

## Meeting Notes

### Project 2008-02 Undervoltage Load Shedding Standard Drafting Team

August 5, 2013 | 12:00–5:00 p.m. ET  
 August 6–7, 2013 | 8:00 a.m.–5:00 p.m. ET  
 August 8, 2013 | 8:00 a.m.–12:00 p.m. ET

In-person Meeting with ReadyTalk Web Access  
 NERC Headquarters  
 Atlanta, GA

#### Administrative

##### 1. Introductions and chair remarks

E. Chanzas, NERC brought the meeting to order at 1:00 p.m. ET. Chairman G. Vassallo, BPA welcomed the team and thanked everyone for their participation. He noted that the team is getting closer to completing a draft standard. The team members introduced themselves. Those in attendance were:

Name	Company	Member/ Observer	In-person (IP) or Conference Call / Web (W)			
			8/5	8/6	8/7	8/8
Greg Vassallo (Chair)	BPA	Member	IP	IP	IP	IP
José Conto	ERCOT	Member	X	X	X	X
Bill Harm	PJM	Member	X	IP	IP	IP
Brigham Joffs	Luminant	Member	IP	IP	IP	IP
Sharma Kolluri	Entergy	Member	IP	IP	IP	X
Charles-Eric Langlois	Hydro-Quebec	Member	IP	IP	IP	W
Manish Patel	Southern Co.	Member	IP	IP	IP	IP
Fabio Rodriguez	Duke Energy	Member	IP	IP	IP	IP
Hari Singh	Xcel Energy	Member	W	W	W	W
Anthony Sleva	Altran	Member	X	X	X	X

Name	Company	Member/ Observer	In-person (IP) or Conference Call / Web (W)			
			8/5	8/6	8/7	8/8
Matthew Tackett	MISO	Member	W	W	X	W
Monica Benson	NERC	Observer	IP	X	X	X
Erika Chanzas (Standard Developer)	NERC	Observer	IP	IP	IP	IP
Marisa Hecht	NERC	Observer	IP	IP	IP	IP
Juan Villar	FERC	Observer	X	IP	IP	IP

**2. Determination of quorum**

The rule for NERC standard drafting team (SDT or team) states that a quorum requires two-thirds of the voting members of the SDT.

	8/5/13	8/6/13	8/7/13	8/8/13
<b>Members present</b>	8 of 11	9 of 11	8 of 11	8 of 11
<b>Quorum achieved</b>	Yes	Yes	Yes	Yes

**3. NERC Antitrust Compliance Guidelines and Public Announcement, Email Listserv Policy, and Participant Conduct Policy**

The NERC Antitrust Compliance Guidelines and public announcement were reviewed by E. Chanzas. E. Chanzas also provided copies and gave an overview of the Participant Conduct and Email Listserv policies. There were no questions raised. The participants were reminded of the NERC Antitrust Guidelines and public announcement each morning.

**4. Review team roster**

E. Chanzas reviewed the team roster and asked the team members to review their contact information. F. Rodriguez, Duke Energy provided an update to his email address. The roster was adjusted accordingly.

## 5. Review meeting agenda and objectives

E. Chanzas reviewed the meeting agenda items. She noted that item #s 3 and 4 are interrelated in terms of the UVLS versus SPS discussion, which will ultimately determine the direction of item #5. She also noted that she hopes to discuss item #1, schedule and future meetings at the beginning of meetings from now on rather than the end, but that for this meeting the item will be tabled until Tuesday when more of the team is present.

## Agenda Items

### 1. Review of schedule and future meetings

E. Chanzas brought up the project calendar and reviewed upcoming meetings and associated tasks. She noted that the trajectory includes a webinar in September, a possible technical conference in October, and the end of the development period in November. Future meetings were scheduled as follows:

- a. August 26–28, 2013 at Xcel Energy in Denver, CO
- b. September 16–19, 2013 at NERC in Atlanta, GA
- c. October 15–18, 2013 at Entergy in New Orleans, LA
- d. November 12–15, 2013, TBD

