Unofficial Comment Form
Project 2008-02 Undervoltage Load Shedding (PRC-010-1)

Please **DO NOT** use this form for submitting comments. Please use the electronic comment form to submit comments on the Project 2008-02 Undervoltage Load Shedding (UVLS) draft standard PRC-010-1. The electronic comment form must be completed by **Thursday, August 7, 2014**.

If you have questions, please contact Erika Chanzes via email or by telephone at 404-446-2583.

The project page may be accessed by [clicking here](#).

**Background Information**

In January 2010, NERC posted the Project 2008-02 UVLS Standard Authorization Request (SAR) for public comment. The SAR cited NERC technical reports and assessments of UVLS programs and standards, along with the FERC Order No. 693 directive that approved PRC-010-0 but requested that it be modified to require that an integrated and coordinated approach be included in all protection systems on the Bulk-Power System, including generators and transmission lines, generators’ low voltage ride-through capabilities, and underfrequency load shedding (UFLS) and UVLS programs.

Work was deferred due to prioritization for the 2011–2013 Reliability Standards Development Plan (RSDP) and the effort was restarted as part of the 2013–2015 RSDP. The formal drafting team members were tasked with reevaluating and revising the SAR and subsequently proceeding with standard development. The team’s objective is to ensure that Project 2008-02 addresses NERC’s existing UVLS standards such that they are results-based, address the appropriate regulatory directives, coordinate with present reliability standard efforts (e.g., Paragraph 81, the Independent Expert Review Panel recommendations, and other active standard development projects), and consider current reliability issues associated with UVLS.

Based on these considerations, the drafting team posted a revised SAR and draft requirements for an informal comment period in September 2013, and then posted a complete standard and supporting documents for a second informal comment period in March 2014. The drafting team has considered the feedback from industry and made appropriate revisions.

This formal comment period seeks stakeholder feedback on the proposed draft standard PRC-010-1.

You do not have to answer all questions. Enter comments in simple text format. Bullets, numbers, and special formatting will not be retained.
Questions

1. The drafting team has proposed a new NERC Glossary term, “UVLS Program,” and has included supporting information in an accompanying Rationale box and in the standard document’s Guidelines and Technical Basis section. Does the defined term and supporting information provide the clarity necessary to understand which types of UVLS are applicable to the standard? If no, please indicate your concerns in the comment section and provide specific suggested changes.

☐ Yes
☒ No

Comments: The defined term, the Rationale for Definition, and Guidelines for UVLS Program Definition do not provide clarity for the scope of the UVLS Program. Each section subtly defines the term and objective differently. All three do emphasize in a similar manner that the term UVLS Program applies to distributed relays and controls and not to centrally controlled programs. Differences are: The definition utilizes the words “mitigate undervoltage conditions”, whereas the Guidelines state “a UVLS Program must mitigate risk of one or more of the following:” and Item 1 of the Rationale says “with respect to the impact on the reliability of the BES.” Standardizing on the UVLS program mitigates the risk of an undervoltage condition that will result in voltage instability, voltage collapse, or Cascading across a majority of Elements in an Interconnection.

The present definition uses the concept of impacting the BES, but this is problematic because voltage instability can impact a small portion of the BES as pointed out in the Technical Guideline. In the proposed revision suggest using the word Interconnection.

We support the intention of the definition of the new term “UVLS Program”, primarily the exclusion of centrally controlled undervoltage-based load shedding and the inclusion of only the UVLS used to mitigate serious impacts to the BES. However, although we agree to use the Guidelines as clarification for the definition, we feel that the concept of “contained area” (that we support) introduced in the Guidelines (radial BES with limited impact versus rest of the BES) is totally absent from the definition itself. The term “impacting the BES” used in the definition does not differentiate between a widespread BES undervoltage consequence and a contained “local area” issue. Without reviewing the whole definition, the SDT should consider at least introducing this concept in the definition. It brings a crucial clarification in classifying a UVLS scheme.

Suggest that the standard explicitly define or describe that there are three Categories of UVLS schemes (or systems):
1. Centrally-controlled undervoltage-based schemes (or systems), which would be RAS.
2. UVLS Programs, as defined in the proposed PRC-010-1 (with additional clarity suggested below), to which PRC-010-1 applies.
3. The remaining UVLS schemes (or systems), meant to resolve local undervoltage issues or protect equipment, etc., which are neither RAS nor part of the UVLS Program.

