



**Southwest Power Pool
SYSTEM PROTECTION AND CONTROL WORKING GROUP and SPP UFLS
Standard Drafting Team Meeting
MINUTES
February 1, 2010
2:00 p.m. – 4:00 p.m.
Net conference**

Item 1 – Administrative:

Shawn Jacobs, Chairman, called the System Protection and Control Working Group (SPCWG) meeting to order at 2:00 p.m. The agenda was approved (Att.1 – Agenda). The minutes from the January 13-14 meeting in Dallas were approved.

Following members were available for this meeting:

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| Shawn Jacobs | : OG&E |
| Tim Hinken | : KCPL |
| Bud Averill | : GRDA |
| Steve Wadas | : NPPD |
| Louis Guidry | : CELE |
| Ken Zellefrow | : SPRM |
| Mathew Thykkutatthil | : SUNC |
| Ron McIvor | : OPPD |
| Mak Nagle | : SPP Staff |

Other meeting attendees were:

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| Jason Speer | : SPP Staff |
| John Pasierb | : GDS Associates |
| Brent Carr | : AECC |

Item 2: NERC PRC-006 Update

Steve Wadas gave an update on the latest version of NERC's PRC-006 Standard.

The Last NERC Webex was on January 29, 2010. They reviewed applicability sections 4.2 and 4.3.. 4.2 is recommended to use UFLS entities for NERC PRC-006 similar to what was done on NERC standard NUC -001-2 where the applicability section 4.2 used Transmission entities. This was discussed earlier with Craig Lawrence with NERC registry. The proposed applicability section is listed below.

4. Applicability:

- 4.1 Planning Coordinator
- 4.2 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.

- 4.3 Transmission Owners that own Elements identified in the UFLS program established by the Planning Coordinators.

Since switching of elements in R10 only address the TO's then the SDT may want to keep 4.3.

Compliance registry III.b.2 was reviewed.

Future meetings will be scheduled to determine if applicability section 4.1 will be changed from Planning Coordinators or Planning Coordinator Group. This would be a new term in the NERC Glossary of terms. If PCG is approved then PRC-006 R1 would be deleted and "Planning Coordinator Group" would replace "Each group of Planning Coordinators" in R2 and below.

The applicability section will probably not be finalized until the middle of February. The SDT is working on addressing Maureen's comments prior to sending out the 3rd draft for comments.

Item 3: SPP UFLS Standard

The Standard Drafting Team went through the consideration of comments and discussed the comments that were received. Several responses were discussed and drafted. Shawn Jacobs will finish reviewing and revising the rest of the additional comments. (Att. 2 – Response to Comments)

The Standard Drafting Team discussed the Violation Risk Factor (VRF) for each requirement as well as the Violation Severity Level table that was added. (Att. 3 – SPP UFLS Regional Standard)

Item 4: Closing Administrative Duties

The next net conference has been scheduled for February 16 (2pm – 4pm).

The net conference was adjourned at 4:00 p.m.

Respectfully submitted,

Mak Nagle, Secretary

**SOUTHWEST POWER POOL
SYSTEM PROTECTION AND CONTROL WORKING GROUP and SPP REGIONAL
STANDARD DEVELOPMENT MEETING
February 1, 2010 (2:00 p.m. till 4:00 p.m.)
Net Conference**

- AGENDA -

Item 1 – Administrative

- Call to order
- Proxies
- Approve agenda
- Approve Minutes (Jan 13-14 meeting)

Item 2 – NERC Continent-Wide Standard Update (Steve)

Item 3 – SPP UFLS Standard (All)

- 3rd Draft
- Responses to comments received for 2nd Draft
- Violation Severity Levels (VSL)

Item 4 – Closing Administrative Duties

- Next meeting place & date
- Upcoming meeting topics
- Adjourn meeting

Consideration of Comments – Second Draft of PRC-006-SPP-01—Automatic Underfrequency Load Shedding Program

1. Do you agree with the Step 1 and Step 2 maximum limits that were revised in the table in R1.1? If not, please provide a suggested revision.

