specified Generator overfrequency curve as a result of the unit frequency protective relay settings.

Requirement 8 requires the Planning Coordinator to determine if the Generator Owner has provided technical evidence demonstrating that the unit cannot operate within the specified frequency range without causing equipment damage or violating manufacturer’s published equipment ratings.

Requirement 9 requires the Generator Owner or other UFLS entity to implement supplementary shedding of Load required by the Planning Coordinator.

6. Proposed reliability standards must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation.

Order No. 672 at P 326. The possible consequences, including range of possible penalties, for violating a proposed Reliability Standard should be clear and understandable by those who must comply.

PRC-006-SPP-01 includes both Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs) for each requirement. The ranges of penalties for violations will be based on the applicable VRFs and VSLs and administered based on the sanctions table and supporting penalty determination process described in the FERC-approved NERC Sanction Guidelines.¹

The SPP UFLS SDT developed the VSLs and VRFs proposed for assignment to PRC-006-SPP-01 in accordance with applicable NERC and FERC guidance. (See VRF and VSL Justification_PRC-006-SPP-01.docx for additional discussion regarding the assigned VRFs and VSLs.)

7. A proposed reliability standard must identify clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non-preferential manner.

Order No. 672 at P 327. There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner.

Each requirement in PRC-006-SPP-01 has an associated measure of compliance that will assist enforcement authorities in enforcing the standard in a consistent and non-preferential manner.

8. Proposed reliability standards should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect “best practices” without regard to implementation cost.

Order No. 672 at P 328. The proposed Reliability Standard does not necessarily have to reflect the optimal method, or “best practice,” for achieving its reliability goal without regard to implementation cost or historical regional infrastructure design. It should however achieve its reliability goal effectively and efficiently.

¹ NERC Rules of Procedure Appendix 4B
PRC-006-SPP-01 helps the industry achieve the stated reliability goal effectively and efficiently. The proposed standard sets minimum automatic UFLS design requirements which are similar to the design requirements in the current SPP Criteria on UFLS. PRC-006-SPP-01 is based on a planning peak load forecast, while the SPP Criteria is based on an operations viewpoint that the three steps of the UFLS program had to be met “at any given time.”

9. **Proposed reliability standards cannot be “lowest common denominator,” i.e., cannot reflect a compromise that does not adequately protect bulk power system reliability.**

Order No. 672 at P 329. The proposed Reliability Standard must not simply reflect a compromise in the ERO’s Reliability Standard development process based on the least effective North American practice — the so-called “lowest common denominator” — if such practice does not adequately protect Bulk-Power System reliability. Although the Commission will give due weight to the technical expertise of the ERO, we will not hesitate to remand a proposed Reliability Standard if we are convinced it is not adequate to protect reliability.

The methods in PRC-006-SPP-01 do not employ a “lowest common denominator” approach. PRC-006-SPP-01 was designed to be consistent with the NERC automatic UFLS standard, while adding specificity not contained in PRC-006-1, for the development, coordination, implementation, and analysis of UFLS schemes in the SPP region.

10. **Proposed reliability standards may consider costs to implement for smaller entities but not at consequence of less than excellence in operating system reliability.**

Order No. 672 at P 330. A proposed Reliability Standard may take into account the size of the entity that must comply with the Reliability Standard and the cost to those entities of implementing the proposed Reliability Standard. However, the ERO should not propose a “lowest common denominator” Reliability Standard that would achieve less than excellence in operating system reliability solely to protect against reasonable expenses for supporting this vital national infrastructure. For example, a small owner or operator of the Bulk-Power System must bear the cost of complying with each Reliability Standard that applies to it.

The cost for smaller entities to implement was considered during PRC-006-SPP-01 development. NERC standard PRC-006-1 requires the Planning Coordinator to identify which entities will participate in its UFLS scheme, including the number of steps and percent load an entity will shed. The SPP UFLS SDT recognized that UFLS entities with a load of less than 100 MW may have difficulty in implementing more than one UFLS step and in meeting a tight tolerance.

Accordingly, Requirement 2 states that such entities shall not be required to have more than one UFLS step. This should limit additional cost requirements for these smaller entities to comply with the standard, but with minimal consequence to operating system reliability.

11. **Proposed reliability standards must be designed to apply throughout North America to the maximum extent achievable with a single reliability standard while not favoring one area or approach.**

Order No. 672 at P 331. A proposed Reliability Standard should be designed to apply throughout the interconnected North American Bulk-Power System to the maximum extent this is achievable with a single Reliability Standard. The proposed Reliability Standard should not be based on a single geographic or regional model but should take into account geographic variations in grid characteristics, terrain, weather, and other such factors; it should
also take into account regional variations in the organizational and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard.

PRC-006-SPP-01 was designed on a regional basis to work in conjunction with the NERC UFLS standard to effectively mitigate the consequences of an underfrequency event, while accommodating differences in system transmission and distribution topology within the SPP RE footprint due to historical design criteria, makeup of load demands, and generation resources.

12. Proposed reliability standards should cause no undue negative effect on competition or restriction of the grid.

Order No. 672 at P 332. As directed by section 215 of the FPA, the Commission itself will give special attention to the effect of a proposed Reliability Standard on competition. The ERO should attempt to develop a proposed Reliability Standard that has no undue negative effect on competition. Among other possible considerations, a proposed Reliability Standard should not unreasonably restrict available transmission capability on the Bulk-Power System beyond any restriction necessary for reliability and should not limit use of the Bulk-Power System in an unduly preferential manner. It should not create an undue advantage for one competitor over another.