The lack of explicit distinction between Categories 2 and 3 (and some of the language in the proposed PRC-010-1) leads to the interpretation that all UVLS schemes are either RAS or UVLS Program, as is apparently the case in the revised definition of RAS (Project 2010-05.2), where it includes Category 1 in RAS and excludes Category 2 from RAS, but does not recognize and mention Category 3.

To distinguish between UVLS Programs and non-Programs (Categories 2 and 3), the standard proposes examining the impact of the contingency which the UVLS scheme (or system) is intended to mitigate. In the proposed definition of UVLS Program, if the contingency is “impacting the BES” the UVLS becomes a Program. This could lead to the interpretation that if the impact is even on only one BES element that is directly affected by the contingency, the UVLS is a Program. Since voltage instability or collapse could be very localized, we suggest clarifying the definition by changing “impacting the BES” to “impacting the BES outside the contained area” as indicated in the Guidelines and Technical Basis section, or a similar description to provide clarity for differentiating the UVLS Program from non-Programs.

2. Do you have any concerns with the standard itself, including the Applicability section, Requirements, Measures, Violation Risk Factors (VRFs), and Violation Severity Levels (VSLs)? If yes, please indicate your concerns in the comment section and provide specific suggested changes.

☐ Yes
☐ No

Comments: R1 should be divided into two separate requirements. One requirement should be to develop an effective UVLS Program, and the second requirement should be to provide the program specifications to UVLS Entities.

In R1 replace the word “developing” with the phrase “identifies the need for a UVLS Program...”

Also, it is unclear if the phrase in R1 “but is not limited to...” is applied to the criteria for evaluation in Parts 1.1 and 1.2, or if it applies to the “studies and analyses”. R1 would be revised to:

Each Planning Coordinator or Transmission Planner that identifies the risk of undervoltage contingencies that will result in voltage instability, voltage collapse, or Cascade across a majority of Elements in an Interconnection shall develop a UVLS Program to address these risks. The UVLS program shall at a minimum:
1.1 Resolve or mitigate the identified risks it was required to mitigate.
1.2 Integrate through coordination with generator voltage ride through, etc.....
The implementation portion of R1 would become a new requirement. The PC or TPL that develops a UVLS program shall provide the program specifications and implementation schedule to the UVLS Entities responsible for the UVLS Program implementation. The SDT should consider if a time period between completion assessment and delivery of implementation is required similar to R5.

The need for studies and analyses in R1 would move to M1 as a measure.

We have a concern with Requirement R2 in that it gives considerable authority to the Planning Coordinator or Transmission Planner. Nowhere in the new standard is there any proviso for an UVLS entity such as a TO to comment or advise on the feasibility of the program specification, and particularly the implementation schedule. There should be an opportunity for the UVLS entity to provide input to the plan and schedule, and a mechanism for resolving disagreement. We have a similar concern with Requirement R5 with regard to the specification and execution of the CAP.

It is unclear if the phrase in R3 “but is not limited to,...” is applying to the criteria for evaluation in Parts 3.1 and 3.2, or if it applies to the studies and analyses. Consider revising the second sentence in R3 to read “The PC or TPL shall at a minimum evaluate the existing UVLS program for the following criteria:"

R3 is about an evaluation of the effectiveness of an existing program. So Part 3.1 should address that the program continues to resolve the risks. Suggest revising Part 3.1 to “The UVLS Program continues to resolve the risk of undervoltage contingencies identified in R1 that will result in voltage instability, voltage collapse, or Cascading across a majority of Elements in an Interconnection.”

R4 presently requires a post-event evaluation that evaluates whether the UVLS Program resolved the undervoltage issues associated with the event. Post-event analysis should evaluate two items; whether the UVLS Program operated as designed, and whether it prevented the undervoltage issue leading to voltage instability, voltage collapse or Cascading.

In R5 consider replacing “deficiencies” with the phrase “needed modifications”.
3. Do you have any concerns with items not addressed by the previous questions (e.g., the Implementation Plan or the coordination that is occurring with other projects)? If yes, please indicate your concerns in the comment section and provide specific suggested changes.

☐ Yes
☐ No

Comments: In the Guidelines for Requirements R6-R8 on page 23, there is a list of specific items to be included in the UVLS Program database. This should be written as items to be considered for database inclusion. If the SDT intends to make these items mandatory then they should be in a Requirement, and be auditable.