NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments on Second Ballot — Project 2007-01 Underfrequency Load Shedding
Date of Ballot: 07/24/10 - 08/03/10

Summary Consideration:

- Comments received during the second ballot expressed confusion over the actual application of the curves in the Attachment to the standard. Several commenters indicated that the graphical representation of the frequency-time curves alone allows plenty of margin for mis-interpretation of the curves' data points. A "break-down" of the plotted curves should be clearly displayed (in conjunction with the graphical curve representation) in a table immediately below each frequency-time curve to further clarify the under- and over-frequency performance characteristic curve data points. The SDT agrees and has modified the curves to better clarify what is intended. The SDT added break-points and combined the curves (Attachment 1 and 2 into one curve now in Attachment 1). The curves are solely for checking the frequency trajectories of simulations and not for setting UFLS relays.

- Several commenters expressed concern that the Applicability section of the standard, as proposed, excludes generators; however, R4 requires PCs to model generator specific information. The suggestion to include the Generator Owners in the proposed standard will be problematic because Generator Owner data requirements already exist in the PRC-024-1 draft and are expected to remain. The SDT has clarified in the effective date of PRC-006 that the sub-parts related to modeling of generator trip settings will not be effective until PRC-024 is approved and effective. Adding a Generator Owner data requirement to PRC-006 would be redundant and cause double jeopardy concerns. It is the case that some standards are dependent on data requirements found in other standards. An example is that data necessary to comply with TPL standards is required under MOD standards.

- Many entities located in the Western Interconnection expressed concern that there is still a fundamental problem with the standard in that it does not specifically require the Planning Coordinators (PC) within an Interconnection to coordinate their plans amongst themselves. The SDT has worked with WECC to develop a proposed Variance to the continent-wide standard applicable to the Western Interconnection entities that addresses these concerns.

- The SDT made minor conforming changes to EOP-003-2 as requested by some commenters to clarify that the standard excludes automatic under-frequency load shedding.

Several commenters pointed out that the terminology of "other affected Planning Coordinators" (R5 & R13) is unqualified and vague. The Planning Coordinator qualification should be completely clear and unambiguous and proposed changing the applicable text in R5 from "other affected Planning Coordinators" to "other Planning Coordinators whose areas or portions of whose areas are also part of the same identified island". (Similar language was adopted for R13.) The SDT agrees with the commenters and modified Requirements R5 and R13 by clarifying that the other Planning Coordinators are those: "whose areas or portions of whose areas are also part of the same identified island".

- Many commenters opposed the addition of Requirement R14 requiring the Planning Coordinators to respond to written comments on their program, design and data submittal. The comments indicated that this requirement either does not go far enough to secure involvement of the DPs and TOs or is procedural in nature and should not be included in a reliability standard. The SDT added this requirement between the initial and the second ballot to address concerns expressed that the DPs and TOs should have a voice in the development of the program and

implementation schedule. The SDT agrees that the DPs and TOs should have a voice in the process but in general, Planning Coordinators should be coordinating with entities in their area in fulfilling their Functional Model roles. The SDT thinks that a response to comments is about as much as a standard can require. Requirements for entities to be involved with each other and work together causes one entity's compliance to be dependent on another's. This has generally been viewed as unacceptable by the industry. This standard does not preclude development of regional standards in order to provide opportunity for all interested entities in the region to be involved.

If you feel that the drafting team overlooked your comments, please let us know immediately. Our goal is to give every comment serious consideration in this process. If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Herb Schrayshuen, at 609-452-8060 or at herb.schrayshuen@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

Voter	Entity	Segment	Vote	Comment
Kirit S. Shah	Ameren Services	1	Negative	(1) PRC-006, R1 should be modified such that PC is required to coordinate development of the islanding criteria in consultation with TP and DP. Further, presently the RE is involved in performing or coordinating the islanding/UFLS studies. We believe that RE should continue to be involved. (2)The SDT has added R14 for PC to respond to written comments on their program, design and data submittal. Responding is not the same as involving and working with the TP and DP initially in development of the progarm, design, and data needs. We believe that PC should consult and coordinate appropriate TP and DP in development of these items. (3)EOP-003-1, R2, the last phrase should be modified from "...load shedding scheme is required." to "...load shedding scheme is necessary to minimize the risk of uncontrolled failure of the interconnected system to match the "Purpose" of the standard.
Response: (1) In general, Planning Coordinators should be coordinating with entities in their area in fulfilling their Functional Model roles. A peer review could be established for the R1 island identification criteria similar to R14, but the SDT is reluctant to add another requirement without wider industry comment. Requirements cannot be made enforceable to entities such as the RE that are not users, owners or operators of the BES under the Compliance Monitoring and Enforcement Program. (2) A response to comments is about as much as a standard can require. Requirement for entities to be involved with each other and work together causes one entity's compliance to be dependent on another's. This has generally been viewed as unacceptable by the industry. This standard does not preclude development of regional standards in order to provide opportunity for all interested entities in the region to be involved. (3) The scope of this drafting team's EOP-003 SAR is limited to removing automatic UFLS from EOP-003-1. This does not include making any			

[1] The appeals process is in the Reliability Standards Development Procedure: http://www.nerc.com/files/RSDP_V6_1_12Mar07.pdf.

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changes to R2.				
Henry Delk, Jr.	SCE&G	1	Negative	1) SCE&G proposes an effective date of 24 months after regulatory approval. We believe the currently proposed effective date of 12 months after regulatory approval would not allow enough time to ensure compliance due to the requirements to establish criteria to identify islands, coordinate results with other Planning Coordinators, and reach concurrence with all other affected Planning Coordinators on UFLS design assessment results before design assessment completion. A number of these requirements cannot be met until a prior requirement is completed and each of these requirements requires coordination with other utilities which will increase the amount of time necessary to obtain compliance. As a result, SCE&G believes an effective date of 24 months after regulatory approval would be much more practical and desirable than the currently proposed 12 month effective date. 2) The graphical representation of the frequency-time curves alone allows plenty of margin for mis-interpretation of the curves data points. A "break-down" of the plotted curves should be clearly displayed (in conjunction with the graphical curve representation) in a table immediately below each frequency-time curve to further clarify the under- and over-frequency performance characteristic curves data points.
Matt H Bullard	South Carolina Electric & Gas Co.	6	Negative	
Response: 1. The standard drafting team received feedback that many of the existing UFLS programs meet the performance characteristics in the proposed standard. Once this standard is approved the entities with existing programs would need a year to validate their program and validate the schedule for implementation with the UFLS entities. 2. The SDT agrees and has modified the curves to better clarify what is intended.				
Joseph S. Stonecipher	Beaches Energy Services	1	Negative	1. Assigning the program design to the Planning Coordinator - in all honesty, this should be assigned to the Region. However, with the demise of the RRO, the RA not being available to us to assign things to, and FERC saying that we cannot assign things to the same entity that audits us (i.e., the RE), we had no real choice but to drop down one level to the PCs. 2. No LSE Applicability - this is inconsistent with FRCC's PRC-006 which assigns the amount of load to be shed to the LSE. However, the rest of the country is adamantly against assigning it to LSEs (especially in RTOs where some LSEs do not own distribution equipment at all). Hence, the DP is the preferred applicable entity to have the relays themselves. TOs are there to address historical arrangements primarily in the Midwest and West where TOs provide UFLS for DPs through grandfathered, often

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				verbal, arrangements. We will still be able to aggregate smaller entities load into an FMPA-wide value for full-requirements members of FMPA through joint registration as a DP (e.g., FMPA would register as a DP to meet some of the requirements of the new PRC-006 with an associated revision to our Compliance Contract) 3. Note that there are significantly more modeling efforts than we may have done in the past; however, other regions' experience is that the increased modeling is important. 4. R10 is a little confusing, but has to do with the need to switch transmission level capacitors out of service during a UFLS event to prevent over-voltages. 5. In general, the standard is almost impossible to meet without a regional effort (e.g., 2.3). The Drafting Team struggled with this because the region is the "right" place to assignt eh program, but, we could not assign it there, so, the standard was written to sort of "force" regional cooperative efforts. In general, it should not be all that difficult to meet the requirements of the standard through FRCC efforts.
Response: 1. Thank you for understanding the difficulties with applicability. 2. Thank you for understanding the SDT position on LSE applicability. 3. The SDT agrees that modeling is a significant factor with this standard. 4. Thank you for understanding the need for R10. 5. The SDT does not think it would be impossible to comply without a regional effort, but a regional effort is certainly desirable. Thank you for understanding the SDT's approach to try to preserve the regional efforts.				
Dan R. Schoenecker	Midwest Reliability Organization	10	Negative	1. No VRFs should be "High" for a program of last resort. 2. Don't agree with R14 & R13. R13, wording "coordinate" not easy to prove for compliance. Coordinate doesn't have a valid compliance methodology since entities could be found non-compliant for actions or inaction beyond their control. The NSRS proposes wording "shall provide". 3. In R3 & R5 the wording "affected" needs better definition, the NSRS suggests rewording the affected paragraph to provide a more "bright line" criteria such that they reference PCs that share a common island to be the affected PCs. 4. R14 is procedural and not appropriate for a reliability standard. 5. Several issues need to be addressed in previously submitted comments. 6. This standard is too complicated. It could be simplified to the following requirements; it should require a documented Planning Coordinator (PC) UFLS plan, data is provided to the PC, PC should determine design

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				characteristics, and verify through simulation that the plan works as designed. 7. For R2.3 & R4, each PC can't study an entire Region or Interconnection; they don't have the resources and data. Resulting studies maybe duplicative and contain conflicts in assumptions and results. 8. For R11, should not be for just any UFLS events (e.g., small local area events with few or no generators in the island), but should include all disturbance events as defined in EOP-004 that should be studied.
Response: 1. The SDT disagrees because of the importance of a last line of defense. The drafting team has posted its justification for assignment of VRFs – the justification identifies how the High VRF meets both NERC and FERC guidelines for setting VRFs. 2. "Coordination" is defined by the sub-parts of R13 (which has since been modified for further clarification). 3. The standard has been modified to address this concern. The word, "affected" is not used in the revised standard. The text in R5 was changed from "other affected Planning Coordinators" to "other Planning Coordinators whose areas or portions of whose areas are also part of the same identified island". (Similar language was adopted for R13.) 4. Peer review procedures such as R14 are used elsewhere in approved NERC standards, specifically FAC-010 and FAC-011. The procedure has industry support. It allows Transmission Owners and Distribution Providers to at least have some say in what they will be obligated to implement. 5. Please see responses to those comments. 6. The SDT disagrees that this standard is too complicated. The requirements are necessary for reliability of UFLS programs. The commenter's suggestion to simplify would not establish reliability criteria for UFLS programs to achieve, there would be no coordination required between adjacent Planning Coordinators, no coordination with generator tripping, no protection against generator tripping due to high V/Hz, no necessity to analyze underfrequency events, and no requirement for anyone to install and set UFLS relays. 7. The SDT agrees that each PC studying the region or interconnection is undesirable, but cannot require that they work together without setting up a condition where one entity's compliance is subject to what other entities do. If a Planning Coordinator does not wish to study the region on its own, that Planning Coordinator can try to work with the other Planning Coordinators. R7 requires sharing of UFLS data between Planning Coordinators. It is true that studies may be duplicative, but that could be avoided by Planning Coordinators working together. Conflicts should be resolved after fulfilling R5 and R13 though that is not required here. 8. The scope of the commenter's suggestion goes beyond what is necessary for UFLS purposes.				
Terry Harbour	MidAmerican Energy Co.	1	Negative	1. Several issues still need to be addressed in previously submitted comments. 2. This standard is too complicated and should be simplified to the following requirements; a documented Planning Coordinator (PC) UFLS

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				plan, data provided to the PC, the PC should determine minimum design characteristics, entities should verify through simulation that the plan works as designed, and entities should provide their plan to adjacent interconnected NERC registered entities as evidence of coordination. 3. The performance curves the attachments should clearly state what approximately expected loss of life is being imposed on generator owners / operators to meet the curve expectations. Is the Generator under frequency trip model curve expecting a 5% or 10% loss of life probability per under frequency event for each unit? Generator Owners / Operators need to understand what kind of risk a standard imposes to make decisions on how best to comply with NERC standards, even if that decision is simply whether to change unit settings to meet a proposed curve or not. Past comments. Instead of reaching concurrence, entities should be just required to inform neighbors of the assessment results. Otherwise entities could potentially be held responsible for inaction of another planning coordinator. The language could be changed to be consistent with the language in EOP-003 R3, such as, "Each Transmission Operator and Balancing Authority shall coordinate load shedding plans among other interconnected (entities)". MidAmerican notes that past under frequency event analyses are complex and that the minimum time frames for analysis and implementation should be increased to at least 2 years and exception requests for additional time should be allowed.
Response: 1. Please see responses to previous comments. Requirements to reach concurrence have been removed. The SDT does not believe that UFLS events in general will take more than a year to analyze. The SDT agrees that requests for extensions should be permitted, but requiring that of NERC cannot be written into a standard. Wide-spread and complicated events will probably end up being analyzed by NERC anyway. 2. The SDT disagrees that this standard is too complicated. The requirements are necessary for reliability of UFLS programs. The commenter's suggestion to simplify would not establish reliability criteria for UFLS programs to achieve, coordination between adjacent Planning Coordinators cannot be achieved by simply exchanging information, there would be no coordination with generator tripping, no protection against generator tripping due to high V/Hz, no necessity to analyze underfrequency events, and no requirement for anyone to install and set UFLS relays. 3. This is a subject for Project 2007-09 and the PRC-024-1 SDT. This standard is not applicable to Generator Owners. Loss of life depends on both the specifics of events and the specific characteristics of individual generators; the question is not one that can be answered with any certainty.				

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Jason Shaver	American Transmission Company, LLC	1	Negative	Although Draft 4 of Project 2007 addressed some of our issues that we identified with Draft 3, there are still the following outstanding concerns. Comments on Draft 3 of PRC-006-1: 1. The NERC Compliance Registry Criteria (Revision 5.0, Sections II.b and III.b.2) clearly states that any Transmission Owner with end-use load connected to their facilities must register as a Distribution Provider or transfer the responsibility for applicable UFLS requirements to a registered Distribution Provider by written agreement. Change Applicability items 4.2 and 4.3 to simply "Transmission Owners" and "Distribution Providers", respectively without future qualification. Change the accountable entity in Requirements R8 and R9 from "UFLS entity" to "Distribution Provider". 2. Requirements (R3, R4, R9, & R10) associated with UFLS programs (which are non-primary system preservation measures) should have a lower risk factor that primary preservation measures. Reduce the "High" VRF levels to at least "Medium". 3. If a Planning Coordinator's area includes only a small portion of a Regional Entity area or an Interconnection area, then it should not have to identify the entire Regional Entity area or the entire Interconnection area as a basis for its UFLS program design (R2.3) and conduct a UFLS design assessment for those islands (R4). Remove Requirement R2.3. 4. The underfrequency design performance curve (R3.1, Attachment 1) may be appropriate for 25% UFLS programs and has an arbitrary cutoff at 60 seconds. This performance curve is not appropriate for 30%, 40%, or 50% UFLS programs, such as those that are presently in the MRO and may be fitting for the MRO or other Regions in the future. Add curves that are appropriate for at least 30%, 40%, and 50% UFLS programs to Attachment 1 or note that the curve only applies to Planning Coordinators that have UFLS programs that are not beyond 25%. 5. The overfrequency design performance curve (R3.2, Attachment 2) may be appropriate for 25% UFLS programs and has an arbitrary cutoff at 60 seconds. This performance curve is not appropriate for 30%, 40%, or 50% UFLS programs, such as those that are presently in the MRO and may be fitting for the MRO or other Regions in the future. Add curves that are appropriate for at least 30%, 40%, and 50% UFLS programs to Attachment 2 or note that the curve only applies to Planning Coordinators that have UFLS programs that are not beyond 25%. 6. The terminology of "other affected Planning Coordinators" (R5 & R13) is

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				unqualified and vague, which will lead to entity and regulator interpretation problems. The Planning Coordinator qualification should be completely clear and unambiguous. Change the applicable text from "other affected Planning Coordinators" to "other Planning Coordinators in the same island". 7. The scope of Requirement R10 should not be restricted to only Transmission Owners. Distribution Providers might be able to provide automatic switching of reactive power elements that are more effective and appropriate than Transmission Owner elements. Replace "Transmission Owner" with "UFLS entity. 8. Compliance with requirements that use the term, "coordinate", are subject to wide interpretation and problematic to document. In R13, change the wording from "coordinate with other affected Planning Coordinators on the event assessment" to "provide its event assessment to other Planning Coordinators in the subject island". 9. The new R13.1 requirement (conduct a UFLS event assessment) is duplicative of R11 (conduct an assessment of a BES islanding event) [double jeopardy]. Remove Requirement R13.1. 10. A requirement (R13.2) that calls for the identification and reporting of differences between the UFLS event assessments of Planning Coordinators that evaluate the same event is inappropriate for a Reliability Standard. Other Planning Coordinators, Regional Entities, and the ERO can review the various event assessment reports and draw their own conclusions, if the assessments are provided to them. Remove R13.2 and include wording in R13, "provide its event assessment to other Planning Coordinators and Regional Entities in the subject island, as well as the ERO." 11. A requirement (R14) that calls for written responses to comments from UFLS entities regarding proposed UFLS program changes is inappropriate for a Reliability Standard. If a UFLS entity asks for an explanation from its Planning coordinator of the reasons for proposed UFLS program changes and is ignored, then they can take their grievance to the applicable Regional Entity, the ERO, or the courts. They do not need a Reliability Standard requirement to resolve the issue. Remove Requirement R14. Comments for EOP-003-1: 1. The revised wording for Requirements R3 and R5 unintentionally excludes manual underfrequency load shedding. Change the related text from "excluding under-frequency load shedding" to "excluding automatic under-frequency load shedding".