Design and implementation of UFLS protection schemes, as required by PRC-006-SPP-01, will not cause any undue negative effects on competition or operational restrictions or limitations to the grid.

13. The implementation time for the proposed reliability standards must be reasonable.

Order No. 672 at P 333. In considering whether a proposed Reliability Standard is just and reasonable, the Commission will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability.

The implementation time for PRC-006-SPP-01 is considered reasonable, with the standard becoming fully effective three years after the first day of the first calendar quarter following regulatory approval.

Requirement 1 shall become effective 3 years after the first day of the first quarter following regulatory approval. This is needed to allow time for any necessary changes to be made to the existing UFLS schemes in the SPP Region.

Requirement 2 shall become effective 3 years after the first day of the first quarter following regulatory approval. This is needed to allow time for any necessary changes to be made to the existing UFLS schemes in the SPP Region.

Requirement 3 shall become effective 3 years after the first day of the first quarter following regulatory approval. This is needed to allow time for any necessary changes to be made to the existing UFLS islanding schemes in the SPP Region.
Requirement 4 shall become effective 1 year after the first day of the first quarter following regulatory approval. This is needed to allow time for the Planning Coordinator to perform a UFLS technical assessment, if needed.

Requirements 5 and 6 shall become effective 1 year after the first day of the first quarter following regulatory approval. This is needed to allow time for the Generator Owners and UFLS entities to gather and submit the data that is requested by the Planning Coordinator.

Requirement 7 shall become effective 3 years after the first day of the first quarter following regulatory approval. This is needed to allow time for any necessary changes to be made to the generators in the SPP Region.

Requirement 8 shall become effective 3 years after the first day of the first quarter following regulatory approval. This is needed to allow time for the Planning Coordinator to receive the generator data and to determine if the UFLS program performance is degraded due to the removal of the generation.

Requirement 9 shall become effective 3 years after the first day of the first quarter following regulatory approval. This is needed to allow time for the Planning Coordinator to determine if the UFLS program performance is degraded due to the removal of the generation and then to assign the responsibility of the supplemental load shed.

14. The reliability standard development process must be open and fair.

Order No. 672 at P 334. Further, in considering whether a proposed Reliability Standard meets the legal standard of review, we will entertain comments about whether the ERO implemented its Commission-approved Reliability Standard development process for the development of the particular proposed Reliability Standard in a proper manner, especially whether the process was open and fair. However, we caution that we will not be sympathetic to arguments by interested parties that choose, for whatever reason, not to participate in the ERO’s Reliability Standard development process if it is conducted in good faith in accordance with the procedures approved by the Commission.

SPP develops regional reliability standards in accordance with the SPP RE Standards Development Process Manual, which is Exhibit C of SPP’s Regional Delegation Agreement with NERC. The development process is open to any person or entity with a direct and material interest in the bulk power system. SPP considers the comments of all stakeholders. For an SPP regional reliability standard to be submitted to NERC, it must first be approved by a stakeholder vote and the SPP RE Trustees.

PRC-006-SPP-01 was developed and approved by industry stakeholders using the SPP RE Standards Development Process, and was approved by the SPP RE Trustees on July 30, 2012 for submission to NERC.
15. Proposed reliability standards must balance with other vital public interests.

Order No. 672 at P 335. Finally, we understand that at times development of a proposed Reliability Standard may require that a particular reliability goal must be balanced against other vital public interests, such as environmental, social and other goals. We expect the ERO to explain any such balancing in its application for approval of a proposed Reliability Standard.

SPP developed PRC-006-SPP-01 to address the need for regional requirements for automatic UFLS protection. The proposed regional reliability standard establishes requirements for the design, coordination, implementation, and analysis of UFLS schemes in the SPP region. No environmental, social, or other goals are reflected or considered in this standard.

16. Proposed reliability standard must not conflict with prior FERC Rules or Orders.

Order No. 672 at P 444. A potential conflict between a Reliability Standard under development and a Transmission Organization function, rule, order, tariff, rate schedule, or agreement accepted, approved, or ordered by the Commission should be identified and addressed during the ERO’s Reliability Standard Development Process.

The proposed PRC-006-SPP-01 Regional Reliability Standard does not conflict with any other prior FERC Rules or Orders and adequately addresses the directives identified in FERC Order No. 693.

17. Proposed reliability standards must not have a regional difference necessary to maintain reliability.

Order No. 672 at P 291. A regional difference from a continent-wide Reliability Standard must either be (1) more stringent than the continent-wide Reliability Standard including a regional difference that addresses matters the continent-wide Reliability Standard does not, or (2) a Regional Reliability Standard that is necessitated by a physical difference in the Bulk-Power System.

The existing NERC continent-wide standard, PRC-006-1 applies only to Planning Coordinators, Transmission Owners, and Distribution Providers. The proposed SPP standard, PRC-006-SPP-01, adds specificity not contained in the NERC UFLS standard for UFLS schemes in the SPP RE Region. Specifically, it is designed to work in conjunction with the NERC standard to effectively mitigate the consequences of an underfrequency event, while accommodating differences in system transmission and distribution topology within the SPP RE footprint due to historical design criteria, makeup of load demands, and generation resources.