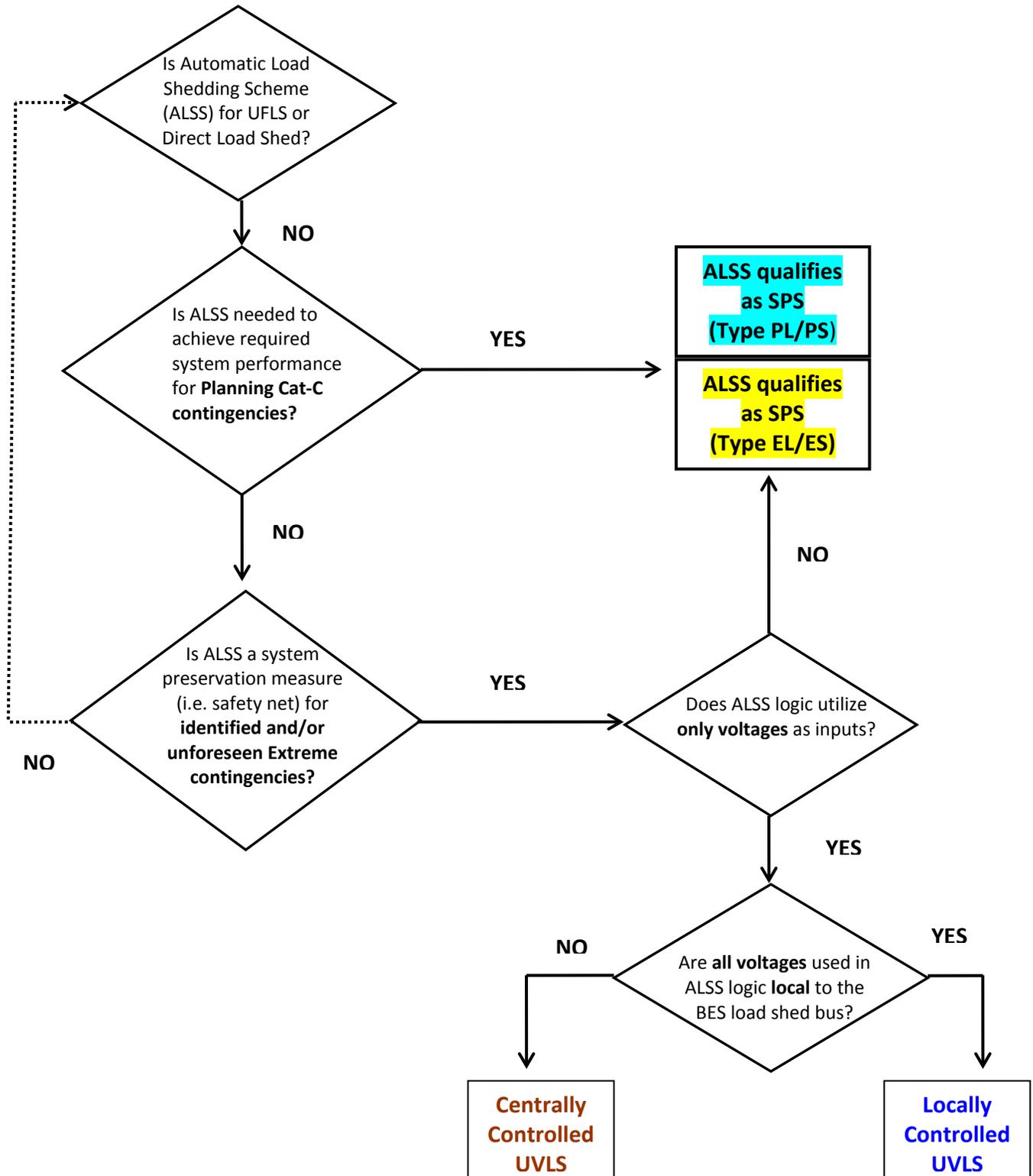
### 2. Review of meeting notes

E. Chanzas brought up the meeting notes from the June 24–27, 2013 SDT meeting and the July 12, 2013 conference call, which had been sent to the team beforehand. There were no corrections. E. Chanzas noted that the May meeting notes have been posted and that the June and July meeting notes will be edited to a summarized version for posting.

### 3. Open business from last meeting

- a. E. Chanzas noted that the major outstanding issue from the past meetings is defining the distinction between UVLS programs and SPSs for the purpose of this project's standard, and how to approach distributed versus centrally-controlled UVLS programs. She brought up what may be the key consideration of options the team needs to address, as follows:
  - a) UVLS program = All schemes that shed load in response to undervoltage conditions  
OR
  - b) SPS = Schemes that shed load for category B and C Contingencies  
AND
  - c) UVLS program = Schemes that shed load for category D Contingencies