Responses

Yes - 5

No - 4

| Organization | Question 1: | Question 1 Comments: |
|---------------------|--|---|
| AECC | No | As AECC has stated on numerous occasions and in comments to previous drafts, limits on Step 1 and 2 are problematic and will place some entities in an impossible position of being able to meet the requirements. This is not only true for AECC but is quiet possibly true for smaller entities such as municipals and cooperatives. Please refer to AECC comments for Draft 1 for further explanation of AECC's position. AECC understands the drafting teams desire to limit the amount of load shed to ensure excessive shedding and is not opposed to a limit in Step 3 but not in Step 1 and 2. |
| SDT Response | Thank you for your reply during the comment period for Draft #2. Requirement R1 has been revised in Draft #3 to accommodate some of the smaller entities. SPP will coordinate a UFLS study with Powertech to determine the validity of the three UFLS step ranges. | |
| AEP | No | <p>AEP is concerned with the structure proposed in this draft that employs participation as a "collective group" with a single entity reporting to the Planning Coordinator. Given the end-use Load relationship held by Distribution Providers, we believe that these entities (and other non-registered entities performing Distribution Provider responsibilities) are in the best circumstance to develop and administer UFLS programs. Transmission Owners should not be held accountable under mandatory reliability compliance for the non-response of other entities to a UFLS event when no formal delegation agreement exists. While it is appropriate for entities to have the option to create such formal relationships, a "collective group" should not be presumed to exist for each Transmission Owner.</p> <p>The maximum step sizes are rather large, and, in considering the allowed intentional time delay of up to 30 cycles, could result in excess shedding of load and unnecessarily high frequency. First, the step sizes need to be limited in size in order that a small load-generation imbalance just sufficient to trigger a step will not cause excessive load loss and high frequency. Secondly, the total delay time should not be so long as to result in the tripping of another step before the previous step has dumped its load and had a chance to arrest the declining frequency. Assuming a typical rate of frequency decline of .05 Hz/sec for every one percent imbalance, with ten percent steps and a .3 Hz increment between steps, our calculations show that total time delay should be limited to approximately 27 cycles.</p> |
| SDT Response | Thank you for your reply during the comment period for Draft #2. The Applicability Section has been modified and the changes will be presented in Draft #3. SPP will coordinate a UFLS study with Powertech to determine the validity of the three UFLS step ranges and to verify the | |

Consideration of Comments – Second Draft of PRC-006-SPP-01—Automatic Underfrequency Load Shedding Program

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| | intentional relay time delay of 30 cycles does not result in excess shedding of load. | |
| BPU | No | We are aware of at least one past request for waiver within SPP where the 58.7 hz had a maximum accumulated load relief of 50%; for our smaller system keeping with as wide a range (still up to 50% for 58.7 hz) may be desirable for ensuring future compliance. |
| SDT Response | Thank you for your reply during the comment period for Draft #2. Requirement R1 has been revised in Draft #3. Also, SPP will coordinate a UFLS study with Powertech to determine the validity of the three UFLS step ranges. | |
| Edison | | |
| Golden Spread | Yes | |
| NextEra Energy (Florida) | | |
| OMPA | Yes | |
| SPA | Yes | |
| SPRM | Yes | |
| SPS | Yes | |
| SUNC | No | Step 1 maximum should not be higher than Step 2 minimum in the table in R1.1. Overlap will cause confusion. Leave the same as in Version 1. |
| SDT Response | Thank you for your reply during the comment period for Draft #2. Requirement R1 has been revised in Draft #3. Also, SPP will coordinate a UFLS study with Powertech to determine the validity of the three UFLS step ranges. | |

2. Do you agree with the definition of Forecasted Peak Native Load? If not, please provide a revised definition.

Responses

Yes - 6

No - 3

| Organization | Question 2: | Question 2 Comments: |
|---------------------|--|---|
| AECC | No | The definition needs to be clearer. Is this total coincident system peak load? (Yes) does it include firm, non-firm, interruptible loads? (Yes, if they are “native load” (end-use customer load) as defined by NERC) |
| SDT Response | <p>Thank you for your comment. Please see answers above and the following explanation.</p> <p>The “Forecasted Peak Native Load” definition has been removed from this standard based on the direction of NERC. The new terminology will be shown as “forecasted peak Native Load”.</p> <p>“Native Load” is a term defined by NERC. It is defined as the end-use customers that the Load-Serving Entity is obligated to serve.</p> | |
| AEP | No | <p>AEP concurs with the intent of the text provided in the applicability section 4.2 that states that "any other entity with end-use Load not registered as a Distribution Provider" that has a material impact on the BES should be responsible for compliance with this standard and for penalties of non-compliance. We would suggest that the Regional Entity not only identify these entities, but facilitate registration as a Distribution Provider consistent with the FERC's Functional Model. To this end,</p> <p>Although such entities are defined within the applicability of the standard, AEP is concerned with responses from the SDT to the first draft of this standard that AEP is to include "at least 100% of its member load ratio" for municipalities and cooperatives in its Native Load calculations for purposes of its UFLS program. This response appears inconsistent with both the applicability section and with the SDT's response that cooperatives would be required to work out details posed by the standard or properly delegate that responsibility, subject to penalties being allocated on a member load ratio basis. It's also noteworthy that during the mock load tests that are conducted during the summer, these entities do participate independently and independently expected to determine its necessary load drop. Please assist us in reconciling these apparent inconsistencies.</p> |