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Response: 1. In some regions, Transmission Owners that do not have end-use load connected to them are the implementers of UFLS; the standard needs to accommodate that practice. 2. UFLS can be a last line of defense against catastrophic events; the SDT believes these VRFs are appropriate to that role. The drafting team has posted its justification for assignment of VRFs – the justification identifies how the High VRF meets both NERC and FERC guidelines for setting VRFs. 3. The SDT believes it desirable to preserve regional coordination of UFLS and R2.3 exists to help further that goal. Planning Coordinators could and should work together to avoid duplication, though that cannot be required. If this sub-requirement were to be removed, there would be no explicit mechanism for regional coordination of UFLS. 4&5. The attachment to R3 applies to load-generation imbalances of up to 25 percent. While it may be more difficult for programs with a higher percent capability to satisfy these criteria, the SDT believes this is achievable. Coordination with generator tripping is still necessary and the same generator curves (coordinated with PRC-024-1) would apply unless a regional variance is proposed. 6. The standard has been modified to address this concern. The word, "affected" is not used in the revised standard. The text in R5 was changed from "other affected Planning Coordinators" to "other Planning Coordinators whose areas or portions of whose areas are also part of the same identified island". (Similar language was adopted for R13.) 7. Requirement R9 focuses on automatic tripping of load and may be performed by either the Distribution Provider or the Transmission Owner; Requirement R10 focuses on switching of devices to control over-voltage as a result of under frequency load shedding by the Transmission Owner (only). The switching of elements is generally performing at higher voltages than distribution voltages and as a result decided to not include the Distribution Providers in Requirement R10.8. Exchange of event assessments between Planning Coordinators is implied. The sub-parts of R13 in the revised standard specify what is meant by "coordinate." 9. The previous R13.1 has been removed to address this point (also R5.1). 10. The SDT disagrees; a first step in resolving differences is to identify those differences. The desire is for differences to be resolved somehow before compliance audits, though resolution cannot be required. An alternative is for Planning Coordinators to work together on one event assessment, though that cannot be required either. 11. The SDT believes R14 is appropriate to give Transmission Owners and Distribution Providers opportunity to comment BEFORE a UFLS program is finalized and they become subject to compliance to provide the specified load tripping. The term "automatic" has been added to EOP-003 R3 and R5 per the commenter's suggestion.				
Chifong L. Thomas	Pacific Gas and Electric Company	1	Negative	Although the latest revision is improved over the previous one, especially in terms of added clarity in some areas, there is still a fundamental problem in that it does not specifically require the Planning Coordinators (PC) within an Interconnection to coordinate their plans amongst themselves. The current version of the standard would allow for all of the PCs within an interconnection to agree upon and implement a single coordinated plan, but it does not require it. As worded, the proposed standard would still allow for the possibility of as many different UFLS plans within an interconnection as there are PCs. The standard still

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				references islands that could form within the interconnection. There is no guarantee that islands that could form will form for all situations. The possibility of activation of multiple underfrequency programs intended to address islands that could form is problematic. Without the requirement to ensure coordination between the programs, if unanticipated islands form or no islands form, the result could be the activation of "competing" uncoordinated underfrequency load shedding programs for a single event. PG&E believes that the standard should require a coordinated plan for each interconnection. Each interconnection has distinct characteristics that will require different plans. A single continent-wide performance characteristic could be achieved by different coordinated interconnection plans. This would allow all the PCs within WECC to adopt the existing WECC Coordinated Off-Nominal Frequency Load Shedding and Restoration Plan, modified as may be necessary to meet the continent-wide performance curves of the continent-wide standard. This would ensure continued coordination for underfrequency events within the Western Interconnection. The draft standard is also very prescriptive is some cases, going as far as specifying maximum Volts per Hertz limits in simulated studies of islanded scenarios, as well as frequency versus time envelopes or boundaries that specify acceptable over/under frequency excursions. These types of performance limits should be specified at the Interconnection level based on the characteristics of the Interconnection, not at the Continent-wide level.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Thomas R. Glock	Arizona Public Service Co.	3	Negative	Although the SDT has made changes in trying to define the Protection System the definition remains too prescriptive. In particular, the devices providing current and voltage inputs as well as the dc supply. These items are also used for other functions not related to the reliability of the BES. They are critical to business and operation of the generating systems and not solely dedicated to protective relaying. Including them in the definition obligates the utility to methods where there should be some discretion.
Response: This comment does not seem to relate to this standard, PRC-006.				

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Linda R. Jacobson	City of Farmington	3	Negative	Another concern is the proposed standard attempts to establish continent wide frequency-time curves and eliminate discrete set points. This approach fails to recognize the unique characteristics of the four individual interconnections. Frequency-time curves do not allow for specific and defined measurements and will leave individual entities defaulting to the lowest common denominator. If frequency-time curves are intended to define the boundaries, the determination of discrete set points would fall into the hands of the PCs leading to disagreements among entities. In addition, to determine the frequency-time curves through stability and dynamic modeling, one must establish discrete set points. Frequency-time curves are reverse engineering and require justification and correlation to the reliability of the interconnections - no such justification has been provided.
Response: The curves are solely for checking the frequency trajectories of simulations and not for setting UFLS relays. The Quebec interconnection has a variance. Since the standard was last balloted, WECC has proposed an Interconnection-wide variance to the requirements in this standard, but the variance does not propose different curves. The Planning Coordinators do have the responsibility to determine UFLS design parameters including frequency set points. The SDT decided in the first draft that these parameters should not be determined in a continent-wide standard for the very reason that regions and interconnections have unique characteristics. This is decidedly not a least common denominator approach. The SDT disagrees that the performance characteristic curve approach is reverse engineering, but rather designing to a target. The reliability justification for the curves is their coordination with generator tripping.				
Gregory Campoli	New York Independent System Operator	2	Negative	Applicability of the standard, as proposed, excludes inclusion of generators; however, R4 requires PCs to model generator specific information. This represents a missing link that needs to be addressed before the standard can be approved. This standard seems to be contrary to FERC's stated concern (Oct. 2009 Washington DC meeting) to develop a standard that can support the program it was designed to enforce.....the applicability as stated in the standard and by NERC registry criteria restricts and excludes the need for GO's that may in aggregate be necessary for a reliable UFLS program, to adhere to the standard. The standard also is potentially in conflict with the work being done on the Generator Verification Standard, which proposes to have Generator Performance During Frequency and Voltage Excursions contained in PRC-024. Sufficient coordination on NERC Standards development needs to occur on a going forward basis.
Response: The suggestion to include the Generator Owners in the proposed standard will be problematic because Generator Owner data requirement already exist in the PRC-024-1 draft and are expected to remain. The SDT has clarified in the effective date of PRC-006 that the sub-parts related to modeling of generator trip settings will not be effective until PRC-024 is approved and effective. Adding a Generator Owner				

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data requirement to PRC-006 would be redundant and cause double jeopardy concerns. It is the case that some standards are dependent on data requirements found in other standards. An example is that data necessary to comply with TPL standards is required under MOD standards.				
Claudiu Cadar	GDS Associates, Inc.	1	Negative	Applicability. 4.2. The wording in the standard may need to reformulate to read "[...] established by the Planning Coordinators within the Regional Entity's footprint.[...]". Applicability. 4.3. While SDT response indicates that 4.3 is intended for TOs that may need to switch equipment other than load, however we consider that 4.3 is a redundant assignment since reference to TOs controlling UFLS equipment already included in 4.2.2. Effective Date. 5. Depending on when this standard becomes mandatory and enforceable, it may fall between entities' budgeting periods. An 18 months implementation would allow for all entities to budget the funds necessary to implement the standard. Requirements. R1. While the SDT response to one of RBB member states that R1 and R2 are meant to only "devise some criteria considering historical events and system studies and use those criteria to identify some islands" understanding that "this not mean that every conceivable island must be identified", we consider that both R1 and R2 requirements should be reworded to reflect this intended approach. While the SDT has added requirement R14 with regards to the collection and response to comments on the UFLS program, schedule for implementation and collection of data, there is no requirement to state how the PC will address comments (if any) from the participating entities on the suggested criteria. We find appropriate to include an interpretation to standard requirements. We also noted that the SDT proposed a "Medium" VRF and we consider that since the requirement is not meant to draw specific lines, the VRF should be set back to "Lower" as originally proposed. Requirements. R8. How the UFLS entity suppose to provide data to the Planning Coordinator and when is suppose to do that? The newly added requirement R14 regarding the collection and response to comments on the UFLS program, schedule for implementation and collection of data does not establishes the time limits and how the UFLS entity is to provide data to the PC. This requirement leaves all these at the PC discretion without any specific timelines, or process sequencing which both the PC and the UFLS entity should follow.

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				Requirements. R9, R10. What if the UFLS entity does not agree with Planning Coordinator's assessment? See comment on R8; requirement R14 does not respond to this question.
Response: The phrase "…within the Regional Entities footprint" is unnecessary since it is the Planning Coordinator's footprint that rules UFLS implementation. Applicability 4.3 is specifically for Transmission Owners that may need to switch Elements other than load or UFLS equipment, and in fact may not even have load connected to their facilities or UFLS equipment. R1 and R2 are in fact worded to reflect the SDT's intended approach. The schedule for implementation by UFLS entities is determined by the Planning Coordinators, not the Implementation Plan or the standard. Planning Coordinators will need to address any R14 comments before finalizing their UFLS program and schedule, which puts a time limit on their responses in view of the timeline imposed by the Implementation Plan. R14 VRF is already "Low." (Now changed to "Lower.") The schedule and format for UFLS Entities to supply data to the Planning Coordinator is based on the schedule and format devised by the Planning Coordinator, subject to their response to R14 comments. That is all the standard can require. A standard cannot require entities to agree with each other.				
Clement Ma	BC Hydro and Power Authority	5	Negative	BCHPA concurs with WECC comments as follows: The primary concern identified in the first position paper is that the proposal does not require coordination within individual interconnections. The current version of the standard would allow for all of the Planning Coordinators (PCs) within an interconnection to agree upon and implement a single coordinated plan, but it does not require it. As worded, the proposed standard would still allow for the possibility of as many different UFLS plans within an interconnection as there are Planning Coordinators. The standard still references islands that could form within the interconnection. There is no guarantee that islands that could form will form for all situations. The possibility of activation of multiple underfrequency programs intended to address islands that could form is problematic. Without the requirement to ensure coordination between the programs, if unanticipated islands form or no islands form, the result could be the activation of "competing" uncoordinated underfrequency load shedding programs for a single event. WECC believes that the standard should require a coordinated plan for each interconnection. Each interconnection has distinct characteristics that will require different plans. A single continent-wide performance characteristic could be achieved by different coordinated interconnection plans. This would allow all the PCs within WECC to adopt the existing WECC Coordinated Off-Nominal Frequency Load Shedding and Restoration Plan, modified as may be necessary to meet the continent-wide

Voter	Entity	Segment	Vote	Comment
				performance curves of the continent-wide standard. This would ensure continued coordination for underfrequency events within the Western Interconnection.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Marjorie S. Parsons	Tennessee Valley Authority	6	Negative	Comments associated with the negative vote are contained in the Project 2007-01 comment form submitted by TVA
Response: Please see SDT responses in that comment form.				
John Bussman	Associated Electric Cooperative, Inc.	1	Negative	comments provided on comment form
Response: Please see SDT responses in that comment form.				
Robert W. Roddy	Dairyland Power Coop.	1	Negative	concerned that generation limits are too conservative.
Response: Not sure if this comment means too conservative from a generator's perspective or from the transmission reliability perspective. The SDT believes, in coordination with the 2007-09 project team, that an acceptable balance has been achieved between competing interests.				
Edward F. Groce	Avista Corp.	5	Negative	Coordination of UFLS plans should be required in the standard.
Response: Coordination of UFLS plans is achieved by (1) common performance criteria in R3, (2) coordination between Planning Coordinators within a region or interconnection per R2.3 and R5, and (3) coordination per R5 within any other identified islands that span multiple Planning Coordinator areas.				
Paul Morland	Colorado Springs Utilities	1	Negative	CSU offers the following comments: R3 (Attachments) It is not clear how attachment 1 should be used. Are the curves performance curves? Set point curves? R10 Need more clarity on what is meant by "Automatic Switching of Elements"? Does it mean a TO needs to automatically switch capacitor banks to avoid overvoltages?
Response: Attachment 1 curves are performance criteria consisting of boundaries for frequency trajectories in simulations run to assess UFLS performance. The SDT added break-points and combined the curves (Attachment 1 and 2 into one curve now in Attachment 1). The curves are solely for checking the frequency trajectories of simulations and not for setting UFLS relays. Yes, "automatic switching of Elements" refers to switching of, among other Elements, cap banks. R10 has been modified to remove the confusion.				

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Michael F Gildea	Dominion Resources Services	3	Negative	Currently there is no requirement for Generator Owners to provide trip settings for non-conforming units to the Planning Coordinator. Absent such a requirement, the responsibility for compliance would be placed on the Transmission Owner. We are aware that PRC-024 (Project 2007-09) contains reporting requirements (R3, R4 and R5) but are not certain that the tables in PRC-024 match those in PRC-006 nor is there any guarantee that PRC-024 will be FERC approved without change. So, we suggest the addition of a requirement (applicable to the Generator Owner) to provide the information (as needed in R3-R3.3.3) to the Planning Coordinator. Approving this standard without addressing these comments will not achieve the reliability objective of the FERC Order 693 directive and ultimately will result in a standard that cannot be implemented as written.
Mike Garton	Dominion Resources, Inc.	5	Negative	
Response: PRC-006 and PRC-024 are coordinated and the generator curves and tables match. The SDT recognizes that PRC-024 may be approved at a different time and has inserted a provision in the implementation plan document to account for that possibility. Generator applicability is deferred to PRC-024 to avoid double jeopardy. The number of non-conforming generators is expected to be small and should not cause a compliance issue for Planning Coordinators in an interim period, if any, before Generator Owner data becomes available to them.				
Stanley M Jaskot	Entergy Corporation	5	Negative	Entergy reserves the right, after review of all the submitted ballots, to join with other balloters, whether positive or negative ballots, where any reasons included in their ballot that may be applicable to or otherwise impact Entergy as related to this ballot. All of the following Reasons are directed at the revisions applied to PRC-006-1. We agree with the EOP-003-1 revisions. In M3 it is unclear what action is intended by the phrase “including the criteria itself”. Since the criteria is specified in R3, it is recommended that the phrase be deleted. R5 and M5 should only apply to Planning Coordinators (PC) who are part of the joint island, while the way it is currently worded it appears to apply to every PC. We recommend the wording in M5 be changed to: “Each Planning Coordinator shall have dated evidence such as memorandums, letters, or other dated documentation that it reached concurrence with the other affected Planning Coordinators on design assessment results for any identified island in accordance with Requirement R5 and identifies the affected Planning Coordinators.” We also recommend that the wording in R5 be changed to: “Each Planning Coordinator shall reach concurrence with all other affected Planning Coordinators in UFLS design assessment results before design assessment completion for any island identified by that Planning Coordinator which include a portion of its footprint along

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				with portions of another PC(s) footprint." The Lower VSL for R11 appears to simply repeat the requirement rather than stating a violation. We recommend that the time ranges for the VSLs addressing being late with the assessment should be expanded to Moderate - 12-14 months, High - 14-16 months, and Severe - greater than 16 months. We also recommend that the High and Severe VSLs that contain the phrase "shall conduct and document" to read "conducted and documented". The VSLs for R4 should include a consideration of the timeliness of the completion of the study (e.g. Lower VSL for 3 months late, Moderate VSL for 3 to 6 months late, etc.) The standard R5 requires that both or all the Planning Coordinators agree. One PC might have larger margin requirements or a different methodology compared to another PC. These differences might not be reconcilable. We do not believe that a standard can require that one PC change its methods because a different PC does not agree with its methods, or agree that another method (any method) is acceptable that it finds a problem with. There at least needs to be a process in the event that two PCs cannot agree. We recommend that the following language be added to R5: "If concurrence cannot be reached, an individual Planning Coordinator in that island can demonstrate that its UFLS scheme meets the requirements by performing dynamic simulations that apply its UFLS scheme on the entire island." We recommend that R13 be eliminated since it is covered by R11. We recommend that R3 be revised to require the PC to specifically notify each of the "UFLS Entities" in their PC area that are part of the PC's UFLS program of the UFLS program. We are also concerned that the Planning Coordinator is responsible to develop a UFLS program that incorporates information from Generator Owners (R3-R3.3.3) but there is no requirement that Generator Owners provide this information. We are aware that PRC-024 (Project 2007-09) contains reporting requirements (R3, R4 and R5) but are not certain that the tables in PRC-024 match those in PRC-006 nor is there any guarantee that PRC-024 will be FERC approved without change. Therefore, we request that this standard be made applicable to GOs and those GOs provide the required information.