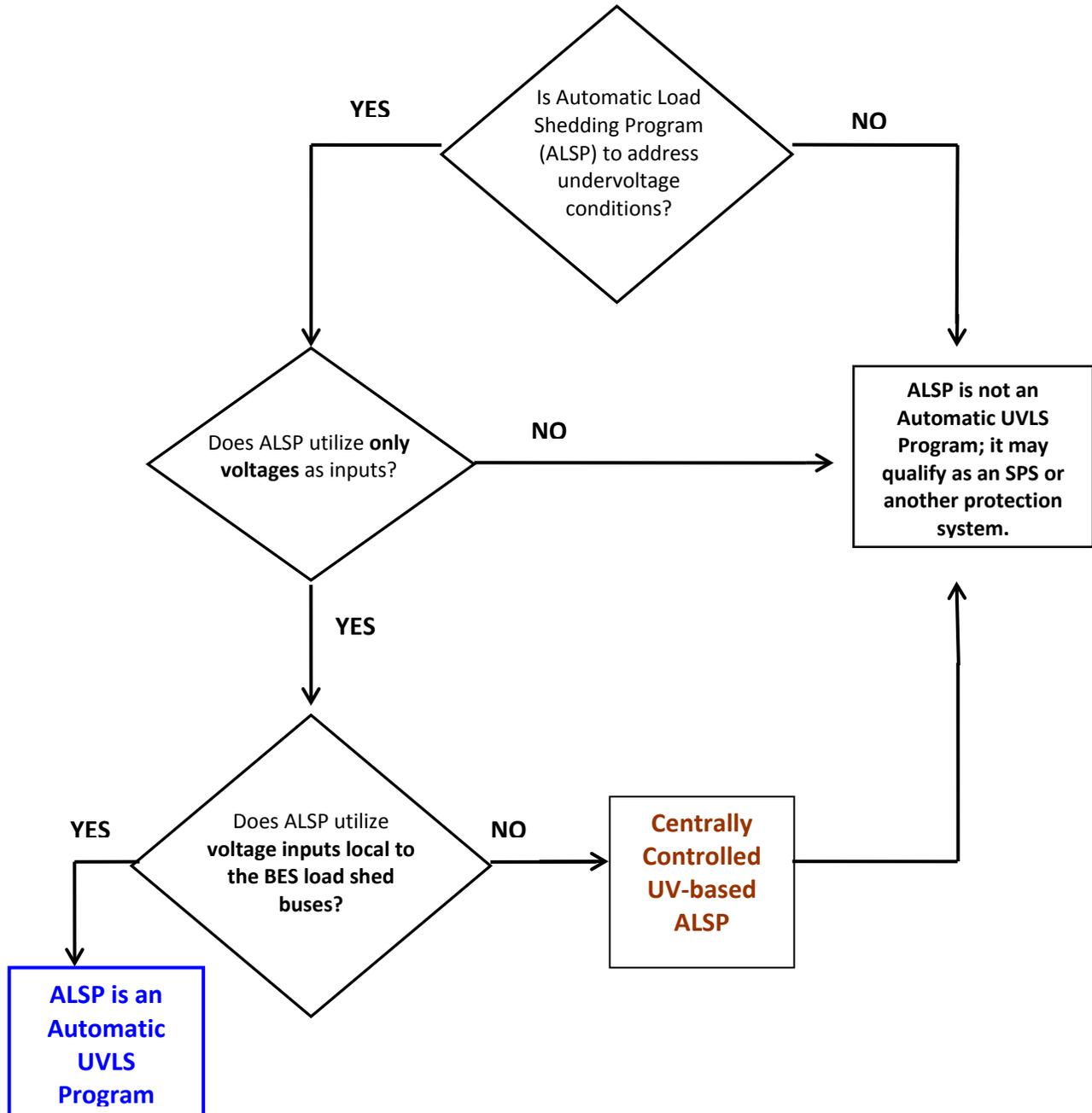
- b. It was noted that everyone is in agreement that the standard applies to UVLS as a general safety net, in which a solution is not required but is determined by the planner. The question is: do we want to extend the applicability to category C Contingencies? Do you draw the line between C and D or between B and C?
- c. It was then remarked that it's not an issue of whether a program is UVLS or an SPS; it can be both. The debate is rooted in the fact that the concept of an SPS requires a more robust standard, but the definition of SPS excludes UVLS. What is the reason for the exclusion?
- d. H. Singh then requested to present a diagram he created that is a decision tree to peel off what is not UVLS. The team agreed and H. Singh walked through the following:



- e. The question was posed: should we limit the scope of the UVLS standard to UVLS schemes that are a safety net, or should we also cover additional inputs other than voltage (category C)?
- f. It was noted that if we are addressing category C, then we are dealing with more SPS-like systems that need more stringent requirements. The revised definition of SPS proposed by the NERC SPCS and SAMS was then reviewed, and it was noted that the definition excludes UVLS, but does allow load shed and does use extreme Contingencies.
- g. It was pointed out that the proposed SPS definition, it's much broader now, and we need to determine what to carve out of it.
- h. The idea was raised: if it's UVLS, the failure of one component doesn't hurt the reliability of the BES. SPSs, however, can be centrally-controlled—one computer algorithm sends signals to 50 different locations. Classify centrally-controlled UVLS as an SPS and everything else as UVLS; this is the distinction. If we do this, then our standard does not need to address the redundancy requirements the SPS standards already address.
- i. H. Singh noted that the diagram is based on the future definition of SPS and doesn't reflect what it says today. E. Chanzas added that the SPS standards and definition are being revised as part of Project 2010-05 Phase 2, which has not started yet (Phase 1, Misoperations is still in progress). H. Singh remarked that it may fall on the SPS drafting team to address the gap of more complex UVLS programs.
- j. E. Chanzas explained that the team can either base our decision on a new definition of SPS that we propose as enforceable or, we can base it on the current definition and submit any identified gap to be addressed by the pending project.
- k. The team came to a consensus that this project's standard will exclude centrally-controlled UVLS programs, which are more consistent with SPSs. It was noted that there are multiple arguments to support that a centrally-controlled UVLS program is more consistent with an SPS. The team agreed and decided that it should be left up to the SPS revision project to address centrally-controlled UVLS.
- l. The team documented the agreed upon thought process as follows: if a load shedding program uses only local voltages as an input, it is a UVLS program. Otherwise, it is an SPS. A centrally-controlled UVLS program is considered an SPS because a Misoperation or inadvertent operation of the program may have a significant effect on the BES.