Consideration of Comments – Second Draft of PRC-006-SPP-01—Automatic Underfrequency Load Shedding Program

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| SDT Response | Thank you for your comment. The SDT’s response to the first draft comments may have been more a misunderstanding of terms than anything else. In an attempt to clarify – it is the intent of this standard, as currently written, that an entity is only responsible for “native load” which as define by NERC includes only end-use customers. Unfortunately, end-use customers are not defined. This term is taken by the SDT to mean the last ‘party’ to use the energy. Therefore, if your “customer” is a cooperative, municipal or similar ‘utility’, they are not the last user of the energy and therefore not an end-use customer. You are not responsible for their load unless an agreement is in place. Unfortunately, they may not be a registered entity, hence, one of the SDT’s concerns is how to determine when this unregistered load is ‘significant’ and then how to address it with an unregistered entity. | |
| BPU | Yes | We have had years where we may be off by around 5% in our forecasted peak native load. It is possible therefore to have error wherein our UFLS tripping may be a higher percentage than planned. The broad ranges will be helpful. |
| SDT Response | Thank you for your comment. | |
| Edison | | |
| Golden Spread | Yes | |
| NextEra Energy (Florida) | | |
| OMPA | Yes | |
| SPA | Yes | |
| SPRM | Yes | |
| SPS | Yes | |
| SUNC | No | We would rather see the term Forecasted Peak Native System Load used. This will make it clear that the forecast is based on the system coincident peak, not the individual, non-coincident peak forecasts. It is also consistent with the proposed definition in the standard. |
| SDT Response | Thank you for your comment. The SDT’s response to the first draft comments may have been more a misunderstanding of terms than anything else. In an attempt to clarify – it is the intent of this standard, as currently written, that an entity is only responsible for “native load” which as define by NERC includes only end-use customers. Unfortunately, end-use customers are not defined. This term is taken by the SDT to mean the last ‘party’ to use the energy. Therefore, if your “customer” is a cooperative, municipal or similar ‘utility’, they are not the last user of the energy and therefore not an end-use customer. You are not responsible for their load unless an agreement is in place. Unfortunately, they may not be a registered entity, hence, one of the SDT’s concerns is how to determine when this unregistered load is ‘significant’ and then how to address it with an unregistered entity. | |

3. In R2, generators will not trip during low frequency conditions above 58.0 Hz. Do you have any generators that cannot meet this requirement? If so, what is the minimum operating frequency?

Responses

Yes - 4

No - 5

| Organization | Question 3: | Question 3 Comments: |
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| SDT General Response | | <p>Some commenters suggested there should be a time duration given for off frequency operation in R2 of the PRC-006-SPP-01 UFLS standard second draft. The standard has been modified to define curves above and below which generator underfrequency and overfrequency protection, respectively, must be modeled. These curves are the same as the proposed curves in PRC-024-1, Attachment 1. R2 has been modified as shown below. The standard has been modified and R2 is now located at the bottom of the standard</p> <p>Each Generator Owner with individual generating units greater than 20 MVA (gross nameplate rating) or generating plant/Facilities greater than 75 MVA (gross nameplate rating) directly connected to the BES shall verify by review of relay settings, generator control system settings, and generator operating guides that their generating unit(s) will not trip above the Generator Under Frequency curve in Attachment 1 and will not trip below the Generator Over Frequency curve in Attachment 2. Should this not be practical due to the operating characteristics of certain units, the Generator Owner shall arrange for Load shedding to be installed in addition to that required Load shedding as listed in R3. NOTE: The three UFLS steps have moved from R1.</p> |
| AECC AEP | Yes | <ul style="list-style-type: none"> • Three steam turbines cannot meet the requirement as currently proposed. The minimum operating frequency of these units is: at 59.4Hz for 180 seconds and at 58.4Hz for 30 seconds. • Four combustion turbines cannot meet the requirement as currently proposed. The minimum operating frequency of these units is: at 58.5 Hz for 2 seconds and at 57.0 Hz at 0.1 seconds. |
| SDT Response | | <p>The SDT agrees there should be a time duration given for off frequency operation in R2 of the UFLS standard. The standard has been modified to define curves above and below which generator underfrequency and overfrequency protection, respectively, must be modeled. These curves are the same as the proposed curves in PRC-024-1, Attachment 1. R2 has been modified as shown below.</p> <p>Each Generator Owner with individual generating units greater than 20 MVA (gross nameplate rating) or generating plant/Facilities greater than 75 MVA (gross nameplate rating) directly connected to the BES shall verify by review of relay settings, generator</p> |