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				The Unofficial Comment Form for this standard, in the Review of Technical Changes to Standard section contains the following statement "The SDT has added requirements to include an assessment of the performance of UFLS programs "within one year of an actuation of UFLS resulting in 500 MW or greater of loss of load."(Requirement R11)." However the 500 MW limitation is not included in R11. We recommend this 500 MW limitation be added to R11. There is no need to evaluate smaller islanding events.

Response: The SDT agrees and has modified M3 to remove the phrase "including the criteria itself".

The SDT has modified R5 and M5 to reflect the intent that only UFLS programs within the PC areas that are a part of the island under study need to work in conjunction to meet the performance requirement in R3.

The SDT also modified R5 and M5 to remove the "concurrence" requirement and provide a means by which each PC can meet this requirement alone or by working with other PCs.

The SDT has modified the VSLs for R11 to make these corrections.

R4 – consideration of timeliness - The SDT considered this and decided that the program reassessment is a binary task which automatically makes this a severe violation if not completed within the 5 year timeframe.

The SDT has modified R13 to eliminate any duplication between R13 and R11.

R14 requires the UFLS entities be notified of a comment period and for the PCs to respond to those comments prior to a UFLS program becoming effective. Requirement R3 has been modified to specifically indicate that the UFLS program must include "**notification** of and a schedule for implementation" in support of your suggestion.

The SDT modified the implementation plan to state, "Parts 4.1 through 4.6 of Requirement R4 shall become effective and enforceable one year following the receipt of generation data as required in PRC-024-1, but no sooner than one year following the first day of the first calendar quarter after applicable regulatory approvals of PRC-006-1." Per the implementation plan, the requirement to model data from the GOs is not mandatory until after the GOs are required to provide the data by PRC-024. This is similar to the requirement to model the BES by the TPL standards, while the requirement by entities to provide the data used to model the BES is contained in the MOD standards.

The existing standard PRC-009, which this standard is intended to replace, currently requires that an assessment be performed for all events regardless of size. The SDT cannot remove a requirement from an existing standard without a technical justification that explains how this will make the requirement the same or better than what exists today.

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Daniel Brotzman	Commonwealth Edison Co.	1	Negative	EOP-003-1 needs to define the criteria as to when and how UVLS schemes are installed to provide consistency direction to Planning Coordinators and the entities that have to install UVLS schemes. The relationship between the use of UVLS and compliance with TPL-001 standards should be clarified. Is load shedding (including UVLS) allowed to meet the performance criteria in TPL-001? The standard should define when UVLS are applicable to the BES and thus subject to the requirements of EOP-003. UVLS schemes developed for distribution or other purposes beyond criteria should not be discouraged through regulatory burden. UVLS should be carefully defined. Many types of load will cut out on low voltage. PRC-006-01: The standard lacks guidance as to what the trip settings should be. It is not clear as to how Attachment 1 should be used and doesn't provide specific detail for under frequency set points. Exelon disagrees that R3.3 is easier to understand. Clarification is needed as to where the underfrequency set points are. Do all entities contribute equally to Attachment 1? There needs to be a standardized relationship between GO and TO/DP participation in obtaining the desired level of system performance. There should also be explicit criteria as to what the expectations are for each individual entity. It should be clear that all UFLS entities are to participate equally and that larger entities will not be expected to carry the burden for smaller entities. There should be some recognition in the standard that UFLS schemes currently exist and effort should be made to avoid needlessly changing relays or settings on many thousands of installations if some arbitrary and common set points were to be determined by the PC, thus causing needless expense. It is likely desirable to have slightly different settings for UFLS across a footprint so as to not create load changes that are too abrupt. The current practice of allowing contractual agreements between GOs and DPs for additional load shedding as a voluntary business decision, in the event that a unit owner doesn't comply with the unit trip settings should be addressed. Exelon does not agree with the concept of allowing neighboring Planning Coordinators to define or modify islanding criteria. There should be a single criteria for the determination of an island which is consistent across

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				the interconnection, unless a specific geographic or regional exception is identified. Even if differing islanding criteria are allowed for each PC, the Planning Coordinator with responsibility for the footprint should have sole authority for determining and modifying the criteria within that footprint.
Response: Another drafting team is being assigned EOP-003. The scope of the UFLS drafting team is restricted by the SAR to removing automatic UFLS from EOP-003 only. The under and over frequency performance curves in Attachment 1 are solely for checking frequency trajectories in dynamic simulations of UFLS program performance and should not be misconstrued as applying to UFLS relay set points. Many of the issues the commenter raises are going to need to be dealt with by the Planning Coordinators. It would be very difficult and probably not in the interest of BES reliability for these issues to be resolved in this standard. R3.3 is based on IEEE guidelines for setting V/Hz protection. The Planning Coordinator, as part of the UFLS program design, will need to determine the participation level of the variously sized Transmission Owners and Distribution Providers. The SDT fully expects that existing UFLS programs will be sufficient to comply with the performance characteristic curves and Planning Coordinators will not need to arbitrarily re-determine UFLS design parameters. The SDT has addressed the matter of GO versus TO/DP obligation for non-conforming generators and has decided that, for the likely small amount of non-conforming generation, that it should be a small burden, if any, to be spread across multiple TOs and DPs. Neighboring Planning Coordinators cannot redefine or modify another Planning Coordinator's R1 island determination criteria. A Planning Coordinator may, however, select an island that overlaps a neighboring Planning Coordinator's footprint in complying with R2. A single criterion for island determination is not something that can be put into a continent-wide standard because there are likely to be many acceptable approaches to these criteria.				
Robert Martinko	FirstEnergy Energy Delivery	1	Negative	FirstEnergy appreciates the hard work of the drafting team, but unfortunately we must cast a Negative vote. We feel that the new R14 puts an administrative compliance burden on the PC because it requires a response to all written comments. Furthermore, R14 does not address subsequent changes to the UFLS program and more importantly fails to address FE's underlying concern that the standard still gives full authority to the PC to set an implementation schedule for a UFLS Entity.
Kenneth Dresner	FirstEnergy Solutions	5	Negative	
Mark S Travaglianti	FirstEnergy Solutions	6	Negative	

Voter	Entity	Segment	Vote	Comment
Douglas Hohlbaugh	Ohio Edison Company	4	Negative	We believe that PRC-006-1 should specifically allow the UFLS entity at least 12 months to comply with the PC's UFLS program upon being notified of new obligations. Please see our suggested revision to R14 at the end of these ballot comments. In Requirement R3 it is implied that the PC will notify and coordinate with the UFLS entity per the phrase "including a schedule for implementation by UFLS entities within its footprint", and in Requirement R14 it is also implied. However, there should be an explicit requirement in this standard (either in R3 or R14) for the PC to notify the UFLS entity of their obligations per the PC's UFLS program. As a minor note, in the initial ballot we stated that we noticed that EOP-003-1 is the current version approved by FERC. The revised version per this project should therefore be EOP-003-2. Based on the concerns we have stated above, we suggest a revision to R14 as follows: "R14. Each Planning Coordinator shall meet the following during the development of the UFLS program and during subsequent revisions of the program that require additional UFLS equipment installations by the UFLS entity [VRF: Low][Time Horizon: Long-Term Planning]: 14.1. Submit an initial draft of its UFLS program for review and feedback by the identified UFLS Entity before the UFLS program is finalized. 14.2. Assure that the schedule for implementation affords the UFLS entity at least 12 months to achieve compliance."
Response: R14 establishes a peer review process, but cannot go further due to the need to have clear assignments of responsibility. A regional standard could be drafted to gain the participation of other entities. The SDT does not believe that a written response to comments is burdensome. EOP-003-1 should be EOP-003-2 and this has been fixed. The SDT believes that the implied requirements for Planning Coordinators to notify UFLS Entities are sufficient, and that Planning Coordinators, in fulfilling their role as coordinators, will not impose unreasonable demands on UFLS Entities. Requirement R3 has been modified to specifically indicate that the UFLS program must include "**notification** of and a schedule for implementation" in support of your suggestion.				
Kevin Querry	FirstEnergy Solutions	3	Negative	FirstEnergy appreciates the hard work of the drafting team, but unfortunately we must cast a Negative vote for the standard as written. Although we agree that the Planning Coordinator is the appropriate functional entity to develop and implement a UFLS program, we are concerned with the fact that UFLS entities may not know the specifics of their responsibilities until long after this standard is approved. The SDT should consider adjusting the language of the standard to require more

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				transparency and coordination with the UFLS entities during the PC's development of the UFLS program. Also, per the implementation plan, the PC will be given one year to develop its UFLS program. However, the timeframe for the UFLS entity is based on the schedule imposed by the PC. The implementation plan should allow the UFLS entity at least one year (maybe more per capital budget cycles) from the time the PC identifies the UFLS entity in their UFLS program. The UFLS entity will need sufficient lead time in those instances that require purchase of new UFLS equipment that will require long term budget planning for implementation. The UFLS entities are identified in the UFLS program established by the PC. However, it is not clear where the PC is explicitly required to notify and coordinate with the UFLS entity. In Requirement R3 it is implied that the PC will notify and coordinate with the UFLS entity per the phrase "including a schedule for implementation by UFLS entities within its footprint". This requirement needs to be more explicit that the PC will notify the UFLS entity, and the measure for R3 needs to require proof that the PC has done this. We are concerned about the coordination between this UFLS SDT and the GV SDT. It will be difficult to approve and begin implementing the PRC-006-1 standard while the PRC-024-1 standard is still under development and scheduled for approval and implementation at a much later date. For these requirements to be adequately coordinated, the two standards need to be developed, balloted and implemented at the same time. Alternatively, consider adding the following statement in the PRC-006-1 Implementation Plan: "The Effective Date and implementation of this PRC-006-1 standard requires coordination with standard PRC-024-1. Excluding requirement R1, the Effective Date of PRC-006 shall be the later of 1) the completion of the Implementation Plan for PRC-006 or 2) the completion of the Effective Date of the PRC-024-1 standard upon completion of its Implementation Plan."
Response: R14 establishes a peer review, but cannot go further due to the need to have clear assignments of responsibility for compliance. Requiring entities to coordinate with each other or work together causes one entity's compliance to be dependent on another's. This has generally been viewed as unacceptable by the industry. A regional standard could be drafted to gain the participation of other entities in the UFLS program and implementation schedule. In general, Planning Coordinators should be coordinating with entities in their area in fulfilling their Functional Model roles. Requirement R3 and Measure M3 were both modified to include "notification" as suggested. The SDT recognizes that PRC-024 may be approved at a different time and has inserted a provision in the implementation plan document to				

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account for that possibility. The number of non-conforming generators is expected to be small and should not cause a compliance issue for Planning Coordinators in an interim period, if any, before Generator Owner data becomes available to them. The aspects of coordination between PRC-006 and PRC-024 are a small subset of the content of each standard and do not warrant delaying implementation of one standard until the other is approved.				
James A Ziebarth	Y-W Electric Association, Inc.	4	Negative	From Question 3 on the comment form: Regarding the VSLs for R8, the UFLS entities cannot be punished for failing to meet a schedule if the schedule is not mutually agreed upon between the Planning Coordinator and the UFLS entities to ensure that the UFLS entities are capable of meeting such a schedule. At the very least, there must be some protection for the UFLS entities provided that requires the Planning Coordinator(s) to give the UFLS entities long-term notice of the deadlines that they will need to meet. The lack of any scheduling restrictions for the Planning Coordinators in the standard as written has a strong potential to cause enormous burdens on small UFLS entities that simply do not possess the resources to deal with such data reporting requirements without sufficient advance notice. Additionally, the UFLS entities cannot be penalized for failing to submit data in a format over which they have no control or input. The Planning Coordinator should be required to consult with the UFLS entities and decide upon a mutually agreeable data format in order to ensure that the UFLS entities are capable of providing the required data in the required format. With no language in the standard limiting or clarifying what data can be required of the UFLS entities by the Planning Coordinator, this provision at least should be made to protect small UFLS entities with highly limited resources for dealing with such data reporting requirements. From Question 8 on the comment form: Because Load Serving Entities (not Distribution Providers) are actually responsible for the load in the current Functional Model and Compliance Registry Criteria, they should also be included in the applicability section of this standard. From Question 12 on the comment form: Y-WEA is concerned about this requirement in that it seems to require the installation of facilities rather than just relays. 16 USC 824o (a)(3) gives NERC the authority to regulate existing facilities and planned additions or modifications to those facilities, not to prompt or require modifications or additions to the existing facilities. This proposed requirement seems to run afoul of this section of the USC.
Response: PCs should work with UFLS entities on schedule for data reporting. Requirement R14 is designed to facilitate communication between these entities. Ultimately, the PC is required to perform the design assessments which it cannot do without the necessary modeling data. The				

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schedule and format for UFLS Entities to supply data to the Planning Coordinator is based on the schedule and format devised by the Planning Coordinator, subject to their response to R14 comments. That is all the standard can require. A standard cannot require entities to agree with each other. The SDT recognizes that the Functional Model Version 5 and the Statement of Compliance Registry cause confusion regarding the involvement of the LSE in UFLS programs but the SDT refers to the section covering the Roles in Load Curtailment in Version 5 of the Functional Model Technical Document; "For non-voluntary curtailment, such as automatic underfrequency and undervoltage load shedding and manual load shedding, the Load-Serving Entity identifies which critical customer loads should be excluded from curtailment for public health, safety and/or security reasons. The SDT is not sure where this concern is coming from. If the comment is referring to Requirement R10, it does not require the installation of any equipment other than relays to facilitate the "automatic switching of capacitor banks, Transmission Lines, and reactors to control over-voltage as a result of underfrequency load shedding".				
Jeff Mead	City of Grand Island	5	Negative	I echo MRO NSRS comments.
Response: Please see SDT response to MRO comments.				
Joseph G. DePoorter	Madison Gas and Electric Co.	4	Negative	It is apparent that this UFLS Standard is very complex and wish to thank the SDT in their efforts so far. A UFLS system is in place as a last line of defense in arresting frequency when operator actions cannot keep up with a rapid decline in frequency. There are many other step that are to be taken prior to automatic UFLS action. With that being said, there are several areas that still need to be reviewed. The word "coordinate" (R13) should be replaced with "shall provide" since proving compliance within different regions will be met with different views. The "High" VRFs make this another priority. As stated in the FERC Technical Conference on July 6, 2010, everything cannot be a priority. Do not see how R14 supports the reliability of the BES, it is purely procedural. Do not think that a PC has the capability to do a design assessment (R4) based on R2.3 for "or the Interconnection in which the PC's area resides. Since there are many (special) attributes that apply to different PC areas, this Standard could be boiled down to 1) Require a documented PC UFLS plan, 2) Data prescribed by the PC shall be forwarded to the PC from entities within their area that own or operate UFLS devices, 3) PC's should determine design characteristics based on the area's physical capabilities and limitations, 4) Verify through simulation that the plan works as designed, 5) PC's shall provide their plans to other physically connected PC areas. This would allow each PC with determining system characteristics unique to their system.