- m. The team then changed the defined term Automatic UVLS Program in the standard to Automatic Distributed UVLS Program and removed the characterization of locally and centrally-controlled, defining the term as a coordinated load shedding program consisting of distributed controls or relays that automatically protect wide areas against severe undervoltage conditions.
- n. E. Chanzas raised a question that P. Tatro, NERC sent via email upon reading a summary of the team's decision, asking if the intention is that systems that we are classifying as SPSs include those installed to meet TPL requirements and as safety nets. The team answered yes.
- o. J. Villar, FERC raised the issue of calling UVLS a program. He pointed out that both SPS and UFLS do not use this term.
- p. E. Chanzas noted that the term program comes from PRC-010-0. She also referenced previous meeting notes in which it was noted that UFLS is for an entire region, but UVLS is only coordinated among entities for a specific system preservation footprint. It was also pointed out that the NERC Glossary defines an SPS and a RAS as one in the same; however, one is a system and one is a scheme.
- q. Attention was then turned to the word distributed. The question was raised: do we want to use the word distributed, or is it inherently distributed, and any time it's not, it's a centrally-controlled SPS?
- r. Concern was expressed that our words are not consistent with PRC-005, which uses distributed and non-distributed. G. Vassallo then suggested that we add to the definition that we're excluding centrally-controlled. The team agreed and added that in addition to excluding locally-applied relays that are not part of a coordinated program, centrally-controlled UVLS programs are also excluded. The team then removed the word distributed from the term itself.
- s. Focus was then put on the term "wide area" in the definition. It was noted that the term is defined in the NERC Glossary. Upon review, the team noted that the definition does not apply because it is in relation to IROLs.
- t. G. Vassallo pointed out that we got the term from the *Guidelines for Developing a UVLS Evaluation Program* (TIS, 2006). It was then noted that the area needs to be defined somehow—the locally-applied relay exclusion is too far down in the definition. The team agreed, but decided to return to the issue at a later time.

- u. The team turned its attention back to the decision tree diagram. It was suggested that the diagram should be simplified so that it is not dependent on whether a Contingency is extreme or not. We do not want to define SPS; we do want to note that centrally-controlled is included under SPSs. The main purpose of the diagram is to differentiate UVLS and SPSs, so it only needs the information to accomplish this goal. J. Villar added that the team should simply say that if it is not UVLS, it may be something else. The team agreed.
- v. The team made these changes other minor revisions and the diagram resulted as follows:



- w. David McRee, Chair and Laura Anderson, Standards Developer of the EOP Five-Year Review team then joined the meeting to discuss their recommendations to move Requirements R2, R4, and R7 from EOP-003-2 to Project 2008-02 UVLS. D. McRee noted that the recommendations are based on similar efforts to remove overlapping UFLS requirements when PRC-006 was revised. The UVLS SDT noted that they had considered this as well and understood the recommendations.
- x. E. Chanzas confirmed with D. Mcree and L. Anderson that the understanding is for the UVLS SDT to address the noted EOP-003 requirements as they see fit. D. McRee agreed, noting that the recommendation is to absorb the requirements as needed or send them back to the SDT that addresses EOP-003. E. Chanzas clarified to the group that the Five-Year Review Team is only making recommendations and not actually revising the standards.
- y. D. Mcree and L. Anderson then signed off and the team looked at EOP-003-2. E. Chanzas explained that EOP-003-2 is FERC-approved but not yet effective. This version removed references to UFLS concurrent with PRC-006-1 development.
- z. The team noticed that the requirements recommended to be moved are applicable to the TOP. It was noted that the operator just uses the equipment; the owner implements it. It was also noted that the TOP is not an applicable entity in PRC-006-1 UFLS. The team agreed that our standard should only be applicable to the TO, DP, PC and TP.
- aa. It was asked: wouldn't you need to coordinate the different voltage levels with the TOP? In response, it was noted that the requirement would be notification, but such a notification requirement is not consistent with TPL standards. The example was given: a planner doesn't tell the TOP when a new transmission line is built. These details are communicated by other means.
- bb. The team continued to review the requirements being recommended to move over to Project 2008-02 UVLS (R2, R4, and R7) and agreed that they could all be mapped to or justified against our existing requirements, including that the standard is not applicable to the TOP.
- cc. The team then quickly revisited the decision tree diagram and the internal agreement language that was written in conjunction. The team agreed that if the diagram is posted in some way, the agreement language isn't necessary to accompany it and can continue to serve for internal notes purposes.

#### 4. White paper development

- a. E. Chanzas requested a discussion on how to proceed with the white paper that A. Sleva developed. She noted that the purpose of a white paper is to introduce preliminary concepts

essential to the understanding of the standards. She also noted that there are multiple opportunities within other standard documents to support understanding of the standard and specific requirements (Background, rationale boxes, Application Guidelines, etc.).

- b. It was questioned as to whether the white paper adds value to how the requirements are written now. The original purpose was to fill in the holes in regard to study-oriented questions, etc. E. Chanzas commented that the team could instead develop an FAQ doc.
- c. The team agreed to table the discussion until the standard is more fully developed so they can more appropriately determine what purpose it needs to serve if any.