Consideration of Comments – Second Draft of PRC-006-SPP-01—Automatic Underfrequency Load Shedding Program

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| | control system settings, and generator operating guides that their generating unit(s) will not trip above the Generator Under Frequency curve in Attachment 1 and will not trip below the Generator Over Frequency curve in Attachment 2. Should this not be practical due to the operating characteristics of certain units, the Generator Owner shall arrange for Load shedding to be installed in addition to that required Load shedding as listed in R3. | |
| BPU | No | Our Plant 3 Unit 1 generator, which is our newest generator, does not presently meet this requirement: it has a setting to trip at 58.5 hz with a 30 second delay. The original settings were by Black and Veatch engineering, and to date this has not caused a problem. We are interested in understanding why 58.5 hz would not still coordinate satisfactorily with the three stages of tripping of R1.1. |
| SDT Response | The SDT agrees there should be a time duration given for off frequency operation in R2 of the UFLS standard. The standard has been modified to define curves above and below which generator underfrequency and overfrequency protection, respectively, must be modeled. These curves are the same as the proposed curves in PRC-024-1. | |
| Edison | Yes | EMMT's current UFLS capability is for 58.5 Hz. EMMT is unsure if the wind generator turbines can run at the new setting, this will need to be studied by the OEM. EMMT would suggest a variance for existing facilities, and that facilities comply with the standards in place on market date. This new setting may cause generators to incur unreasonable expenses. What is the methodology driving this change? |
| SDT Response | Will the modified R2 standard address your concerns? The SDT agrees there should be a time duration given for off frequency operation in R2 of the UFLS standard. The standard has been modified to define curves above and below which generator underfrequency and overfrequency protection, respectively, must be modeled. These curves are the same as the proposed curves in PRC-024-1, Attachment 1. R2 has been modified as shown below. Each Generator Owner with individual generating units greater than 20 MVA (gross nameplate rating) or generating plant/Facilities greater than 75 MVA (gross nameplate rating) directly connected to the BES shall verify by review of relay settings, generator control system settings, and generator operating guides that their generating unit(s) will not trip above the Generator Under Frequency curve in Attachment 1 and will not trip below the Generator Over Frequency curve in Attachment 2. Should this not be practical due to the operating characteristics of certain units, the Generator Owner shall arrange for Load shedding to be installed in addition to that required Load shedding as listed in R3. | |
| Golden Spread | No | |
| NextEra Energy (Florida) | | |
| OMPA | Yes | Possible - not sure about those that are currently not required. It all depends on the SPP determination of which have material impact on the Bulk Electric System |
| SDT Response | The SDT does not remember using the wording material impact, but did use adverse impact. The SDT has modified R2 to address your concerns and eliminate the wording adverse impact. | |
| SPA | No | SPA is not a Generator owner or Operator; however, R2 in the most recent draft references conditions above 57.8Hz , not 58.0 Hz as stated in question #3 of this comment form. |
| SDT Response | Here is the current R2 requirement from PRC-006-SPP-01 draft 2. Each Generator Owner or generator identified in Applicability shall verify by review of relay settings, generator control system settings, and generator operating guides that their generating unit(s) will not trip during low frequency conditions above 58.0Hz. | |

Consideration of Comments – Second Draft of PRC-006-SPP-01—Automatic Underfrequency Load Shedding Program