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Response: In R13, the sub-parts define what is meant by "coordinate." The sub-parts are specific enough that there should not be a problem with differing interpretations. UFLS can be a last line of defense against catastrophic events; the SDT believes these VRFs are appropriate to that role. The drafting team has posted its justification for assignment of VRFs – the justification identifies how the High VRF meets both NERC and FERC guidelines for setting VRFs. Peer review procedures such as R14 are used elsewhere in approved NERC standards, specifically FAC-010 and FAC-011. The procedure has industry support. It allows Transmission Owners and Distribution Providers to at least have some say in what they will be obligated to implement. In R2.3, the island can be either the region or interconnection; it does not have to be the interconnection. The commenter's suggestion to simplify would not establish reliability criteria for UFLS programs to achieve, coordination between adjacent Planning Coordinators cannot be achieved by simply exchanging information, there would be no coordination with generator tripping, no protection against generator tripping due to high V/Hz, no necessity to analyze underfrequency events, and no requirement for anyone to install and set UFLS relays.				
Hugh A. Owen	Public Utility District No. 1 of Chelan County	6	Negative	It is import tha6t there be single coordinated plan for the WECC. It appears this proposed standard as worded, would allow for the possibility of as many different UFLS plans within an interconnec as there are planning coordinators without a mandate that they be coordinated.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Michael Gammon	Kansas City Power & Light Co.	1	Negative	It is unclear from the Standard that not forming islands in UFLS design is acceptable. Recommend the SDT consider including language to clarify that is not mandatory that system islands by formed in every UFLS design configuration.
Charles Locke	Kansas City Power & Light Co.	3	Negative	
Scott Heidtbrink	Kansas City Power & Light Co.	5	Negative	
Thomas Saitta	Kansas City Power & Light Co.	6	Negative	
Response: A Planning Coordinator must identify at least one island to be used as the basis for the R4 UFLS design assessment. However, this does not mean that islands must be identified from a Planning Coordinator's R1 criteria. As a minimum, the region or interconnection in which a Planning Coordinator's area is located must be identified as an island per R2.3.				

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Louise McCarren	Western Electricity Coordinating Council	10	Negative	Main concern is that this proposal still doesn't require an interconection-wide coordinated plan. While the current version of the standard would allow for all of the Planning Coordinators within an interconnection to agree upon and implement a single coordinated plan, it does not require a single coordinated plan. As worded, the proposed standard would still allow for the possibility of as many different UFLS plans within an interconnection as there are Planning Coordinators. The standard still references islands that could form within the interconnection. There is no guarantee that islands that could form will form for all situations. WECC believes that the standard should require a coordinated plan for each interconnection. Each interconnection has distinct characteristics that will require different plans. A single continent-wide performance characteristic could be achieved by different coordinated interconnection plans.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Terri F Benoit	Entergy Services, Inc.	6	Negative	NEGATIVE BALLOT WITH REASONS Entergy Ballot PROJECT 2007-01 UNDERFREQUENCY LOAD SHEDDING PROGRAM REQUIREMENTS Ballot Ending July 16, 2010 The following are the reasons associated with our Negative Ballot. Entergy reserves the right, after review of all the submitted ballots, to join with other balloters, whether positive or negative ballots, where any reasons included in their ballot that may be applicable to or otherwise impact Entergy as related to this ballot. All of the following Reasons are directed at the revisions applied to PRC-006-1. We agree with the EOP-003-1 revisions. In M3 it is unclear what action is intended by the phrase “including the criteria itself”. Since the criteria is specified in R3, it is recommended that the phrase be deleted. R5 and M5 should only apply to Planning Coordinators (PC) who are part of the joint island, while the way it is currently worded it appears to apply to every PC. We recommend the wording in M5 be changed to: “Each Planning Coordinator shall have dated evidence such as memorandums, letters, or other dated documentation that it reached concurrence with the other affected Planning Coordinators on design assessment results for any identified island in accordance with Requirement R5 and identifies the affected Planning Coordinators.” We also recommend that the wording in R5 be changed to: “Each Planning Coordinator shall reach concurrence with all other affected Planning Coordinators in UFLS design assessment results before design assessment completion for any island identified by

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				that Planning Coordinator which include a portion of its footprint along with portions of another PC(s) footprint." The Lower VSL for R11 appears to simply repeat the requirement rather than stating a violation. We recommend that the time ranges for the VSLs addressing being late with the assessment should be expanded to Moderate - 12-14 months, High - 14-16 months, and Severe - greater than 16 months. We also recommend that the High and Severe VSLs that contain the phrase "shall conduct and document" to read "conducted and documented". The VSLs for R4 should include a consideration of the timeliness of the completion of the study (e.g. Lower VSL for 3 months late, Moderate VSL for 3 to 6 months late, etc.) The standard R5 requires that both or all the Planning Coordinators agree. One PC might have larger margin requirements or a different methodology compared to another PC. These differences might not be reconcilable. We do not believe that a standard can require that one PC change its methods because a different PC does not agree with its methods, or agree that another method (any method) is acceptable that it finds a problem with. There at least needs to be a process in the event that two PCs cannot agree. We recommend that the following language be added to R5: "If concurrence cannot be reached, an individual Planning Coordinator in that island can demonstrate that its UFLS scheme meets the requirements by performing dynamic simulations that apply its UFLS scheme on the entire island." We recommend that R13 be eliminated since it is covered by R11. We recommend that R3 be revised to require the PC to specifically notify each of the "UFLS Entities" in their PC area that are part of the PC's UFLS program of the UFLS program. We are also concerned that the Planning Coordinator is responsible to develop a UFLS program that incorporates information from Generator Owners (R3-R3.3.3) but there is no requirement that Generator Owners provide this information. We are aware that PRC-024 (Project 2007-09) contains reporting requirements (R3, R4 and R5) but are not certain that the tables in PRC-024 match those in PRC-006 nor is there any guarantee that PRC-024 will be FERC approved without change. Therefore, we request that this standard be made applicable to GOs and those GOs provide the required

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				information. The Unofficial Comment Form for this standard, in the Review of Technical Changes to Standard section contains the following statement "The SDT has added requirements to include an assessment of the performance of UFLS programs "within one year of an actuation of UFLS resulting in 500 MW or greater of loss of load."(Requirement R11)." However the 500 MW limitation is not included in R11. We recommend this 500 MW limitation be added to R11. There is no need to evaluate smaller islanding events.

Response: The SDT agrees and has modified M3 to remove the phrase "including the criteria itself".

The SDT has modified R5 and M5 to reflect the intent that only UFLS programs within the PC areas that are a part of the island under study need to work in conjunction to meet the performance requirement in R3. The SDT also modified R5 and M5 to remove the "concurrence" requirement and provide a means by which each PC can meet this requirement alone or by working with other PCs.

The SDT has modified the VSLs for R11 to make these corrections.

The SDT considered this and decided that the program reassessment is a binary task which automatically makes this a severe violation if not completed within the 5 year timeframe.

The SDT has modified R13 to eliminate any duplication between R13 and R11.

Requirement R3 has been modified to specifically indicate that the UFLS program must include "**notification** of and a schedule for implementation" in support of your suggestion.

The SDT has added R14 which now requires the UFLS entities be notified of a comment period and for the PCs to respond to those comments prior to a UFLS program becoming effective.

The SDT modified the implementation plan to state, "Parts 4.1 through 4.6 of Requirement R4 shall become effective and enforceable one year following the receipt of generation data as required in PRC-024-1, but no sooner than one year following the first day of the first calendar quarter after applicable regulatory approvals of PRC-006-1." Per the implementation plan, the requirement to model data from the GOs is not mandatory until after the GOs are required to provide the data by PRC-024. This is similar to the requirement to model the BES by the TPL standards, while the requirement by entities to provide the data used to model the BES is contained in the MOD standards.

The existing standard PRC-009, which this standard is intended to replace, currently requires that an assessment be performed for all events regardless of size. The SDT cannot remove a requirement from an existing standard without a technical justification that explains how this will make the requirement the same or better than what exists today.

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Richard Salgo	Sierra Pacific Power Co.	1	Negative	Negative vote prompted by several concerns: First, the Standards as proposed are a disturbing departure from the present practice of Regional and Interconnection-wide coordination of off-nominal frequency protection. We feel that it must be approached on an Interconnection-wide basis, not as individual Planning Coordinators. The goal should be that the Planning Coordinators develop a coordinated interconnection-wide off-nominal frequency scheme design. This is imperative to ensure adequate UFLS protection across the Interconnection. Secondly, applicability does not appear to include entities who must be responsible to ensure that the UFLS is carried out, for instance, the LSE's and DP's that necessarily must implement the prescribed UFLS protection devices at the distribution level. Finally, we disagree with the concept of frequency-vs-time curves, as this approach will fall short of addressing the unique characteristics of the various NERC Interconnections.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Greg Lange	Public Utility District No. 2 of Grant County	3	Negative	oThe proposed measures are vague, not specific and not performance based which leave too much up to the Auditor's interpretation. oThe proposed standard does not require coordination within the interconnection. The standard should require the PCs within an interconnection to coordinate a UFLS Design with all other PCs within the interconnection and that the PCs should be required to develop a coordinated interconnection wide UFLS Design. oThe primary purpose of the UFLS Plan is designed to mitigate the need to form islands by balancing loads and resources. It is a secondary function to balance the loads and resources after the islands have been formed. It appears the Drafting Team focused on the islanding event rather than assuring the interconnection integrity is maintained. Frequency is an interconnection issue not and individual island issue and therefore not driven by an individual PC but by a coordination of PCs effort within the interconnection. o The WECC UFLS-DT believes there should be recognized sub-area groups, (consisting of PCs, as assigned by the Reliability Assurer (RA)). These sub-groups would be the agent for the PCs, and would assure the overall coordination within the interconnection. For example, the WECC RA recognizes the following sub-areas for UFLS coordination within the Western Interconnection (WI): Southern Islanding Load Tripping Group,

Voter	Entity	Segment	Vote	Comment
				the Northwest Power Pool UFLS group and the WECC Off Nominal Frequency Load and Restoration Plan. Without the RA assuring coordination of the sub-groups, PCs could randomly form sub-area groups whose plans may not coordinate on an interconnection wide basis or even address the interconnection reliability needs, but coordinated among the randomly formed sub-groups. The standard, requirements, and measurements should reflect the uniqueness of the individual interconnections and not common, continent wide prescriptions.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Francis J. Halpin	Bonneville Power Administration	5	Negative	Please see BPA's comments submitted during the formal comment period ending 7/17/10.
Rebecca Berdahl	Bonneville Power Administration	3	Negative	
Response: Please see the SDTs response to your comments submitted during the formal comment period ending 7/17/10.				
Jim D. Cyrulewski	JDRJC Associates	8	Negative	PRC-006 remains overly complicated especially Requirement 14.
Response: R14 establishes a peer review. It is not overly complicated.				
Keith V. Carman	Tri-State G & T Association Inc.	1	Negative	PRC-006-1 implicitly allows incompatible UFLS programs to exist within the same synchronous interconnection. Each PC is not only allowed, but is required to design and implement its own UFLS programs. A requirement does exist in PRC-006-1 that the UFLS programs be “coordinated” among “all other affected Planning Coordinators.” Nevertheless, “coordinated” is a vague term and can simply mean “notified”. How coordination is measured

Voter	Entity	Segment	Vote	Comment
Janelle Marriott	Tri-State G & T Association Inc.	3	Negative	and enforced is also questionable. Allowing multiple UFLS schemes to exist in the same interconnection, with no oversight as to how well they interact is a haphazard approach. UFLS programs that are not developed interconnection-wide can, among other things, result in excessive load shedding and corresponding frequency oscillations that degrade into cascading outages. PRC-006-0 requires the Regional Entity to "develop, coordinate, and document a UFLS program." This top-down approach makes a more congruous interconnection-wide program more likely. Further, since PRC-007-0 requires UFLS owners to comply with the Regional Entity's programs, individual conflicting UFLS schemes among UFLS Entities are also less probable. As currently written, PRC-006-1 specifically removes both the oversight and scheme consistency the previous standards provided. This makes conflicting programs more likely. This degrades, not improves Bulk Electric System Reliability. The NERC Functional Model defines the Reliability Assurer as the entity that "...coordinates activities of functional entities to secure the reliability of the Bulk Electric System within a Reliability Assurer area and adjacent areas." With regard to UFLS, the coordination of functional entities is absolutely necessary to secure the reliability of the BES. This coordination function belongs to and is best handled by the Reliability Assurer. More specific comments on the draft standard follow, but the fundamental thesis of the current draft, which moves UFLS design responsibility down from the RA to the PC, should be changed. The responsibilities to design, coordinate, and analyze a UFLS program within an interconnection should remain with the RA. **Response**: Instead of assigning responsibility to the Reliability Assurer the standard drafting team revised Requirements R5 and R13 to define a set of actions that are measureable that will demonstrate that Planning Coordinators worked together should an island span more than one Planning Coordinator area. The standard drafting team confirms that the Planning Coordinator is the appropriate entity to design UFLS and conduct the other UFLS related activities based on the definition of the Planning Coordinator in the Functional Model Version 5. A. Introduction 1.-3. No comment. 4.1. should be changed from Planning Coordinators to Reliability Assurers. 4.2. Planning Coordinators should be changed to Reliability Assurers.

Voter	Entity	Segment	Vote	Comment
				4.3. is redundant to 4.2.1. and should be removed. **Response**: The SDT thinks there is confusion over having Transmission Owners as part of UFLS Entities but separated out as Transmission Owners in Requirement R10.. The team reviewed the rationale for this structure. Requirement R9 focuses on automatic tripping of load and may be performed by either the Distribution Provider or the Transmission Operator; Requirement R10 focuses on switching of devices to control over-voltage as a result of under frequency load shedding. Therefore, the team decided not to merge the two requirements. Requirement R9 focuses on automatic tripping of load and may be performed by either the Distribution Provider or the Transmission Owner; Requirement R10 focuses on switching of devices to control over-voltage as a result of under frequency load shedding by the Transmission Owner (only). The switching of elements is generally performing at higher voltages than distribution voltages and as a result decided to not include the Distribution Providers in Requirement R10. 5. No comment. B. Requirements R1. Reliability Assurers rather than individual Planning Coordinators need to develop and document the potential for island formation. However, this requirement may not contribute to the reliability of the BES and could be removed. R2. Reliability Assurers rather than individual Planning Coordinators are the best entities to determine how islands should be formed. The current registration by numerous entities as Planning Coordinators does not lend itself to a comprehensive individual island formation methodology. R2.3. seems to require each Planning Coordinator to ultimately divide into multiple islands or separate its transmission system from all other transmission systems as its own island. The purpose of the UFLS program should be to mitigate the need to form islands by balancing total system loads and resources. It is only a secondary function to balance the loads and resources after the islands have been formed. Recommend eliminating R2 unless the Reliability Assurer becomes the functional entity responsible for the UFLS program development. **Response**: The SDT does not believe that designating islands as a secondary function of UFLS is a distinction useful for reliability because

Voter	Entity	Segment	Vote	Comment
				most UFLS operations are seen to occur following island formation. Instead of assigning responsibility to the Reliability Assurer the standard drafting team revised Requirements R5 and R13 to define a set of actions that are measureable that will demonstrate that Planning Coordinators worked together should an island span more than one Planning Coordinator area. The standard drafting team confirms that the Planning Coordinator is the appropriate entity to design UFLS and conduct the other UFLS related activities based on the definition of the Planning Coordinator in the Functional Model Version 5. R3. Underfrequency events are not local events that individual systems experience unless islands have already formed. The total interconnected system ratio of generation to load needs to be evaluated to determine at what frequencies the loads must be tripped and restored. Performance of this function by individual Planning Coordinators is a duplication of effort and will still require the entities to concur with interconnected/affected Planning Coordinators (see R5.). We recommend that the functional entity that develops the UFLS program be changed from Planning Coordinator to Reliability Assurer. R3.1. and R3.2. We recommend combining Attachment 1 and Attachment 2 into a single graph, making frequency the abscissa, and requiring simulations to maintain frequencies inside the resulting envelope. **Response**: Instead of assigning responsibility to the Reliability Assurer the standard drafting team revised Requirements R5 and R13 to define a set of actions that are measureable that will demonstrate that Planning Coordinators worked together should an island span more than one Planning Coordinator area. The standard drafting team confirms that the Planning Coordinator is the appropriate entity to design UFLS and conduct the other UFLS related activities based on the definition of the Planning Coordinator in the Functional Model Version 5. The SDT added break-points and combined the curves (Attachment 1 and 2 into one curve now in Attachment 1). The curves are solely for checking the frequency trajectories of simulations and not for setting UFLS relays. R3.3. Volts/Hertz (V/Hz) protection should be based upon transformer and generator protection requirements It is possible that V/Hz generator