## 5. Drafting of Requirements, Measures, and Rationale

- a. The team began by looking at revisions to Requirement R1 that were completed as part of the team's assignment work. It was noted that the words "or modifies" to "Each PC or TP that develops or modifies an Automatic UVLS Program" to address situations where the TP or PC have existing programs.
- b. Attention was drawn to 1.1, which requires the PC or TP to provide original or updated requirements for coordination as part of the design criteria, and 1.2, which requires that they provide original or updated program specifications. It was asked: wouldn't coordination be included as part of the specifications?
- c. This led to a discussion about what is meant by coordination. It was noted that coordination means tripping load before the system collapses. This was followed by the indication that you need to consider the complexity of the elements that are taken into account, which is why we need to keep it general.
- d. G. Vassallo noted that we're talking about system coordination, not relay coordination. He then suggested breaking up 1.1 and 1.2 to create R1 and R2. E. Chanzas added that this would help keep the measures clear.
- e. The team then created R1, which requires the PC or TP to address coordination between Automatic UVLS Programs and applicable protection and control systems, and R2, which requires the PC or TP to provide program specifications to UVLS entities.
- f. The SDT then flushed out M1, requiring the PC or TP to have evidence that identifies the protection and control systems that were considered during the development of the coordinated

- program, and M2, which requires the PC or TP to maintain a current copy of the documentation provided to each UVLS entity regarding program specifications.
- g. The team also worked on the rationale box for R1, noting that the requirement is necessary to ensure an integrated and coordinated approach be included among protection systems, including generator ride-through capabilities, SPSs, and other UVLS programs (FERC Order No. 693, P 1509).
  - h. It was raised that the directive is only attached to UVLS, but it is important to everything. The team agreed; it's not a UVLS concern, it's a protection system concern. The purpose of the coordination is to promote BPS reliability.
  - i. The team reviewed the work on Requirement R1. The team also decided to change "address coordination" to "consider coordination". They also removed "coordinated" from "a coordinated Automatic UVLS Program" at the end of M1 since it is redundant.
  - j. It was then pointed out that the types of evidence in M1 should be consistent with other standards. As written, it references "emails or other written communications ..." The team looked at PRC-006-1, noting it uses the phrase "reports or other documentation". The wording was changed to match.
  - k. The team then reviewed R2 and M2 and agreed that no changes were needed. E. Chanzer changed "Each PC or TP...has maintained a current copy" to "Each PC or TP...shall have a current copy" to keep the wording consistent with other requirements.
  - l. The team moved on to the work that had been done on what is now R3, which requires the PC or TP to provide a schedule for implementation for the program. The work followed the corresponding PRC-006-1 UFLS standard for the M3 language, which said that the PC or TP shall have dated evidence, such as email, FAX, letter or other documentation that it provided a schedule. The team decided to remove FAX.
  - m. The team reviewed the work that had been done on R4, which requires each UVLS entity to provide automatic tripping of load in accordance with the program design and schedule. "Design" was changed to "specifications" for consistency with previous changes. After reviewing the term "implement" in the list of verbs in the Drafting Team Guidelines, the team changed "provide" to "implement".
  - n. The team looked back at the R2 rationale to add more examples, revising it to say that the requirement is necessary to ensure that current specifications of the program are communicated so that each UVLS entity is aware of the specifics of the program, e.g., voltage tripping levels,

timing, and amount of load to be shed, and that the specifications must be kept current to stay up-to-date with program modifications.

- o. The SDT then looked at the R3 rationale again to add more robustness. The team rewrote the rationale to say that R3 is necessary to ensure that the PC or TP provide a schedule so that the UVLS entity can develop a plan to design, install, and test necessary equipment.
- p. The team then looked at the R4 rationale, which says that UVLS entities need to implement and document the program as developed. The team revised the rationale to say that R4 is necessary to ensure that UVLS entities have implemented the program according to specifications, because lack of adherence to the specifications can result in unacceptable program performance, which increases the risk to reliability.
- q. The team moved on to the work done on R5, which requires the PC or TP to perform an assessment of the program once every five years or as required by system conditions to: 5.1 – Develop performance criteria to evaluate the program; 5.2 – Assess the program’s continued need and effectiveness; 5.3 – Assess the continued coordination of the program with other applicable protection and control systems; and 5.4 – Jointly assess the continued need and effectiveness of a common program with other PCs and TPs.
- r. The team also looked at the measure that had been developed, which notes that each PC should have reports, dynamic simulation models, etc. to show that it meets R5. It was noted that we should be consistent with R1 and not require performance criteria. 5.1 should not be included because there is no similar requirement in R1. Performance criteria would be part of the planning standards. The team agreed and deleted 5.1. It was noted that 5.4 is the same situation: it is inconsistent with R1. If we keep it, it would need to be added to R1 as well. The team agreed to remove 5.4.
- s. After the revisions, 5.1 required an assessment to assess the program’s continued need and effectiveness, and 5.2 required an assessment to assess the program’s continued coordination.
- t. The team edited the R5 rationale box to align with the removal of the sub bullets noted above. The rationale kept that the intention of R5 is to re-evaluate the need and effectiveness of the program at least once every five years, and that the concept of “as required by changes in system conditions” will allow for an assessment if there are network changes within the five year period. The rationale also stated that the program’s commissioning date will trigger the assessment requirement, covering years zero through five.
- u. The team also retained in the R5 rationale that the sub bullet related to coordination is to support the directive language of an integrated and coordinated approach. Lastly, the team kept the

language that stated that the communication of assessment results with UVLS entities is assumed to be covered by R2.