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| | <p>Should this not be practical due to the operating characteristics of certain units, the Planning Coordinator shall study the resulting loss of generation to determine if there is any adverse impact on the system. If there is an adverse impact, the Generator Owner or generator identified in Applicability shall be required to arrange for Load shedding to be installed by mutual agreement with Distribution Providers, Load-Serving Entities, and/or Transmission Owners with end-use Load customer(s) connected to their Facilities, in addition to that required Load shedding as listed in R1.</p> <p>R2 is recommended to be modified as follows and has been renumbered in the standard:</p> <p>Each Generator Owner with individual generating units greater than 20 MVA (gross nameplate rating) or generating plant/Facilities greater than 75 MVA (gross nameplate rating) directly connected to the BES shall verify by review of relay settings, generator control system settings, and generator operating guides that their generating unit(s) will not trip above the Generator Under Frequency curve in Attachment 1 and will not trip below the Generator Over Frequency curve in Attachment 2. Should this not be practical due to the operating characteristics of certain units, the Generator Owner shall arrange for Load shedding to be installed in addition to that required Load shedding as listed in R3.</p> | |
| SPRM | No | |
| SPS | Yes | <p>SPS feels this requirement is poorly written. A flat low frequency trip point of 58 Hz is unacceptable. As written, SPS would be required to operate its units indefinitely at any frequency above 58. Version 1 of this proposed standard stated that the generator owner could not trip a unit above the lowest load shedding value which is 58.7Hz (that is what is currently in the SPP Criteria that SPS operates to today). Currently, SPS has a two level trip scheme on all generator under-frequency relays in its system that operate with the following specs:</p> <p>58.5 Hz with a 60 second time delay, or 57 Hz with a 2 second time delay.</p> <p>Values of this nature are common in industry and are used to protect the turbines. SPS believes that these values and time delays (or shorter) be adopted. If approved as is, there is the potential to catastrophically damage turbines and introduce significant safety hazards to the plants. To our knowledge, there are no turbine manufacturers that would allow indefinite operation at that level.</p> |
| SDT Response | <p>The current standard would not require SPS to operate its units indefinitely at any frequency above 58 Hz. The states if generating units trip above 58Hz the Planning Coordinator shall study the resulting loss of generation. Here is the current R2 requirement from PRC-006-SPP-01 draft 2.</p> <p>Each Generator Owner or generator identified in Applicability shall verify by review of relay settings, generator control system settings, and generator operating guides that their generating unit(s) will not trip during low frequency conditions above 58.0Hz. Should this not be practical due to the operating characteristics of certain units, the Planning Coordinator shall study the resulting loss of generation to determine if there is any adverse impact on the system. If there is an adverse impact, the Generator Owner or generator identified in Applicability shall be required to arrange for Load shedding to be installed by mutual agreement with</p> | |

Consideration of Comments – Second Draft of PRC-006-SPP-01—Automatic Underfrequency Load Shedding Program

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| | <p>Distribution Providers, Load-Serving Entities, and/or Transmission Owners with end-use Load customer(s) connected to their Facilities, in addition to that required Load shedding as listed in R1.</p> <p>The SDT agrees with your recommendation and has modified R2 as follows:</p> <p>Each Generator Owner with individual generating units greater than 20 MVA (gross nameplate rating) or generating plant/Facilities greater than 75 MVA (gross nameplate rating) directly connected to the BES shall verify by review of relay settings, generator control system settings, and generator operating guides that their generating unit(s) will not trip above the Generator Under Frequency curve in Attachment 1 and will not trip below the Generator Over Frequency curve in Attachment 2. Should this not be practical due to the operating characteristics of certain units, the Generator Owner shall arrange for Load shedding to be installed in addition to that required Load shedding as listed in R3.</p> | |
| SUNC | No | All our generators currently have proven trip points lower than 58.0 HZ. |

Additional Comments:

| Organization | Comments: |
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| AECC | <p>Section 4.2 (1) "any other entity" This term is unambiguous. The applicability of a standard needs to clearly state in unambiguous terms who the standard applies too. "any other entity" has been removed from Section 4.2</p> <p>(2) If the Regional Entity has determined that an entity has material impact on the Bulk Electric System then that entity should be registered with NERC as DP or LSE. "any other entity" has been removed from Section 4.2</p> <p>(3) This standard applies to Distribution Providers which are not directly responsible for load and not to LSEs which are. Why is the standard not applicable to LSEs? In SPP, most DP's are also registered as LSE's. Also NERC Statement of Compliance Registry Criteria Revision 5, Section III.b.2 identifies the Distribution Provider responsibilities listed below. http://www.nerc.com/files/Statement_Compliance_Registry_Criteria-V5-0.pdf</p> <p style="padding-left: 40px;">III.b.2 Distribution provider is the responsible entity that owns, controls, or operates facilities that are part of any of the following protection systems or programs designed, installed, and operated for the protection of the bulk power system:</p> <ul style="list-style-type: none"> • a required UFLS program. • a required UVLS program. • a required special protection system. • a required transmission protection system. <p>[Exclusion: A distribution provider will not be registered based on these criteria if responsibilities for compliance with approved NERC reliability standards or associated requirements including reporting have been transferred by written agreement to another entity that has registered for the appropriate function for the transferred responsibilities, such as a load-serving entity, balancing authority, transmission operator, G&T cooperative, or joint action agency as described in Sections 501 and 507 of the NERC Rules of Procedure.]</p> <p>Section 4.2 Same comment as (1) in 4.2</p> <p>R1 "end-use Load entities" This term is unambiguous. The requirements should also spell out very clearly who they apply too. The NERC functional entities should be specifically listed. "end-use Load entities" has been removed from R1</p> |