Voter	Entity	Segment	Vote	Comment
				protection schemes exist that are more sensitive than 1.10 p.u. and 1.18 p.u.. The bases for the 1.18 p.u. and 1.1 p.u. values are not evident and may not be technically supportable when compared against actual protection settings or allowable post-contingency voltage bands. Compliance with these performance characteristics does not guarantee the generators will stay online during UF events. Recommend removing R3.3.1, R3.3.2, and R3.3.3 and replacing R3.3 with: "Generator and generator step-up transformer V/Hz protection elements shall not be violated." **Response**: The goal of the UFLS is to control frequency during a UFLS event such that generation does not trip. Project 2007-09 Generator Verification for draft Standard PRC-024 is developing the curves to establish the over- and under-frequency protection for the generation, so, the UFLS SDT is trying to stay within those curves by some margin, e.g., between the two curves of Attachment 1. The SDT recognizes that some generators may not meet those curves and wants the PC to specifically model the trip settings of those generators. We understand that V/Hz is not a standard output, but, it should not be a large effort to monitor voltage and frequency, divide the two, and integrate over each time step. The SDT believes there is a need for V/Hz requirements because shedding load will cause voltages to climb, which may cause excitation systems / voltage regulators to reach the end of their range, which can lead to a V/Hz condition that could cause generators to trip through GSU protection or other similar protection systems. Therefore, the SDT believes that V/Hz of 1.18 p.u for 2 seconds, etc., can be reached at significantly higher frequencies than 57.2 Hz. The standard does not require modeling of V/Hz protection and only requires monitoring of voltage and frequency and designing the UFLS program to meet the performance criteria described in 3.2. The V/Hz values are based on Threshold values from IEEE C37.102 (Guide for AC Generator Protection) and C37.106 (Guide for Abnormal Frequency Protection for Power Generating Plants), and C37.91 (Guide for Protective Relay Applications to Power Transformers). R4. The Reliability Assurer should be the entity that conducts and documents the periodic UFLS program periodic design assessment. **Response**: Instead of assigning responsibility to the Reliability Assurer the standard drafting team revised Requirements R5 and R13 to define a

Voter	Entity	Segment	Vote	Comment
				set of actions that are measureable that will demonstrate that Planning Coordinators worked together should an island span more than one Planning Coordinator area. The standard drafting team confirms that the Planning Coordinator is the appropriate entity to design UFLS and conduct the other UFLS related activities based on the definition of the Planning Coordinator in the Functional Model Version 5. R5. This requirement is a good example of why the UFLS should be developed by the Reliability Assurer and not individual Planning Coordinators, since each must coordinate with all the other affected Planning Coordinators. “Coordinate” can be as simple as communication between parties (see PRC-001-1 R5) or can be detailed technical study performance and mutual agreements (see PRC-001-1 R3 and M1). If the Reliability Assurer has an approved UFLS program then the UFLS entities will need to comply with the program and the vague “coordination” issue no longer exists. R6. Change Planning Coordinator to Reliability Assurer. Entity. **Response**: Instead of assigning responsibility to the Reliability Assurer the standard drafting team revised Requirements R5 and R13 to define a set of actions that are measureable that will demonstrate that Planning Coordinators worked together should an island span more than one Planning Coordinator area. The standard drafting team confirms that the Planning Coordinator is the appropriate entity to design UFLS and conduct the other UFLS related activities based on the definition of the Planning Coordinator in the Functional Model Version 5. R7. Change to “Each Reliability Assurer shall provide its UFLS database containing data necessary to model its UFLS program to other Reliability Assurers within its Interconnection within 30 days of a request. **Response**: Instead of assigning responsibility to the Reliability Assurer the standard drafting team revised Requirements R5 and R13 to define a set of actions that are measureable that will demonstrate that Planning Coordinators worked together should an island span more than one Planning Coordinator area. The standard drafting team confirms that the Planning Coordinator is the appropriate entity to design UFLS and conduct the other UFLS related activities based on the definition of the Planning Coordinator in the Functional Model Version 5.

Voter	Entity	Segment	Vote	Comment
				R8. Replace every instance of Planning Coordinator with Reliability Assurer. Requiring UFLS entities to provide UFLS scheme data is proper; however, this requirement may duplicate R1.4 in MOD-13-1. **Response**: Instead of assigning responsibility to the Reliability Assurer the standard drafting team revised Requirements R5 and R13 to define a set of actions that are measureable that will demonstrate that Planning Coordinators worked together should an island span more than one Planning Coordinator area. The standard drafting team confirms that the Planning Coordinator is the appropriate entity to design UFLS and conduct the other UFLS related activities based on the definition of the Planning Coordinator in the Functional Model Version 5. R9. And R10. Since a Transmission Owner is a UFLS Entity, these requirements are redundant. Recommend combining R9. and R10 and ending the new requirement with "as appropriate." Also, the UFLS program should have been developed by the Reliability Assurer rather than the Planning Coordinator. **Response**: Requirement R9 focuses on automatic tripping of load and may be performed by either the Distribution Provider or the Transmission Operator; Requirement R10 focuses on switching of devices to control over-voltage as a result of under frequency load shedding. Therefore, the team decided not to merge the two requirements. The team modified Requirement R10 to clarify that it means: "switching of capacitor banks, Transmission Lines, and reactors" to control over voltage as a result of under frequency load shedding. R11. Change Planning Coordinator to Reliability Assurer. **Response**: Instead of assigning responsibility to the Reliability Assurer the standard drafting team revised Requirements R5 and R13 to define a set of actions that are measureable that will demonstrate that Planning Coordinators worked together should an island span more than one Planning Coordinator area. The standard drafting team confirms that the Planning Coordinator is the appropriate entity to design UFLS and conduct the other UFLS related activities based on the definition of the Planning Coordinator in the Functional Model Version 5.

Voter	Entity	Segment	Vote	Comment
				R12. Change Planning Coordinator to Reliability Assurer. R13. Change Planning Coordinator to Reliability Assurer. R14. Change Planning Coordinator to Reliability Assurer. Recommend developing a requirement for the Reliability Assurer to provide a comment period within the time frames established in their bylaws. C. Measures - Our comments to the Measures are comparable to the comments on the Requirements with regard to entities involved. Where requirements are suggested in the comments to be removed, the accompanying measure needs to be removed. D. Compliance 1.1 - Add NERC to monitor Reliability Assurer compliance. 1.2 - Change Planning Coordinator to Reliability Assurer in all instances. Requirements that we propose removing would be removed from data retention requirements. **Response**: Instead of assigning responsibility to the Reliability Assurer the standard drafting team revised Requirements R5 and R13 to define a set of actions that are measureable that will demonstrate that Planning Coordinators worked together should an island span more than one Planning Coordinator area. The standard drafting team confirms that the Planning Coordinator is the appropriate entity to design UFLS and conduct the other UFLS related activities based on the definition of the Planning Coordinator in the Functional Model Version 5. Violation Severity Levels (VSLs) The VSL references to Planning Coordinator should be changed to Reliability Assurer. VSLs for Requirements previously recommended for removal can be removed. R11. What violation does the “Lower VSL” indicate? R12. What is the true significance behind going from Moderate VSL to Severe VSL in a matter of two months when there is a two year period for the design assessment? R14. The UFLS program developer should respond to all comments before UFLS program implementation. Recommend High VSL if i **Response**: The drafting team has posted its justification for assignment of VSLs – the justification identifies how the VSLs meet the NERC and FERC guidelines for setting VSLs.
Response: A regional variance for the WECC interconnection has been included which should also address several of these concerns.				

Voter	Entity	Segment	Vote	Comment
Ralph Frederick Meyer	Empire District Electric Co.	1	Negative	Prefer that a reliability standard requirement should to an entire entity class (per the Functional Model) not some sub-set of that entity. However, if the SDT determines to keep as indicated in this version, then we suggest that section 4 be revised to add clarity. Without the benefit of the background information above, the intent of the language in 4.2 and 4.3 could be lost. We suggest that section 4.2 be revised to read "UFLS entities shall mean all entities that are responsible for the ownership, operation, or control of UFLS equipment or automatic switching of Elements as required by the UFLS program established by the Planning Coordinators. Such entities may include one or more of the following: 4.2.1 Transmission Owners 4.2.2 Distribution Providers" and that 4.3 be deleted.
Response: Requirement R9 focuses on automatic tripping of load and may be performed by either the Distribution Provider or the Transmission Owner; Requirement R10 focuses on switching of devices to control over-voltage as a result of under frequency load shedding by the Transmission Owner (only). The switching of elements is generally performing at higher voltages than distribution voltages and as a result decided to not include the Distribution Providers in Requirement R10.				
Kenneth Goldsmith	Alliant Energy Corp. Services, Inc.	4	Negative	R14 is procedural and not appropriate for a reliability standard R11 should not be for just any UFLS events (e.g., small local area events with few or no generators in the island), but should include all disturbance events as defined in EOP-004 that should be studied. This standard is too complicated. It could be simplified to the following requirements; it should require a documented Planning Coordinator (PC) UFLS plan, data should be provided to the PC, PC should determine design characteristics, and verify through simulation that the plan works as designed.
Response: Peer review procedures such as R14 are used elsewhere in approved NERC standards, specifically FAC-010 and FAC-011. The procedure has industry support. It allows Transmission Owners and Distribution Providers to at least have some say in what they will be obligated to implement. The scope of the commenter's suggestion on R11 goes beyond what is necessary for UFLS purposes. The SDT disagrees that this standard is too complicated. The requirements are necessary for reliability of UFLS programs. The commenter's overall suggestion to simplify would not establish reliability criteria for UFLS programs to achieve, there would be no coordination between adjacent Planning Coordinators, no coordination with generator tripping, no protection against generator tripping due to high V/Hz, no necessity to analyze underfrequency events, and no requirement for anyone to install and set UFLS relays.				

Voter	Entity	Segment	Vote	Comment
Douglas E. Hils	Duke Energy Carolina	1	Negative	Requirements R5 and R13 contain the problematic requirement to "reach concurrence", as discussed in our responses to the comment form. One way to address this concern would be to revise R5 and R13 to require affected Planning Coordinators to share design assessment results and event assessment results and respond to technical questions/comments within a prescribed time period.
Response: The SDT has modified R5 and R13 to reflect the intent that only UFLS programs within the PC areas that are a part of the island under study need to work in conjunction to meet the performance requirement in R3. The SDT also modified R5 and R13 to remove the "concurrence" requirement and provide a means by which each PC can meet this requirement alone or by working with other PCs.				
Tom Bowe	PJM Interconnection, L.L.C.	2	Negative	SDT must define "design assessment". Is it different from every other one of the other assessments conducted by the PC? Without clarification an RE is left with these questions: Is the requirement to conduct an assessment? Or is it to conduct an assement that sucessfully meets R3? Is the PC non-compliant when its area's assets can not resolve the studied condition? Additionally, R12 is unclear in what it means by "event actuation". Is the objective to run an assessment; or is the objective to "design" a solution to islands created during a planning assessment. Clarify meaning of event actuation. R11 can be read to mean "when that event occurred in the real system (i.e. was actuated) then an event analysis must be considered; or it can mean when an assessment shows the creation of an island, then the PC must devise a process or procedure to correct the incident within 1 year. The text is awkward.
Response: The objective of the design assessment is to verify that the design of the UFLS program satisfies R3. For the purposes of PRC-006, the design assessment needs to be distinguished only from the event assessment, which is an after-the-fact analysis of a UFLS event per R11. There are no other assessments required by this standard. It is required to conduct an assessment that shows the UFLS program design satisfies R3 for each of the identified islands from R2. A PC would be non-compliant if its UFLS program cannot satisfy the performance curves in the Attachments up to a 25 percent imbalance between load and generation while considering the sub-points specified in R4. The objective of the event assessment is to analyze events after-the-fact. Event actuation is the time when the event was initiated. The point of R12 is to follow up after an event assessment if the event assessment indicated that the UFLS program did not perform as well as expected, or that improvements may be possible. It is not required that improvements be made, only considered. R11 means "when that event occurred in the real system (i.e. was actuated) then an event analysis must be considered." The PC does not need to "devise a process or procedure to correct the incident within 1 year," though a PC may consider changes to the UFLS program design that might improve its performance in future events of a similar nature in R12.				

Voter	Entity	Segment	Vote	Comment
Mark Ringhausen	Old Dominion Electric Coop.	4	Negative	See my comments in the VRF/VSL ballot.
Response: Please see the SDT response to your comments in the VRF/VSL non-binding poll.				
Kenneth R. Johnson	Public Utility District No. 1 of Chelan County	3	Negative	See WECC comments
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Thomas C. Mielnik	MidAmerican Energy Co.	3	Negative	Several issues still need to be addressed in previously submitted comments. 2. This standard is too complicated and should be simplified to the following requirements; a documented Planning Coordinator (PC) UFLS plan, data provided to the PC, the PC should determine minimum design characteristics, entities should verify through simulation that the plan works as designed, and entities should provide their plan to adjacent interconnected NERC registered entities as evidence of coordination. 3. The performance curves the attachments should clearly state what approximately expected loss of life is being imposed on generator owners / operators to meet the curve expectations. Is the Generator under frequency trip model curve expecting a 5% or 10% loss of life probability per under frequency event for each unit? Generator Owners / Operators need to understand what kind of risk a standard imposes to make decisions on how best to comply with NERC standards, even if that decision is simply whether to change unit settings to meet a proposed curve or not.
Response: 1. Please see SDT response to previously submitted comments. 2. The SDT disagrees that this standard is too complicated. The requirements are necessary for reliability of UFLS programs. The commenter's overall suggestion to simplify would not establish reliability criteria for UFLS programs to achieve, there would be no coordination between adjacent Planning Coordinators, no coordination with generator tripping, no protection against generator tripping due to high V/Hz, no necessity to analyze underfrequency events, and no requirement for anyone to install and set UFLS relays. 3. This is a subject for Project 2007-09 and the PRC-024-1 SDT. This standard is not applicable to Generator Owners. Loss of life depends on both the specifics of events and the specific characteristics of individual generators; the question is not one that can be answered with any certainty.				
David Schiada	Southern California Edison Co.	3	Negative	Support concerns identified by WECC.

Voter	Entity	Segment	Vote	Comment
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Keith Morisette	Tacoma Public Utilities	4	Negative	Tacoma Power is voting negative. We agree with the WECC position paper, which emphasizes that the UFLS should be focused on keeping the interconnection stable and not focusing on islands. The western interconnection currently has a single coordinated plan with support from its subregions. We continue to support this plan as the requirement for the interconnection.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Karl Bryan	U.S. Army Corps of Engineers Northwestern Division	5	Negative	The applicability section should list the Registered Entities that the Reliability Standard applies to. The approach used in this proposed reliability standard will lead to confusion.
Response: The SDT believes that the “UFLS Entities” approach is necessary in a continent-wide standard to accommodate the variety of historical practices in what entities implement UFLS.				
Alan Gale	City of Tallahassee	5	Negative	The attempt to define "annual" in R6 forces me to maintain my negative vote. The definition of "annual" is a very touchy subject. It determines compliance or non-compliance in a lot of standards. For those entities that have defined it internally, we are trying to impart some "defenition" to our procedures and policies. This issue is important enough that it should NOT be a last minute addition to a "second ballot" that was changed to reach concensus on all other issues. It should be defined above board and by a separate SAR if the SDT feels so strongly. I believe the commenter that asked about it was trying to find out what the "maintain" portion was refering to, not hte "annual".
Response: The change from “annual” to “at least once each calendar year, with no more than 15 months” was made merely to indicate what was intended by the term “annual”. This was a clarification from the previous posting of the standard to aid PCs in their interpretation of the requirement.				