- v. The SDT then moved on to review the work done on what was now R6, which requires each UVLS entity to identify Misoperations with one year: 6.1 – For an event in which equipment operation was expected, determine whether it operated as intended; 6.2 – For an event in which equipment operation occurred unnecessarily, determine why.
- w. There was discussion on whether UVLS Misoperations belongs in PRC-004. It was noted that PRC-004-3 includes UFLS, but only UFLS that trips a BES element. Therefore, UFLS does not have a corresponding requirement that we are trying to impose for the UVLS programs we've limited to (i.e., our standard is likely applicable to UVLS programs that do not trip BES elements).
- x. It was also noted that our standard is about the UVLS program, not the equipment. PRC-022-1 doesn't talk about the equipment either, so we're not abandoning anything. The team then looked at PRC-006-1, R11, noting that the focus is on the program, not the equipment. E. Chanzas raised the fact that PRC-022 does not differentiate between the program and the equipment. Upon review, it was pointed out that PRC-022 is talking about an event.
- y. E. Chanzas summarized the situation: When the team originally discussed absorbing PRC-022-1, we decided to separate out requirements for the program and the equipment. Now that the distinction has been made, we realizing that equipment should not be included.
- z. Members of the team agreed that PRC-022's intent was never to address Misoperation of the equipment—only the program. The inclusion of equipment in our standard is misplaced.
- aa. It was raised that if you assess why a UVLS program failed, you would inherently identify if there was an equipment failure. They are going to look at the equipment anyway, but as is we're requiring them to look at it, which is misplaced
- bb. E. Chanzas had the team look at what is now R9–R11, which addresses looking at an event to identify and address program deficiencies. She asked if what the team is saying is that these requirements inherently cover equipment Misoperations?
- cc. In response, it was said that requirements inherently identify if a relay should have been tripped, but they do not include what to do if the relay didn't trip. That is potentially the missing piece, but it doesn't belong in our standard.
- dd. J. Villar noted that the SPS standards cover the Misoperation of equipment. If UVLS equipment misoperates, you could have a blackout. Members of the team responded that since we are no

longer including centrally-controlled UVLS, the consequences aren't as severe. This is the same as UFLS; PRC-004-3 only includes UFLS that trips a BES line. J. Villar pointed out that the PRC-004-3 SDT team included that because there wasn't a different standard addressing UFLS equipment Misoperations.

- ee. It was asked if the Misoperation of the equipment or the program was more critical. J. Villar agreed that it's the program. The team emphasized that by covering program, you are inherently covering the identification of an equipment failure. J. Villar agreed, and noted that the team needs to do a good job in the rationale of pointing out that the individual equipment would be inherently considered.
- ff. E. Chanzas said that the consensus is to remove R6–R8. She noted that she would delete these and renumber accordingly at a later time.
- gg. The team moved on to the work done on R9 (will become R6), which requires the PC or TP in whose area an event occurred that resulted in voltage excursion to within one year: 9.1 – For an event in which program operation was expected, determine whether the program operated as intended; 9.2 – For an event in which program operation was not expected but occurred, determine why the program operated incorrectly.
- hh. The term voltage excursion was questioned, and the words “below the set points” were proposed. The team also considered using the term “wide area”. E. Chanzas also asked if these should be two separate requirements rather than sub bullets.
- ii. The team then discussed the requirement of having to look at the system if it actuated on a “sunny day”. It was noted that R9 (now R6) should cover ensuring that the program is operating when you have an undervoltage event. It is event analysis of the program. This is what poses a threat to system reliability.
- jj. J. Villar questioned the team's consideration of using the phrase wide area voltage excursion. The phrase undervoltage event was suggested instead. The trigger would be some major loss of load where you have UVLS. J. Villar and the team agreed.
- kk. E. Chanzas raised the scenario of load not being lost when it should have been. If loss of load is the trigger, then when would you know to look at this scenario? She documented the following for the team to consider:
  - A) An event occurred, and the UVLS **program** did NOT function as expected
  - B) An event occurred, and the UVLS **program** functioned when NOT expected
  - C) An event did not occur, and UVLS **devices actuated**