R1.1 AECC is opposed to maximum limits in Step 1 and 2.

R1 has been modified.

R1.2

(1) "end-use Load entities" See comment for R1.

(2) It is not clear what will be required by April 1. The program is based on the Forecasted Peak Native Load which is a projection for the upcoming year but this requirement is asking for a percentage based on a current year value. As I interpret this you are asking for example in April 2010 report 2010 load as a percentage of my 2011 forecasted peak. OR are you asking for 2010 load as a percentage based on the 2010 projection that was done in 2009?

Based on the latest load forecast, as of April 1 of the current calendar year.

R1.5

(1) "Applicable entities" See comment for R1.

(2) Islanding Schemes are more of a transmission operations function rather than a Transmission Owner. The standard doesn't apply to Transmission Operators. In this respect the standard needs to apply to Transmission Operators.

Planning Coordinator will be responsible for determining islanding schemes activated before all three steps.

R2

(1) As AECC has voiced in its comments to Draft 1, the concept of forcing a Generator Owner to contract for load shed with another party is out of bounds for what should be required in a standard. It is questionable as to whether SPP would have the authority to do so. It would be expected that any attempt by SPP to force an entity to enter into any type of contractual agreement just to meet a standard would be challenged.

R2 has been modified.

(2) The burden of this standard already rest primarily on the load. The DP will have met its obligations and should not be forced to suffer additional load shed responsibility due to a generator not being able capable of doing its part. At most the standard should recognize where these generators are and know the impact they will have on the BES. No program will be perfect. There may be areas where problems exist and mitigation not possible. Knowing these limitations and the impacts is part of the PCs job (R5). It is suggested that the definition of a "NON-Credible Island" be defined, these areas be identified, their impacts determined and if mitigation is possible be provided.

R2 has been modified.

(3) What amount would the Generator Owner have to contract for? Full amount of the generation?

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| | <p>R2 has been modified and the amount of arranged load shedding is stated in the requirement.</p> <p>R2.1 "This additional load shedding" Which additional load shedding? Unambiguous.</p> <p>This additional Load shedding shall be equal to or greater than the maximum amount of generation that can be tripped, instituted at the same frequency and time delays as the generator would be expected to trip at and shall be within the same island.</p> <p>R3 (1) "Applicable entities" Same comment as previously stated. Unambiguous term. (2) Some of this information is sensitive, such as that required in R3.2, and should only be provided subject to confidentiality.</p> <p>Data submitted to the Planning Coordinator and their consultants will be kept confidential.</p> <p>(3) SPP needs to realize that some entities reporting compliance to SPP may have to deal with Planning Coordinators other than SPP. There needs to be a requirement that based on having this information available PCs will do their job without preferential treatment and the the information will not be used for any purposes other than that for which it was supplied.</p> <p>Information submitted to the Planning Coordinator and their consultants will be kept confidential and will not be used for any other purposes.</p> <p>R6 As stated in an earlier comments, no program is perfect. Mitigation may not be possible. The standard fails to address how these situations may be handled in the event one should arise.</p> <p>There is no waiver provision in the proposed standard; however, we have modified the standard to address some of these concerns.</p> <p>M1, M2, M3, & M6 all contain unambiguous terms like "each identified in Applicability", "designated entity" and "each applicable entity". Measures should be more specific in similar manner as requirements.</p> |
| AEP | <p>(1) Pursuant to Requirement 2, AEP supports the reliability need for the generator to review relay settings, generator control system settings, and generator operating guides to establish where their units will trip during low frequency conditions and advise the Planning Coordinator accordingly. However, the obligation imposed in Requirement 2 for the GO to arrange for Load Shedding to be installed by mutual agreement with Distribution Providers, Load-Serving Entities, and/or Transmission Owners with end-use load customers connected to their facilities is not a practical approach. Distribution Providers are required, per Requirement 1, to develop implement an automatic UFLS program. The Distribution Provider approach is the most suitable since these entities have an established relationship with customers from which program parameters and logistics may be defined and performed. Typically, the GO does not have such end-use customer relationships and cannot require such end-use customers to enter into load shedding agreements for UFLS events.</p> <p>R2 has been modified. "Mutual agreement" has been removed. R2 is recommended to be modified as follows and has been renumbered in the standard:</p> |