Voter	Entity	Segment	Vote	Comment
William Mitchell Chamberlain	California Energy Commission	9	Negative	The current proposal does not require coordination within the interconnection. The standard should require the PCs within an interconnection to coordinate a UFLS Design with all other PCs within the interconnection and that the PCs should be required to develop a coordinated interconnection wide UFLS Design. As proposed the standard could conceivably result in as many different UFLS plans within WECC as there are Planning Coordinators. **Response**: A regional variance for the WECC interconnection has been included which should address these concerns. Additionally, the proposed standard fails to address UFLS relays which are currently part of the existing program which are owned by the customer. Recognition of customer owned relays is critical to have a successful program. To assure areas are covered the LSE needs to be included in the Applicability section. **Response**: The SDT recognizes that the Functional Model Version 5 and the Statement of Compliance Registry cause confusion regarding the involvement of the LSE in UFLS programs but the SDT refers to the section covering the Roles in Load Curtailment in Version 5 of the Functional Model Technical Document; “For non-voluntary curtailment, such as automatic underfrequency and undervoltage load shedding and manual load shedding, the Load-Serving Entity identifies which critical customer loads should be excluded from curtailment for public health, safety and/or security reasons. A third concern is the proposed standard attempts to establish continent wide frequency-time curves and eliminate discrete set points. This approach fails to recognize the unique characteristics of the four individual interconnections. Frequency-time curves do not allow for specific and defined measurements and will leave individual entities defaulting to the lowest common denominator. If frequency-time curves are intended to define the boundaries, the determination of discrete set points would fall into the hands of the PCs leading to disagreements among entities. In addition, to determine the frequency-time curves through stability and dynamic modeling, one must establish discrete set points. Frequency-time curves are reverse engineering and require justification and correlation to the reliability of the interconnections - no such justification has been

Voter	Entity	Segment	Vote	Comment
				provided. **Response**: Interconnection coordinated UFLS plans are desirable, but the degree of diversity of systems in various regions, particularly in the Eastern Interconnection, makes this an unrealistic goal for a continent-wide standard; some flexibility needs to be reserved to address regional needs. The SDT believes that there is confusion concerning the application of the curves. The goal of the UFLS is to control frequency during a UFLS event such that generation does not trip. Project 2007-09 Generator Verification for draft Standard PRC-024 is developing the curves to establish the over- and under-frequency protection for the generation, so, the UFLS SDT is trying to stay within those curves by some margin, e.g., between the two curves of Attachment 1.
Response: Please see the in-line responses.				
Ronald D. Schellberg	Idaho Power Company	1	Negative	The current proposal does not require coordination within the interconnection. The standard should require the PCs within an interconnection to coordinate a UFLS Design with all other PCs within the interconnection and that the PCs should be required to develop a coordinated interconnection wide UFLS Design. As proposed the standard could conceivably result in as many different UFLS plans within WECC as there are Planning Coordinators. WECC had a disturbance the was negatively impacted by the lack of cordination of UFLS between subregions. Continent wide Frequency-time curves would not account for the interconnection size.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Laurie Williams	Public Service Company of New Mexico	1	Negative	The current proposal still does not require coordination within the interconnection. The current version of the standard would allow for all of the Planning Coordinators (PCs) within an interconnection to agree upon and implement a single coordinated plan, but it does not require it. As written the proposed standard creates the possibility of as many different UFLS plans within an interconnection as there are Planning Coordinators.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Gordon Rawlings	BC Transmission Corporation	1	Negative	The current version of the standard would allow for all of the Planning Coordinators (PCs) within an interconnection to agree upon and implement

Voter	Entity	Segment	Vote	Comment
John Tolo	Tucson Electric Power Co.	1	Negative	a single coordinated plan, but it does not require it. As worded, the proposed standard would still allow for the possibility of as many different UFLS plans within an interconnection as there are Planning Coordinators. The standard still references islands that could form within the interconnection. There is no guarantee that islands that could form will form for all situations. The possibility of activation of multiple underfrequency programs intended to address islands that could form is problematic. Without the requirement to ensure coordination between the programs, if unanticipated islands form or no islands form, the result could be the activation of "competing" uncoordinated underfrequency load shedding programs for a single event. BCH believes that the standard should require a coordinated plan for each interconnection. Each interconnection has distinct characteristics that will require different plans. A single continent-wide performance characteristic could be achieved by different coordinated interconnection plans. This would allow all the PCs within WECC to adopt the existing WECC Coordinated Off-Nominal Frequency Load Shedding and Restoration Plan, modified as may be necessary to meet the continent-wide performance curves of the continent-wide standard. This would ensure continued coordination for underfrequency events within the Western Interconnection.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Joel T Plessinger	Entergy	3	Negative	The following are the reasons associated with our Negative Ballot. Entergy reserves the right, after review of all the submitted ballots, to join with other balloters, whether positive or negative ballots, where any reasons included in their ballot that may be applicable to or otherwise impact Entergy as related to this ballot. All of the following Reasons are directed at the revisions applied to PRC-006-1. We agree with the EOP-003-1 revisions. In M3 it is unclear what action is intended by the phrase "including the criteria itself". Since the criteria is specified in R3, it is recommended that the phrase be deleted. R5 and M5 should only apply to Planning Coordinators (PC) who are part of the joint island, while the way it is currently worded it appears to apply to every PC. We recommend the wording in M5 be changed to: "Each Planning Coordinator shall have dated evidence such as memorandums, letters, or other dated documentation that it reached concurrence with the other affected Planning Coordinators on design assessment results for any

Voter	Entity	Segment	Vote	Comment
				identified island in accordance with Requirement R5 and identifies the affected Planning Coordinators." We also recommend that the wording in R5 be changed to: "Each Planning Coordinator shall reach concurrence with all other affected Planning Coordinators in UFLS design assessment results before design assessment completion for any island identified by that Planning Coordinator which include a portion of its footprint along with portions of another PC(s) footprint." The Lower VSL for R11 appears to simply repeat the requirement rather than stating a violation. We recommend that the time ranges for the VSLs addressing being late with the assessment should be expanded to Moderate - 12-14 months, High - 14-16 months, and Severe - greater than 16 months. We also recommend that the High and Severe VSLs that contain the phrase "shall conduct and document" to read "conducted and documented". The VSLs for R4 should include a consideration of the timeliness of the completion of the study (e.g. Lower VSL for 3 months late, Moderate VSL for 3 to 6 months late, etc.) The standard R5 requires that both or all the Planning Coordinators agree. One PC might have larger margin requirements or a different methodology compared to another PC. These differences might not be reconcilable. We do not believe that a standard can require that one PC change its methods because a different PC does not agree with its methods, or agree that another method (any method) is acceptable that it finds a problem with. There at least needs to be a process in the event that two PCs cannot agree. We recommend that the following language be added to R5: "If concurrence cannot be reached, an individual Planning Coordinator in that island can demonstrate that its UFLS scheme meets the requirements by performing dynamic simulations that apply its UFLS scheme on the entire island." We recommend that R13 be eliminated since it is covered by R11. We recommend that R3 be revised to require the PC to specifically notify each of the "UFLS Entities" in their PC area that are part of the PC's UFLS program of the UFLS program. We are also concerned that the Planning Coordinator is responsible to develop a UFLS program that incorporates information from Generator Owners (R3-R3.3.3) but there is no requirement that Generator Owners

Voter	Entity	Segment	Vote	Comment
				provide this information. We are aware that PRC-024 (Project 2007-09) contains reporting requirements (R3, R4 and R5) but are not certain that the tables in PRC-024 match those in PRC-006 nor is there any guarantee that PRC-024 will be FERC approved without change. Therefore, we request that this standard be made applicable to GOs and those GOs provide the required information. The Unofficial Comment Form for this standard, in the Review of Technical Changes to Standard section contains the following statement "The SDT has added requirements to include an assessment of the performance of UFLS programs "within one year of an actuation of UFLS resulting in 500 MW or greater of loss of load."(Requirement R11)." However the 500 MW limitation is not included in R11. We recommend this 500 MW limitation be added to R11. There is no need to evaluate smaller islanding events.
Response: The SDT agrees and has modified M3 to remove the phrase "including the criteria itself". The SDT has modified R5 and M5 to reflect the intent that only UFLS programs within the PC areas that are a part of the island under study need to work in conjunction to meet the performance requirement in R3. The SDT also modified R5 and M5 to remove the "concurrence" requirement and provide a means by which each PC can meet this requirement alone or by working with other PCs. The SDT has modified the VSLs for R11 to make these corrections. The SDT considered this and decided that the program reassessment is a binary task which automatically makes this a severe violation if not completed within the 5 year timeframe. The SDT has modified R13 to eliminate any duplication between R13 and R11. Requirement R3 has been modified to specifically indicate that the UFLS program must include "**notification** of and a schedule for implementation" in support of your suggestion. The SDT has added R14 which now requires the UFLS entities be notified of a comment period and for the PCs to respond to those comments prior to a UFLS program becoming effective. The SDT modified the implementation plan to state, "Parts 4.1 through 4.6 of Requirement R4 shall become effective and enforceable one year following the receipt of generation data as required in PRC-024-1, but no sooner than one year following the first day of the first calendar quarter after applicable regulatory approvals of PRC-006-1." Per the implementation plan, the requirement to model data from the GOs is not mandatory until after the GOs are required to provide the data by PRC-024. This is similar to the requirement to model the BES by the TPL standards, while the requirement by entities to provide the data used to model the BES is contained in the MOD standards. The existing standard PRC-009, which this standard is intended to replace, currently requires that an assessment be performed for all events regardless of size. The SDT cannot remove a requirement from an existing standard without a technical justification that explains how this will make the requirement the same or better than what exists today.				
Kim Warren	Independent Electricity System Operator	2	Negative	The IESO maintains its NEGATIVE vote in this ballot for the following main reasons: Criteria for Selecting Generators for Simulation Modeling

Voter	Entity	Segment	Vote	Comment
				Requirement R4 defines criteria for identifying generating units to be included by the Planning Coordinator (PC) in its periodic UFLS design assessment however we believe these criteria are insufficient. In response to other commenters the SDT stated "The SDT believes that there is a relatively small percentage of generation that is not registered and also has frequency trip settings that do not conform with curves of Attachment 1." We are concerned about this assumption regarding the effectiveness of the NERC 20/75 MVA criteria since this is untrue in Ontario. In Ontario at least 2600 MW of generation (about 10% of generation in Ontario) would currently not be covered by these criteria and this amount is expected to increase as a result of provincial generation procurement initiatives. It is doubtful whether it would be possible to design an effective UFLS program with this much uncertainty. With increased penetration of renewable energy sources many of which may fall below the 20/75 MVA threshold, this problem is likely not unique to Ontario. We therefore believe the NERC standard needs an explicit mechanism for PCs to impose more stringent requirements when necessary to achieve the purpose of the standard. Generator Frequency Trip Curves The IESO was not satisfied with the SDTs response to our comment regarding evidence supporting the need for the overfrequency trip modeling curves proposed in this standard. We would also like to see similar justification for the underfrequency trip modeling curves. Although these curves have been proposed in PRC-024 and have not yet been approved, they are nevertheless referenced in the version of PRC-006-1 currently posted for ballot. Our concern is that these unapproved curves directly impose constraints on the Planning Coordinator in the design of its UFLS program. Imposing an unsubstantiated overfrequency constraint may cause unnecessary generator tripping, and may seriously interfere with the ability of PCs to develop a practical ULFS program particularly in light of the issues surrounding applicability mentioned above. We believe these two interdependent standards should either go to ballot together so that any issues regarding the curves could be adequately ventilated or PRC-006 should be changed to remove coupling to PRC-024. In brief, a standard should not be balloted when it depends on the information/requirement in another standard which has not been developed/approved. Gradual Decline in Reliability Standards Experience in NPCC working groups in this matter has shown it will be difficult to hold on to more stringent Regional or Area standards with PRC-006 in its present format.

Voter	Entity	Segment	Vote	Comment
				For example the NPCC generator underfrequency “do-not-trip” curve is lower (more onerous) than that required by NERC. Within the NPCC UFLS standard drafting team there was a natural tendency to harmonize the NPCC draft UFLS standard with the draft NERC PRC-006 curve, rather than to maintain NPCC’s more stringent approved criteria (Directory #12). While such sentiments have not prevailed thus far, if the NERC standard is passed in its present format, weakening of the NPCC standard would be inevitable with the unintended consequence of reduced reliability in the NPCC portion of the Eastern Interconnection.
Response: A regional variance can and should be considered by IESO. A variance could be more stringent than the level of detail and the adaptability to local conditions that a continent-wide standard can practically attain. Justification for both over and under frequency generator tripping curves is from manufacturer’s recommendations on acceptable durations at high and low frequencies. The curves were also chosen in recognition of existing legacy region guidelines on generator durations. These curves will become approved upon the approval of either PRC-006 or PRC-024, which ever is approved first. Further information on curve justification, or the need to modify a curve, should be asked of the PRC-024 SDT. The two teams have coordinated to the degree necessary to establish consistency, but cannot impose on each others schedules. The situation of interdependence of standards is not unique to PRC-006 and PRC-024. For example, compliance to TPL standards is dependent on system modeling data required under MOD standards. There is a limit as to what a continent-wide standard can achieve for the reliability concerns of an area without unduly imposing constraints on other areas that do not need tighter constraints. A variance may be the appropriate mechanism for addressing IESO’s concerns.				
Donald S. Watkins	Bonneville Power Administration	1	Negative	The primary concern identified in the first position paper is that the proposal does not require coordination within individual interconnections. The current version of the standard would allow for all of the Planning Coordinators (PCs) within an interconnection to agree upon and implement a single coordinated plan, but it does not require it. As worded, the proposed standard would still allow for the possibility of as many different UFLS plans within an interconnection as there are Planning Coordinators. The standard still references islands that could form within the interconnection. There is no guarantee that islands that could form will form for all situations. The possibility of activation of multiple underfrequency programs intended to address islands that could form is

Voter	Entity	Segment	Vote	Comment
Dana Cabbell	Southern California Edison Co.	1	Negative	problematic. Without the requirement to ensure coordination between the programs, if unanticipated islands form or no islands form, the result could be the activation of "competing" uncoordinated underfrequency load shedding programs for a single event. WECC believes that the standard should require a coordinated plan for each interconnection. Each interconnection has distinct characteristics that will require different plans. A single continent-wide performance characteristic could be achieved by different coordinated interconnection plans. This would allow all the PCs within WECC to adopt the existing WECC Coordinated Off-Nominal Frequency Load Shedding and Restoration Plan, modified as may be necessary to meet the continent-wide performance curves of the continent-wide standard. This would ensure continued coordination for underfrequency events within the Western Interconnection.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
John Canavan	NorthWestern Energy	1	Negative	The primary concern identified is that the current proposal does not require coordination within the interconnection. The standard should require the PCs within an interconnection to coordinate a UFLS Design with all other PCs within the interconnection and that the PCs should be required to develop a coordinated interconnection wide UFLS Design. As proposed the standard could conceivably result in as many different UFLS plans within WECC as there are Planning Coordinators. **Response**: A regional variance for the WECC interconnection has been included which should address these concerns. Additionally, the proposed standard fails to address UFLS relays which are currently part of the existing program which are owned by the customer. Recognition of customer owned relays is critical to have a successful program. To assure areas are covered the LSE needs to be included in the Applicability section. **Response**: The SDT recognizes that the Functional Model Version 5 and the Statement of Compliance Registry cause confusion regarding the involvement of the LSE in UFLS programs but the SDT refers to the section covering the Roles in Load Curtailment in Version 5 of the Functional Model Technical Document; "For non-voluntary curtailment, such as automatic underfrequency and undervoltage load shedding and manual load shedding, the Load-Serving Entity identifies which critical customer
John C. Collins	Platte River Power Authority	1	Negative	
Terry L Baker	Platte River Power Authority	3	Negative	
Glen Reeves	Salt River Project	5	Negative	