- ll. G. Vassallo said that the first two are the one we need to address, as they have to do with the program.
- mm. Members of the team wondered if the trigger to study an event could be left up to the entity. J. Villar noted that PRC-022 used the term Misoperation. E. Chanzas noted that this term has a specific meaning, and the team reviewed the definition currently under development in PRC-004-3, which defines it as the failure of an Element's composite Protection System to operate as intended.
- nn. The team continued to discuss the phrase "wide area voltage excursion". M. Patel noted that the team is currently using the term "wide area" in the definition of Automatic UVLS Program, so that would need to be reserved as an issue as well. J. Villar noted that voltage excursion by itself does not mean anything. He said that it should include "below the set points". S. Kolluri noted that you only want to look at a voltage excursion that drops load.
- oo. It was noted that the problem the team is trying to solve is determining what the trigger is to meet the above-noted scenarios. PRC-006-1, R11, was referenced, which says, if you have an event that falls below certain levels, then you need to study the effectiveness of the program.
- pp. M. Patel went on to say: Scenario B is not an event that occurs frequently, so that in and of itself would trigger a study. Scenario C would be inherently identified by PRC-004-3: even though UVLS is excluded in terms of the fact that there is no requirement to address what to do if a UVLS device Misoperates, the main reliability concern of identifying the actuation would be inherently covered by the requirement to look at all protection system operations. Scenario A presents the greatest risk to system reliability and is what we need to address. B. Harm agreed that the system is most vulnerable during periods of sustained suppressed voltages.
- qq. The team agreed that R9 (now R6) should be similar to PRC-006-1, R11, revising it to say that each PC or TP in whose area an event occurred that resulted in voltage excursion below the set points of the program shall conduct and document an analysis of the event within one year to evaluate the effectiveness of the program.
- rr. J. Villar noted that PRC-006-1, R11 says that the analysis will also evaluate the performance of UFLS equipment. Why aren't we addressing equipment performance? M. Patel explained that performance of the equipment is inherently part of studying the event. The assessment will produce a result that details which individual relays operated or did not operate. J. Villar said that the team should be prepared for that question from industry.
- ss. H. Singh asked how you could verify the effectiveness of the program. The language doesn't seem quite right. The team considered "validate" but decided against it. It was noted that the reason for

R9 (now R6) is not only to see if the system worked correctly, but to see if it did not work correctly. H. Singh said that the former is difficult to “prove” in terms of effectiveness. He noted that he just wanted to express that the legacy language (from PRC-006-1 UFLS) could probably use some improvement, and that he would try to come up with something.

- tt. The team then rewrote M9 (now M6) to match M11 in PRC-006-1, without reference to equipment. It stated that each PC or TP should have dated evidence, such as reports, data gathered from an event, or other documentation to show it conducted an event assessment to evaluate the effectiveness of the program.
- uu. Looking ahead, it was pointed out that PRC-006-1 doesn't have a requirement for a CAP, though our standard does at this point. If we want to carry forward the concept of a CAP from PRC-022, then we're dealing with a Misoperation. Instead of a CAP, should it be a review or study. A CAP means that there are a series of actions take.
- vv. The team looked at R12 in PRC-006-1, which requires a design assessment of a UFLS program to consider identified deficiencies from the event analysis. The team changed R10 (now R7) to say that the PC or TP that identifies deficiencies in its program per R9 (now R6) shall conduct and document a program design assessment that addresses the deficiencies within two years of the event. The team then removed R11, which requires the implementation of the CAP.
- ww. The two-year time frame was questioned since we are no longer applying a CAP. The team thought it was still valid, and E. Chanzas noted that they are giving a year to perform the event analysis in R9 (now R6), so this provides an additional year to correct it.
- xx. The team then moved on to M10 (now M7) and rewrote it to say that the PC or TP shall have evidence that a design assessment has been completed to address the identified deficiencies.
- yy. E. Chanzas then completed renumbering the requirements in light of the deletion of the requirements related to equipment Misoperations.
- zz. The team looked again at R6, which requires event analysis to evaluate the effectiveness of the UVLS program. The team then considered some revisions to R6 that H. Singh had sent.
- aaa. E. Chanzas noted she also had a question about the connection between R6 and R7. Since R7 requires the PC or TP to address deficiencies identified in R6, shouldn't R6 require the event analysis to identify potential deficiencies, rather than evaluate the effectiveness?
- bbb. H. Singh said he had to think through the connection between R6 and R7 and that was the objective behind his edits, which added the word “undervoltage” to the type of event, and

“initializing” before set points. The edits also used the phrase “analyze its performance within one year of event actuation” instead of “conduct and document an analysis of the event within one year”, and “to identify any deficiencies impacting the program” instead of “to evaluate the effectiveness of the program”.

- ccc. Team members noted concern that “to identify deficiencies” might indicate that you’re digging to find a problem. They then discussed use of the term actuation, which H. Singh said he added to be consistent with PRC-006-1, R12. The team agreed that “actuation” did not really add much here.
- ddd. E. Chanzas asked if they should use the term calendar year instead. The team said no, it should be a year from the date of the event. It was then observed that one year is different than what exists in PRC-022 today, which is 90 calendar days. The team agreed that an analysis needs to be done within one year, whereas PRC-022 says if your region requires you to provide the analysis, you must provide that within 90 days.
- eee. The team decided to include some of H. Singh’s other edits, and R6 was revised to say that each PC or TP in whose area an undervoltage event results in voltage excursion below the initializing set points of the program shall analyze its performance with one year of the event to evaluate the effectiveness of the program.
- fff. E. Chanzas asked if R7 should continue to use the word “conduct and document” since R6 no longer does. The team agreed that conduct should stay but document should be removed, and the wording was revised.
- ggg. E. Chanzas noted that with respect to time, the team should finish addressing what is now R8–R11, since rationales for R6 and R7 would likely take longer and could be done after the meeting. The team agreed.
- hhh. The team looked at the work completed on R8, which requires each PC or TP to maintain a UVLS database containing data necessary to model its program, and M8, which said that the PC or TP shall have acceptable evidence (in the form of hard copy or electronic file format) to show that it maintained a database necessary to model its UVLS program. G. Vassallo suggested changing the word “acceptable” in the measure to “dated” for consistency. The change was made.
- iii. The team then looked at the R8 rationale, which said that maintaining an accurate database will ensure that the database is available for performing regional voltage studies. The team reworded so that is said that R8 is necessary to ensure that up-to-date program data is available to perform studies for use in event analyses, and this will capture any changes to the program to maintain an accurate database.