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| | <p>Each Generator Owner with individual generating units greater than 20 MVA (gross nameplate rating) or generating plant/Facilities greater than 75 MVA (gross nameplate rating) directly connected to the BES shall verify by review of relay settings, generator control system settings, and generator operating guides that their generating unit(s) will not trip above the Generator Under Frequency curve in Attachment 1 and will not trip below the Generator Over Frequency curve in Attachment 2. Should this not be practical due to the operating characteristics of certain units, the Generator Owner shall arrange for Load shedding to be installed in addition to that required Load shedding as listed in R3.</p> <p>(2) The concept of the Planning Coordinator periodically conducting and documenting a technical assessment of the design of the UFLS "program" in Requirement R4.1.a. suggests that clarity be provided as to what specifically composes a "program." In what form? Written? Elements to be included? To what detail?, etc. It should also be noted that the reference to standard (PRC-006) may suggest that this requirement is duplicative and may need to be removed.</p> <p>R4 has been modified to address this comment.</p> <p>(3) For Requirement 3, AEP suggests that the phrase "As specified and documented by the Planning Coordinator," follow the leading subject "Applicable entities" and before "shall maintain" Such specification and documentation of applicable entities should include a determination of which entities are responsible for providing which of the 11 UFLS data items included in Requirement 3. Also, for compliance penalty purposes please provide the accuracy level intended for R3.1. Does the omission of a single relay from thousands represent a compliance violation?</p> <p>This will be addressed when the Violation Severity Level has been identified for each requirement.</p> <p>Will the "number of UFLS relays installed" have a reliability purpose for the Planning Coordinator in the UFLS process?</p> <p>Yes, this number is critical for the analysis and technical assessment.</p> <p>R3 has been modified to address this comment.</p> <p>(4) Please specify in R1.4 of the standard whether 85% of nominal voltage is "85% of nominal primary voltage" or "85% of nominal secondary voltage."</p> <p>The undervoltage inhibit shall be set as low as practical, but shall not be greater than 85 percent of nominal voltage. Primary and secondary voltage should be the same.</p> |
| BPU | <p>In general it appears the wide ranges, and the single reference point of forecasted peak native load, should be such that we can pick from our 15 reasonably available distribution circuits to meet compliance with R1.1 (in fact we do plan to use all 15 reasonably available circuits to meet this proposed standard). However, in the event that in the future we encountered difficulty summing to the required percentages, will there still be a means by which we could request a waiver - that is a formal exclusion from the requirement, with a different process to achieve the same criteria or standard goal, such that an approved waiver could be used for compliance evaluations?</p> <p>There is no waiver provision in the proposed standard; however, we have modified the standard to address some of these concerns.</p> <p>As an example of what may set us apart, we are a smaller utility and yet we serve one of three refineries in the state of Kansas. We do not</p> |

Consideration of Comments – Second Draft of PRC-006-SPP-01—Automatic Underfrequency Load Shedding Program