Voter	Entity	Segment	Vote	Comment
				loads should be excluded from curtailment for public health, safety and/or security reasons. A third concern is the proposed standard attempts to establish continent wide frequency-time curves and eliminate discrete set points. This approach fails to recognize the unique characteristics of the four individual interconnections. Frequency-time curves do not allow for specific and defined measurements and will leave individual entities defaulting to the lowest common denominator. If frequency-time curves are intended to define the boundaries, the determination of discrete set points would fall into the hands of the PCs leading to disagreements among entities. In addition, to determine the frequency-time curves through stability and dynamic modeling, one must establish discrete set points. Frequency-time curves are reverse engineering and require justification and correlation to the reliability of the interconnections - no such justification has been provided. **Response**: Interconnection coordinated UFLS plans are desirable, but the degree of diversity of systems in various regions, particularly in the Eastern Interconnection, makes this an unrealistic goal for a continent-wide standard; some flexibility needs to be reserved to address regional needs. The SDT believes that there is confusion concerning the application of the curves. The goal of the UFLS is to control frequency during a UFLS event such that generation does not trip. Project 2007-09 Generator Verification for draft Standard PRC-024 is developing the curves to establish the over- and under-frequency protection for the generation, so, the UFLS SDT is trying to stay within those curves by some margin, e.g., between the two curves of Attachment 1.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Tim Kelley	Sacramento Municipal Utility District	1	Negative	The primary concern identified is that the proposal does not require coordination within individual interconnections. Without the requirement to ensure coordination between the programs, if unanticipated islands form or no islands form, the result could be the activation of “competing” uncoordinated underfrequency load shedding programs for a single event.
James Leigh-Kendall	Sacramento Municipal Utility District	3	Negative	
Mike Ramirez	Sacramento Municipal Utility District	4	Negative	

Voter	Entity	Segment	Vote	Comment
Bethany Wright	Sacramento Municipal Utility District	5	Negative	
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Michael J. Haynes	Seattle City Light	5	Negative	The primary concern identified is that the proposal does NOT require coordination within individual interconnections. The standard references islands that could form within the interconnection. There is no guarantee that islands that could form will form for all situations. The possibility of activation of multiple underfrequency programs intended to address islands that could form is problematic. Without the requirement to ensure coordination between the programs, if unanticipated islands form or no islands form, the result could be the activation of "competing" uncoordinated underfrequency load shedding programs for a single event. The standard should require a coordinated plan for each interconnection. Each interconnection has distinct characteristics that will require different plans. A single continent-wide performance characteristic could be achieved by different coordinated interconnection plans. This would allow all the PCs within RROs to adopt the Off-Nominal Frequency Load Shedding and Restoration Plans, modified as may be necessary to meet the continent-wide performance curves of the continent-wide standard. This would ensure continued coordination for underfrequency events within interconnections.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Henry E. LuBean	Public Utility District No. 1 of Douglas County	4	Negative	The primary concern is that the current proposal does not require coordination within the interconnection. The standard should require the PCs within an interconnection to coordinate a UFLS Design with all other PCs within the interconnection and that the PCs should be required to develop a coordinated interconnection wide UFLS Design.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Jerome Murray	Oregon Public Utility Commission	9	Negative	The proposed standard does not require coordination within individual interconnections. The current version of the standard would allow for all of the Planning Coordinators (PCs) within an interconnection to agree upon and implement a single coordinated plan, but it does not require it. As worded, the proposed standard would still allow for the possibility of as many different UFLS plans within an interconnection as there are Planning

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				Coordinators. The standard still references islands that could form within the interconnection. There is no guarantee that islands that could form will form for all situations. The possibility of activation of multiple underfrequency programs intended to address islands that could form is problematic. Without the requirement to ensure coordination between the programs, if unanticipated islands form or no islands form, the result could be the activation of "competing" uncoordinated underfrequency load shedding programs for a single event. The standard needs to require a coordinated plan for each interconnection. Each interconnection has distinct characteristics that will require different plans. A single continent-wide performance characteristic could be achieved by different coordinated interconnection plans. For example, this would allow all the PCs within WECC to adopt the existing WECC Coordinated Off-Nominal Frequency Load Shedding and Restoration Plan, modified as may be necessary to meet the continent-wide performance curves of the continent-wide standard. This would ensure continued coordination for underfrequency events within the Western Interconnection.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Scott Kinney	Avista Corp.	1	Negative	The proposed standard does not require coordination within the interconnection. The standard should require the PCs within an interconnection to develop a coordinated UFLS plan.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Jerry W Johnson	South Mississippi Electric Power Association	5	Negative	The requirement seems to require the installation of facilities rather than just relays. 16 USC 824o (a)(3) gives NERC the authority to regulate existing facilities and planned additions or modifications to those facilities, not to prompt or require modifications or additions to the existing facilities. Criteria are never actually defined in the requirements. Planning Coordinator footprints are not established. What does "annually maintain" mean? Does it mean the Database requires annual updates, annual reviews or just to provide a database annually? Frequency excursions precede an islanding event. I.e. low frequency initiates UFLS which should prevent an unintentional islanding event. The wording of this requirement makes it seem like the islanding event occurs first and causes the UF. Measures are too vague, lacking specifics, and not performance-based.

Voter	Entity	Segment	Vote	Comment
				This would leave too much up to the Auditor's interpretation. Measures are only valuable if they contain specific targets or specifications that clarify how an entity will be deemed to be compliant with the standard as written. Measures which merely repeat the standard with the inclusion of "shall have evidence such as..." are not very useful. Measures should be explicit, detailed, consistent, and provide useful guidance to entities. These measures do not provide any useful guidance beyond what is specified in the requirement itself. M3: It is unclear what action is intended by the phrase "including the criteria itself." Since the criteria is specified in R3, it is recommend that the phrase be deleted. M5 and R5: This should only apply to PCs who are a part of the joint island, while the way it is currently worded it appears to apply to every PC. The graphical representation of the frequency-time curves alone allows plenty of margin for mis-interpretation of the curves data points. A "break-down" of the plotted curves should be clearly displayed (in conjunction with the graphical curve representation) in a table immediately below each frequency-time curve to further clarify the under- and over-frequency performance characteristic curves data points The standard lacks guidance as to what the trip settings should be. It is not clear as to how Attachment 1 should be used and doesn't provide specific detail for under frequency set points. Neighboring Planning Coordinators will be making requests and setting criteria for the local planning coordinators and associated UFLS entities. We do not agree with the text "any Planning Coordinator may now select islands including interconnected portions of the BES in adjacent Planning Coordinator footprints and Regional Entity footprints, without the need for coordinating." It is not clear what is included in automatic switching. This requirement is so vague that it does not appear to add anything in addition to the UFLS program design that it is intended to address. It appears that anything that R10 may be designed to address is already covered by R9.
Response: This standard is not out of line with expectations for standards in general. The proposed standard does not require the installation of facilities or relays. The SDT clarified this by adding the word "existing" in front of capacitor banks, Transmission Lines, and reactors in Requirement R10 to clarify that the intent. The SDT disagrees that the jurisdiction of Planning Coordinators and their footprints has not been established. Planning Coordinators must be able to identify the entities in their footprints in order to fulfill their coordination responsibilities. Annually maintain means annual updates, though				

Voter	Entity	Segment	Vote	Comment
not exclusively. The term “annual’ has been replaced with wording that is more specific. UFLS cannot be expected to mitigate island formation. Most interconnections are large enough that a decline in frequency low enough to cause UFLS operations is highly unlikely unless the interconnection is broken into islands. Most UFLS operations are seen to occur following island formation. R5 has been clarified to address the commenter’s concern. Attachment 1 now has the performance characteristic curve data points tabulated. The under and over frequency performance curves are solely for checking frequency trajectories in dynamic simulations of UFLS program performance and should not be misconstrued as applying to UFLS relay set points. UFLS entities are not affected, nor will a Planning Coordinator need to make requests of them or set criteria for them as far as island identification is concerned. The SDT believes the text quoted by the commenter is necessary due to the wide range of island determination criteria (R1) that may be forthcoming. “Automatic switching of Elements” refers to switching of, among other Elements, cap banks to prevent excessive voltages. R10 has been modified to remove the confusion.				
Richard J. Padilla	Pacific Gas and Electric Company	5	Negative	The revised proposal still does not require a coordinated plan within the interconnection to eliminate islands. The standard should require the PCs within an interconnection to coordinate a UFLS Design with all other PCs within the interconnection and that the PCs should be required to develop a coordinated interconnection wide UFLS Design. As proposed the standard could conceivably result in as many different UFLS plans within WECC as there are Planning Coordinators. Further refinements or additional requirements to an Interconnection's Coordinated plan can be made to address scenarios that can cause islands as determined by studies that are made at the overall Interconnection level. The draft standard is also very prescriptive is some cases, going as far as specifying maximum Volts per Hertz limits in simulated studies of islanded scenarios, as well as frequency versus time envelopes or boundaries that specify acceptable over/under frequency excursions. These type of performance limits should be specified at the Interconnection level based on the characteristics of the Interconnection, not at the National level. The proposed standard fails to address UFLS relays which are currently part of the existing program which are owned by the customer. Recognition of customer owned relays is critical to have a successful program. To assure areas are covered the LSE needs to be included in the Applicability section. The proposed standard attempts to establish continent wide frequency-time curves and eliminate discrete set points. This approach fails to recognize the unique characteristics of the four individual interconnections. Frequency-time curves do not allow for specific and defined measurements and will leave individual entities defaulting to the lowest common

Voter	Entity	Segment	Vote	Comment
				denominator. If frequency-time curves are intended to define the boundaries, the determination of discrete set points would fall into the hands of the PCs leading to disagreements among entities. In addition, to determine the frequency-time curves through stability and dynamic modeling, one must establish discrete set points. Frequency-time curves are reverse engineering and require justification and correlation to the reliability of the interconnections - no such justification has been provided.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Gregory J Le Grave	Wisconsin Public Service Corp.	3	Negative	The Standard is not ready for implementation because portions of the draft are difficult to interpret due to vague language. R5 and R13 use the phrase “reach concurrence”. In addition, it isn’t clear if the UFLS entities must have the Planning Coordinator’s UFLS program implemented by the standard’s effective date.
Response: Some of the more vague wording had been replaced with wording that is more specific such as in R7 and R10 in the previous draft. The SDT agreed that reaching concurrence could be problematic and modified R5 and R13 to address this concern in the previous draft and eliminated the phrase, “reach concurrence” in support of your suggestion. UFLS Entities only need to comply with the Planning Coordinator’s schedule for application; the Implementation Plan does not apply to the UFLS Entities. (Please see Implementation Plan Proposed Effective Date)				
Mel Jensen	APS	5	Negative	The standard is too prescriptive. It requires that islands be formed and the underfrequency load shedding be designed to arrest the frequency in the islands and meet several requirements. While this is a valid approach, it is a very restricted and prescriptive approach. The islands formed in the study may not be the islands which actually form when the events happen. The under frequency load shedding scheme should be considered as a safety net and the Planning Coordinator should be given more flexibility. Most of the standard requirements should be guidelines.
Robert D Smith	Arizona Public Service Co.	1	Negative	
Response: A continent-wide standard can specify performance curves or it can specify UFLS design parameters; the SDT has opted for performance curves. This is the less prescriptive approach of the two. The standard does not require island formation, only identification of islands to serve as the basis for UFLS assessments. The standard does not require Planning Coordinators to predict islands that may occur in the future; it only requires criteria for island identification in order for the design assessments in R4 to be conducted. UFLS needs to arrest system frequency declines, whether as islands or the interconnection. Guidelines have no place in an enforceable standard. A continent-wide standard must identify requirements that are common to the four interconnections and the SDT believes the standard does that without being unnecessarily prescriptive.				

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John Yale	Chelan County Public Utility District #1	5	Negative	The standard should require a coordinated plan for each interconnection. Each interconnection has distinct characteristics that will require different plans. A single continent-wide performance characteristic could be achieved by different coordinated interconnection plans. This would ensure continued coordination for underfrequency events within each interconnection and prevent individual PCs from developing conflicting plans.
Chad Bowman	Public Utility District No. 1 of Chelan County	1	Negative	
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Frank F. Afranji	Portland General Electric Co.	1	Negative	The standard should require coordination of UFLS plans not merely allow it. We agree with the WECC position paper which elaborates on this coordination. UFLS coordination should occur at the regional level, not the Planning Coordinator level.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Dennis Sismaet	Seattle City Light	6	Negative	The standard, requirements, and measurements should reflect the uniqueness of the individual interconnections and not common, continent wide prescriptions. The primary concern identified in the first position paper is that the proposal does not require coordination within individual interconnections. The current version of the standard would allow for all of the Planning Coordinators (PCs) within an interconnection to agree upon and implement a single coordinated plan, but it does not require it. As worded, the proposed standard would still allow for the possibility of as many different UFLS plans within an interconnection as there are Planning Coordinators. The standard still references islands that could form within the interconnection. There is no guarantee that islands that could form will form for all situations. The possibility of activation of multiple underfrequency programs intended to address islands that could form is problematic. Without the requirement to ensure coordination between the programs, if unanticipated islands form or no islands form, the result could be the activation of “competing” uncoordinated underfrequency load shedding programs for a single event. WECC believes that the standard should require a coordinated plan for each interconnection. Each interconnection has distinct characteristics that will require different plans. A single continent-wide performance characteristic could be achieved by different coordinated interconnection plans. This would allow all the PCs within WECC to adopt the existing WECC Coordinated Off-Nominal Frequency Load Shedding and Restoration Plan, modified as may be

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				necessary to meet the continent-wide performance curves of the continent-wide standard. This would ensure continued coordination for underfrequency events within the Western Interconnection.
Response: A regional variance for the WECC interconnection has been included which should address these concerns.				
Michelle Rheault	Manitoba Hydro	1	Negative	This standard is not ready for ballot. See submitted comments.
Mark Aikens	Manitoba Hydro	5	Negative	
Daniel Prowse	Manitoba Hydro	6	Negative	
Response: Please see the response to your submitted comments.				
Pawel Krupa	Seattle City Light	1	Negative	This standard needs more work to define the areas that need an UFLS program, and who coordinates the programs.
Dana Wheelock	Seattle City Light	3	Negative	
Hao Li	Seattle City Light	4	Negative	
Response: The SDT has made conforming changes to the proposed standard. The SDT is leaving it up to the Planning Coordinators to develop the UFLS program requirements for their Planning Coordinator area.				
Michael Moltane	International Transmission Company Holdings Corp	1	Negative	To meet requirement R4 as written, we will need generator frequency relay data that will be required in the new PRC0024 which is not yet approved. The generator Owners need to be required to provide this data to the Planning Coordinator in this standard.
Response: The SDT recognizes that PRC-024 may be approved at a different time and has inserted a provision in the implementation plan document to account for that possibility. Generator applicability is deferred to PRC-024 to avoid double jeopardy.				
Linda Horn	Wisconsin Electric Power Co.	5	Negative	We appreciate the SDT adding R14 in an attempt to provide a feedback mechanism between the UFLS Entity and the Planning Coordinator

Voter	Entity	Segment	Vote	Comment
James R. Keller	Wisconsin Electric Power Marketing	3	Negative	regarding the UFLS program design. However, the UFLS program which is ultimately implemented by the UFLS Entity needs to be mutually agreed to between the Planning Coordinator and the UFLS entity. Requirements R9, R10, and R14 must be strengthened to reflect as such. The "mutually agreed to" concept would force checks/balances in the development of the UFLS program to avoid unfairly burdening a UFLS Entity while maintaining reliability. We continue to believe that only islands of significant size be considered for the design of a UFLS program and for simulation after an UFLS event. The SDT stated in its consideration of comments that "PRC-009, a FERC approved standard, does not have an event threshold, and PRC-006 is absorbing PRC-009." We believe that the SDT can place a threshold in the revised PRC-006 since it is replacing PRC-009.
Response: A requirement for entities to mutually agree with each other or work together causes one entity's compliance to be dependent on another's. This has generally been viewed as unacceptable by the industry. This standard does not preclude development of regional standards in a process that may involve all interested entities in the region. PRC-009, which R11 is due to replace, is already a FERC approved standard and requires an assessment for all events regardless of size. An SDT cannot remove a requirement from an existing standard without a technical justification that explains how this will make the standard the same or better than what exists today. We have specific feedback from FERC that they would not approve PRC-006 with an event analysis threshold because they would view that as lowering the bar. Note that identification of islands for UFLS design assessments may use whatever threshold a Planning Coordinator believes is appropriate in satisfying R1.				
Anthony Jankowski	Wisconsin Energy Corp.	4	Negative	We appreciate the SDT adding R14 in an attempt to provide a feedback mechanism between the UFLS Entity and the Planning Coordinator regarding the UFLS program design. However, the UFLS program which is ultimately implemented by the UFLS Entity needs to be mutually agreed to between the Planning Coordinator and the UFLS entity. Requirements R9, R10, and R14 must be strengthened to reflect as such. The "mutually agreed to" concept would force checks/balances in the development of the UFLS program to avoid unfairly burdening a UFLS Entity while maintaining reliability. We continue to believe that only islands of significant size be considered for the design of a UFLS program and for simulation after an UFLS event. The SDT stated in its consideration of comments that "PRC-009, a FERC approved standard, does not have an event threshold, and PRC-006 is absorbing PRC-009." We believe that the SDT can place a threshold in the revised PRC-006 since it is replacing PRC-009.