- jjj. There was then concern with regard to the word database. A spreadsheet, for example, is what many entities may use, but it isn't exactly a database. The team did not want to deviate from the use of the word since PRC-006-1 uses the word database. The team decided to adjust the measure to say that they should have dated evidence in the form of hard copy or electronic files, such as Excel or text files.
- kkk. A question was raised with regard to R9, which requires the PC or TP to update the UVLS database, as to why it was carved out as a separate requirement. G. Vassallo noted the team had decided to separate it to keep it clear, but that PRC-006-1 UFLS had included them together.
- lll. The team decided to merge R9 into R8 so that it required the PC or TP to maintain a database containing data necessary to model its program for use in event analyses and assessments of the program at least once each calendar year, with no more than 15 months between maintenance activities.
- mmm. The team moved on to R9 (former R10), which requires each PC or TP to provide its UVLS database to other TPs or PCs within its Interconnection within 30 days of a request. The team pondered if you would ever need to share your database with another planner not in your Interconnection. It was noted that the TPL standards say that anybody who needs the data can request it. Also, the current wording is good because it matches PRC-006-1 UFLS.
- nnn. The team looked at M9, which said that the PC or TP shall have evidence to show that it provided its database to other PCs or TPs within 30 days of a request. The team added language for consistency with other measures to include "dated evidence, such as emails, letters, or other dated documentation".
- ooo. Finally, the team looked at R10 (former R11), which requires each UVLS entity to provide data to its PC or TP according to the format and schedule specified by the PCs or TPs to support maintenance of each UVLS database. It was suggested to add the phrase or upon a request, reasoning that some entities may want to do a study sooner than what the schedule would provide. The words were added to the requirement and measure.
- ppp. The team evaluated the rationale for R10 (former R11), which said that R10 is necessary help the PC or TP maintain a UVLS database to perform regional studies. The team reworded it to say that the requirement is necessary to aid the PC or TP with maintaining a program database to perform studies and for use in event analyses.
- qqq. H. Singh then suggested that R10 should be moved so that it follows R8 since they are more sequential. The team agreed and R9 (now R10) was switched with R10 (now R9).

- rrr. The team then decided in the time left to look at the standard's definition of Automatic UVLS Program, which defined it as a coordinated load shedding program consisting of distributed controls and relays that automatically protect wide areas against severe undervoltage conditions.
- sss. The term automatic was questioned. G. Vassallo said it was consistent with PRC-006-1, and that the team wanted to differentiate from manual. H. Singh pointed out that PRC-006-1 doesn't use the term "automatic" throughout. E. Chanzas noted that the difference is that we're including the word as part of a defined term, so we need to use the full term each time.
- ttt. The team then discussed the use of "wide area" in the definition. Is the intention to protect the smaller area where the collapse occurs, or the broader system, or both? It was noted that UVLS is generally applied to protect load pockets or load centers. There was then a suggestion to use the phrase "portions of the BES" instead of "wide area". That allows an entity to define what portions need to be protected. The team tentatively made the change.
- uuu. It was asked: why not just BES? The team expressed that this would be too broad. B. Harm noted that "wide area" is a commonly used term that we shouldn't try to define. M. Tackett agreed but suggested to instead say "automatically protect against or mitigate impacts of severe undervoltage conditions".
- vvv. G. Vassallo suggested that the team continue to think about the definition and to discuss at the next meeting.

## 6. Drafting of Background and Guidelines and Technical Basis

Due to time spent on the other items, the team was not able to address this agenda item.

## 7. Outreach action plan

G. Vassallo, M. Patel, and M. Tackett all volunteered to support the outreach during the NPCC RSC call on August 21. B. Harm and S. Kolluri will participate in the NATF Modeling Practices WG outreach, and M. Tackett will support during the ISO/RTO Council IRC PC outreach.

## 8. Next steps

E. Chanzas will send out an invite for a conference call before the next SDT meeting on August 26–28, 2013. The purpose of the call will be to firm up the SAR, definition, requirements, measures, and rationale boxes for an internal NERC quality review. This will allow the team to address quality review comments at the next SDT meeting in preparation for posting the SAR and supportive draft standard language for an informal comment period in early to mid-September.

## 9. Action items or assignments

- a. **All:** Review the definition for Automatic UVLS Program and send the team any suggestions on how to improve upon it if necessary; review the SAR and send the team thoughts on how to best bring it in line with decisions we made this week.
- b. **M. Patel:** Draft some statements to include in the R6 and R7 Rationale to support how UVLS equipment fits in.
- c. **E. Chanzes:** Update the outreach slide deck to reflect our recent decisions and thought processes and send to the team for review; perform an editorial review of all drafted language and merge into the standard template; send a clean copy with editorial redlines to the team for review.

## 10. Adjourn

The meeting adjourned at 10:00 a.m. ET on Thursday, August 8, 2013.