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				We expressed a concern that the standard could place a burden on the UFLS Entity to shed additional load to make up for generators that do not conform to the PRC-006/PRC-024 underfrequency/overfrequency tripping curves. "The SDT has addressed the matter of GO versus TO/DP obligation for non-conforming generators and has decided that, for the likely small amount of non-conforming generation, that it should be a small burden, if any, to be spread across multiple TO sand DPs." We do not believe that ignoring GO responsibilities due to possible small burden is acceptable, as in some areas the burden may be significant and unwarrented without an obligation on the generator.
Response: A requirement for entities to mutually agree with each other or work together causes one entity's compliance to be dependent on another's. This has generally been viewed as unacceptable by the industry. This standard does not preclude development of regional standards in a process that may involve all interested entities in the region. PRC-009, which R11 is due to replace, is already a FERC approved standard and requires an assessment for all events regardless of size. An SDT cannot remove a requirement from an existing standard without a technical justification that explains how this will make the standard the same or better than what exists today. We have specific feedback from FERC that they would not approve the standard with a threshold because they would view that as lowering the bar. Note that identification of islands for UFLS design assessments may use whatever threshold a Planning Coordinator believes is appropriate in satisfying R1. On the question of Generator Owners versus UFLS Entities assuming the burden of non-conforming generators, the SDT had discussed this matter at length at an early stage in development of this standard and believed that the amount of non-conforming generation would be small because the generator tripping curves (Attachment 1) have been chosen based on the off-nominal frequency duration recommendations of major generator manufacturers and were also chosen in recognition of legacy region guidelines on generator tripping.				
Kathleen Goodman	ISO New England, Inc.	2	Negative	We believe that the applicability section, which states: UFLS entities shall mean all entities that are responsible for the ownership, operation, or control of UFLS equipment as required by the UFLS program established by the Planning Coordinators. Such entities may include one or more of the following: 4.2.1 Transmission Owners 4.2.2 Distribution Providers Excludes inclusion of generators; however, R4 requires PCs to model generator specific information. This appears to be a missing link that needs to be addressed before the standard can be approved. Also, the standard is potentially in conflict with the work to be done on the Generator Verification Standard, which proposes to have Generator Performance During Frequency and Voltage Excursions contained in PRC-024. This would present yet another example of lack of coordination on NERC Standards development.
Response: The draft of PRC-024-1 is applicable to Generator Owners and will have the requirement for them to supply generator under and over frequency trip settings to the Planning Coordinators. Generator applicability is deferred to PRC-024 in order to avoid double jeopardy for				

Voter	Entity	Segment	Vote	Comment
Generator Owners. The implementation plan for PRC-006 recognizes that PRC-024 may be approved at a different time than PRC-006. The SDT has coordinated with the PRC-024 SDT so that both PRC-006 and PRC-024 are using the same under and over frequency generator tripping curves.				
Jason L Marshall	Midwest ISO, Inc.	2	Negative	While we agree with the purpose statement of the draft UFLS standard, we are voting negative. First, the standard goes much farther than the purpose statement. It is too prescriptive and includes too many administrative requirements. The new R14 is completely an administrative requirement that establishes a stakeholder process which has no reliability benefit. Furthermore, FERC Order 890 already requires transmission planners and planning coordinators to develop a stakeholder process. We agree that it makes sense to develop a frequency envelope to ensure it is coordinated across the Interconnection but question the need for Volts/Hz limit in 3.3. Secondly, the standard is overly complex. UFLS relays already are installed and coordinated today. The standard needs to reflect this reality and be made simple. We believe the standard should not be more complicated than establishing a requirement to have coordinated UFLS relays and making pertinent information available on the UFLS relays and program to the reliability entities with a need to know. The purpose can be accomplished in many fewer requirements than the 14 proposed requirements. Thirdly, we do not agree with the need to identify islands. While some areas of the BES have obvious islands such as the Florida peninsula, most of the BES does not form obvious islands and trying to predict how islands will form is arbitrary and unnecessary and provides no clear benefit to reliability. Other requirements that build on this islanding concept are unnecessary as well. For instance, we do not believe it is necessary or even beneficial to perform dynamic simulations of the UFLS program in areas that do not have natural islands. These simulations involve contingencies to such extremes that it stretches the limits of the analysis software and provides arbitrary results with questionable value. While these studies have been attempted in the past, some of these very studies have stated within their documentation that the island boundaries are completely arbitrary and don't correspond to any historical or conceivable islanding event. Furthermore, an effective UFLS scheme can be designed without simulations.
Response: Several commenters have expressed concerns that a Planning Coordinator can devise a UFLS program design and implementation				

Voter	Entity	Segment	Vote	Comment
schedule without any consideration of input by Distribution Providers or Transmission Owners before those plans are finalized. R14 establishes a peer review to at least partially address those concerns. Peer review procedures such as R14 are used elsewhere in approved NERC standards, specifically FAC-010 and FAC-011. The procedure has industry support. It allows Transmission Owners and Distribution Providers to at least have some say in what they will be obligated to implement. The Order 890 stakeholder process does not cover UFLS. Excessive V/Hz may cause unnecessary tripping of generation that may exacerbate an already precarious underfrequency condition. The SDT believes that this threat to UFLS effectiveness should not be overlooked. The SDT disagrees that this standard is too complicated. The requirements are necessary for reliability of UFLS programs. The commenter's suggestion to simplify would not establish reliability criteria for UFLS programs to achieve, there would be no coordination required between adjacent Planning Coordinators, no coordination with generator tripping, no protection against generator tripping due to high V/Hz, no necessity to analyze underfrequency events, and no requirement for anyone to install and set UFLS relays. Islands, whether arbitrary or real, need to be identified in order to conduct UFLS design assessments. The SDT agrees that effective UFLS can be designed without simulations, but that is not the only means. Simulations are necessary to at least supply the evidence that a UFLS design can be effective.				
Paul Rocha	CenterPoint Energy	1	Negative	With regards to the proposed PRC-006-1; CenterPoint Energy is concerned about the overly prescriptive nature of this proposal and cannot support it in its present form. In particular, a requirement to identify areas that "may Island" might, arguably, make sense for a large interconnection such as the eastern or western interconnect, but it makes no sense for a smaller interconnect such as ERCOT that, essentially, is already an island for the purposes of this standard. Even for the larger interconnections, there are limitless possibilities of potential "islands" that could occur given certain combinations of contingencies. Since it is impractical to identify every conceivable island, it is unclear what level of diligence and documentation would be required to demonstrate to an auditor's satisfaction that the responsible entity has reasonably identified areas that "may" island. This ambiguity and subjectivity is contrary to objective number 2 in the Project Background to develop a standard "with clearly defined requirements and unambiguous language".
Response: All that is required concerning island identification (R1, R2) is to devise some criteria considering historical events and system studies and use those criteria to identify some islands. This does not mean that every conceivable island must be identified. The criteria can be as simple or elaborate as a Planning Coordinator desires. The SDT does not believe this is overly prescriptive, nor does it believe that it is ambiguous. However, island identification is admittedly subjective and it is difficult to offer more specific guidance in the standard without limiting flexibility and adaptability to characteristics specific to a region or interconnection.				
Gregory L Pieper	Xcel Energy, Inc.	1	Negative	Xcel Energy believes that the standard still contains many issues that are not clear and need to resolved. Among these issues is the mapping of PC to subordinate entities in areas where a regional entity or RTO has not
Michael Ibold	Xcel Energy, Inc.	3	Negative	

Voter	Entity	Segment	Vote	Comment
Liam Noailles	Xcel Energy, Inc.	5	Negative	taken on the PC role. Also, there are concerns around how small generators (less than the threshold specified) are addressed. Detailed comments were submitted to NERC with the concurrent comment period
David F. Lemmons	Xcel Energy, Inc.	6	Negative	
Response: Please see SDT response to these comments on the other comment form. The SDT disagrees that the mapping of Planning Coordinators to subordinate entities is a significant issue. Planning Coordinators must be able to identify the entities in their footprints in order to fulfill their coordination responsibilities. This standard does not apply to Generator Owners, but this SDT has coordinated on the development of PRC-024 with that SDT. Although this has long been a subject of debate, the SDT generally believes that generators smaller than the Statement of Compliance Registry thresholds can be omitted in UFLS design assessments without significantly compromising reliability. GOs below the threshold could be registered if necessary by a regional entity for reliability according to the Compliance Registry Criteria.				
Christopher L de Graffenried	Consolidated Edison Co. of New York	1	Affirmative	
Nickesha P Carrol	Consolidated Edison Co. of New York	6	Affirmative	
Harold Taylor, II	Georgia Transmission Corporation	1	Affirmative	
Richard J. Mandes	Alabama Power Company	3	Affirmative	1. The lower VSL for R11 is incorrect. It assigns a lower violation for meeting the requirement. This lower VSL should be deleted. 2. In the 2nd paragraph of the high VSL for R11, change "shall conduct and document" to "conducted and documented". 3. In the last paragraph of the severe VSL for R11, change "shall conduct and document" to "conducted and documented".
Anthony L Wilson	Georgia Power Company	3	Affirmative	
Gwen S Frazier	Gulf Power Company	3	Affirmative	
Don Horsley	Mississippi Power	3	Affirmative	
Horace Stephen Williamson	Southern Company Services, Inc.	1	Affirmative	
Response: Thank you for your comment. The SDT has modified the VSLs for R11 to make these corrections.				
Edward P. Cox	AEP Marketing	6	Affirmative	AEP has provided some general comments to the last posting.
Response: Thank you for your support.				

Voter	Entity	Segment	Vote	Comment
Guy V. Zito	Northeast Power Coordinating Council, Inc.	10	Affirmative	Applicability of the standard, as proposed, excludes inclusion of generators; however, R4 requires PCs to model generator specific information. This represents a missing link that needs to be addressed before the standard can be approved. This standard seems to be contrary to FERC's stated concern with NPCC(Oct. 2009 Washington DC meeting) to develop a standard that can support the program it was designed to enforce.....the applicability as stated in the standard and by NERC registry criteria restricts and excludes the need for GO's that may in aggregate be necessary for a reliable UFLS program, to adhere to the standard. The standard also is potentially in conflict with the work being done on the Generator Verification Standard, which proposes to have Generator Performance During Frequency and Voltage Excursions contained in PRC-024. Sufficient coordination on NERC Standards development needs to occur on a going forward basis.
Response: Thank you for your support. The draft of PRC-024-1 is applicable to Generator Owners and has the requirement for them to supply generator under and over frequency trip settings to the Planning Coordinators. Generator applicability is deferred to PRC-024 in order to avoid double jeopardy for Generator Owners. The implementation plan for PRC-006 recognizes that PRC-024 may be approved at a different time than PRC-006. The SDT has coordinated with the PRC-024 SDT so that both PRC-006 and PRC-024 are using the same under and over frequency generator tripping curves.				
Saurabh Saksena	National Grid	1	Affirmative	At present, the proposed implementation plan language describes a one year phase-in period for compliance that is intended to provide the Planning Coordinators with sufficient time to (i) develop and/or modify UFLS programs; and, (ii) to establish an implementation plan for all required equipment changes. It must be recognized that any implementation plan would probably cover a multi-year period reflecting the time required to perform the engineering, purchasing, installation, and testing phases associated with implementing new and/or modified UFLS schemes. As an example, NPCC has already implemented a Region specific UFLS Program incorporating a six year UFLS implementation plan, with year one of the plan having ended June, 2010. As such, NPCC is concerned with how the final language included in the NERC UFLS implementation plan might impact the NPCC-specific UFLS Implementation Program. NPCC will closely monitor NERC's efforts in developing its UFLS Reliability Standard so NPCC can appropriately include the continued implementation of its Region specific UFLS Program within the NPCC Regional Standard PRC-006-NPCC-1, the required Regional Entity companion standard to the NERC UFLS Standard.
Michael Schiavone	Niagara Mohawk (National Grid Company)	3	Affirmative	

Voter	Entity	Segment	Vote	Comment
Response: Thank you for your support. The SDT believes that NPCC's six-year implementation plan will not be adversely affected by this standard or this standard's implementation plan.				
Louis S Slade	Dominion Resources, Inc.	6	Affirmative	Dominion appreciates the changes the SDT made to address our concerns.
Response: Thank you for your support.				
Tim Hattaway	PowerSouth Energy Cooperative	5	Affirmative	R10 needs further clarification. One would assume that the "element" referred to is one that is essential to the correct function of the UFLS scheme?
Response: "Automatic switching of Elements" refers to switching of, among other Elements, cap banks. The intent here is for switching necessary to avoid excessive voltage following UFLS operations. R10 has been modified to remove the confusion.				
Charles H Yeung	Southwest Power Pool	2	Affirmative	SPP votes in favor of the standard but directs the SDT to the ISO RTO Council comments submitted on the PRC-006 standards. We are concerned the generator owner/operators are not included as applicabile registered entities to this standard but understand there is a separate effort to develop generator owner/operator standards that could require them to provide UFLS data to Planning Coordinators. Absent that enforceable requirement, PCs could be subject to inappropriate violations if a GO fails to provide needed UFLS data. In order to move new standards forward that rely on other yet to be approved standards, NERC must take a sensible approach in enforcement of requirements if a violation is found to be caused by gaps in enforceable standards as mentioned.
Response: Thank you for your support. There is a requirement in the draft PRC-024-1 for Generator Owners to supply Planning Coordinators and other entities generating unit over and under frequency trip settings. The SDT recognizes that PRC-024 may be approved at a different time and has inserted a provision in the implementation plan document to account for that possibility. Generator applicability is deferred to PRC-024 to avoid double jeopardy. The number of non-conforming generators is expected to be small and should not cause a compliance issue for Planning Coordinators in an interim period, if any, before Generator Owner data becomes available to them. Generator tripping curves common to PRC-006-1 and PRC-024-1 (Attachment 1) have been chosen based on the off-nominal frequency duration recommendations of major generator manufacturers and were also chosen in recognition of legacy region guidelines on generator tripping.				
Kenneth D. Brown	Public Service Electric and Gas Co.	1	Affirmative	The PSEG Companies are voting affirmative on this standard with the following understanding of the intent of these Standards. PSEG believes

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Jeffrey Mueller	Public Service Electric and Gas Co.	3	Affirmative	that the Standard Drafting Team has appropriately charged the Planning Coordinators with the responsibility for development and coordination of UFLS programs and assessments. The PCs are best positioned to carry out these responsibilities as part of their planning activities. In many areas such as ISOs and RTOs the individual TOs and DPs do not have the regional view that is necessary to successfully design, coordinate and assess UFLS programs. TOs and DPs role would be primarily to provide data such as forecast peak load and installed UFLS capability upon request of the PCs, and to install and maintain the TO/DP's share of UFLS capability as determined by the PC. PSE&G will support the Planning Coordinators with system information and compliance data as required to meet their needs.
Response: Thank you for your support.				
Steven Grego	MEAG Power	3	Affirmative	The reference to "automatic switching of Elements" needs to be clarified. Does it mean that the TO needs to switch capacitor banks, or does it refer to the breakers equipped with UF relays? If it is referring to capacitor banks, is this applicable near major generation busses?
Steven M. Jackson	Municipal Electric Authority of Georgia	3	Affirmative	
Response: Yes, "automatic switching of Elements" refers to switching of, among other Elements, cap banks. R10 has been modified to remove the confusion. Cap bank switching may be particularly applicable near generation if excessive V/Hz is observed following UFLS operations.				
Silvia P Mitchell	Florida Power & Light Co.	6	Affirmative	This revised definition is better written.
Response: Thank you for your support.				
Bruce Merrill	Lincoln Electric System	3	Abstain	LES appreciates the Drafting Team's addition of R14 to allow for stakeholder input into the development of the PC's UFLS program. However, LES believes that the stakeholder process could be better defined to reflect a more formalized process similar to that of the NERC standards development process.
Eric Ruskamp	Lincoln Electric System	6	Abstain	
Response: This standard does not preclude development of regional standards in a process that may involve all interested entities in the region.				
Jeff Nelson	Springfield Utility Board	3	Abstain	SUB provided some responses on the Comment Form.
Response: Please see SDT responses to comments on the comment form.				