| | |
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| | <p>plan to select any of the circuits serving the refinery as circuits to trip by UFLS as we believe fundamentally a purposeful trip poses a safety issue, and, recognizing that we do not have expertise to make this statement, it would seem to possibly also be a security issue. Thus we will be attempting to shed the same percentages of our load as other entities, but we will be working with a significantly reduced portfolio of available load to trip for under frequency. In addition, we serve two cities that are wholesale customers, and we hope to exclude the corresponding circuits from our UFLS as a trip would put an entire city out of electricity. Again, this reduces the load we have available to select from in designing a UFLS program for our utility.</p> <p>SDT has revised Requirement R1 and created a new R3.2 to address your concern of being a small utility.</p> |
| Golden Spread | <ol style="list-style-type: none"> 1. We continue to be concerned about the Applicability section, which appears to indicate that SPP wants to make the standard applicable to entities that are not registered for particular functional categories, but which SPP determines may nevertheless have an impact on the Bulk Power System. Pursuant to the Statement of Compliance Registry Criteria, if SPP believes an unregistered entity has a material effect on the BPS, SPP should require that entity to register for the appropriate function(s), subject to the entity’s right to contest SPP’s decision. SPP should not try to promulgate a standard that applies to unregistered entities. <p>The SDT has modified the Applicability Section. Words such as “any other entity” and “material impact” have been removed.</p> <ol style="list-style-type: none"> 2. The Implementation Plan is currently listed as TBD. Will this be sent out for comment when defined? Will the implementation plan address the phase in period for distribution providers that elect to install UFLS? <p>The implementation plan section is removed and detailed phase in approach is added in the Effective Date section to address this comment.</p> <ol style="list-style-type: none"> 3. The SPP needs to clarify if there are any additional requirements of a distribution provider that elects have existing UFLS removed by the transmission owner and installed on their own distribution facilities. <p>There will not be any additional requirements for the Distribution Provider.</p> <ol style="list-style-type: none"> 4. Will SPP further address the interaction and roles of each entity in the SPP region following a UFLS condition, or rely on PRC-009? <p>PRC-009 will be retired after the NERC PRC-006 Continent wide standard is approved. In lieu of PRC-009, SPP SDT has added R6 in the latest SPP UFLS standard.</p> |
| NextEra Energy (Florida) | <p>NextEra Energy Resources wishes to thank the standard drafting team for their work on this important standard and hereby submits comments on the proposed PRC-006 SPP Regional Reliability Standard.</p> <p>Our comments focus specifically on two aspects of R2.</p> <p>(1) The term “adverse impact” appears in several areas of R2 with no clear definition for what it means. The term should be defined and the standard should clearly mandate that determination of “adverse impact” should be based on consistent, reasonable, and accepted engineering methods. The methods and outcomes should be available for review upon request by the regional entity and neighboring entities.</p> <p>SDT has revised Requirement R2 and has removed the term “adverse impact”.</p> <p>(2) R2 also states that the generator will be responsible for "arranging" for UFLS to be installed "...by mutual agreement with Distribution Providers, Load-Serving Entities, and/or Transmission Owners with end-use Load customer(s) connected to their Facilities, in addition to that required Load shedding as listed in R1." It is unclear how the generator is to arrange for this load shedding. What if the transmission owner or distribution provider refuse to shed load for a generator owner? What if they want compensation to shed load or even just to maintain the ability to shed this load if required? Generators do not have load to shed, and should not be involved in shedding load. If a generator has equipment limitations that prevent remaining on line during an under frequency event, then the TO or DP should be informed of these limitations. Generators should be required to have no tripping for under frequency inside the region described in the standard unless the generator can demonstrate that tripping must occur to prevent equipment damage.</p> <p>SDT has revised Requirement R2 and has removed the wording “by mutual agreement with Distribution Providers, Load-Serving Entities, and/or Transmission Owners with end-use Load customer(s) connected to their Facilities”.</p> |

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| | <p>The SDT has changed R2 from a single frequency trip point which would require a generator to operate indefinitely. The standard has generator underfrequency trip modeling curves and overfrequency trip modeling curves. These curves are the same as the proposed curves in PRC-024-1.</p> |
| OMPA | <p>In the Applicability section of the draft standard PRC-0060SPP-01, 4.3 states “Generator Owners and any owners of generation not registered as a Generator Owner determined by the Regional Entity to have material impact on the Bulk Electric System.” What is the process that SPP will use for making this determination? Will it be documented?</p> <p>The SDT has modified the Applicability Section to just “Generator Owners”</p> |
| SPA | <p>R3 - (DT) R3.6 - In order to maintain consistency with the statements in R1.2 the statements in R3.6 should read: Total amount of calendar year forecasted peak native load shed by each trip frequency and the total amount of calendar year forecasted peak native load the entity has.</p> <p>R3.6 has been modified.</p> <p>R3.5 - How do you measure unintentional delay?</p> <p>Unintentional delay can be obtained from the specification section in the relay manual. This may include relay process time and relay contact time.</p> <p>R4 - Revise R4 to read: " The Planning Coordinator shall create and maintain an UFLS database. This database shall include all information identified in R3."</p> <p>R4 has been modified.</p> <p>R4.1 The Planning Coordinator shall periodically review the effectiveness of this Regional UFLS program according to the time lines provided in the FERC approved NERC PRC-006 Standard.</p> <p>R4.1 has been modified.</p> <p>(SWPA) - Shouldn't require the same thing in more than one standard. The time line is already identified in the continent-wide standard.</p> <p>Revise R5 to read: The Planning Coordinator shall determine if there are any islands that require study based on regional UFLS design or actual UFLS events.</p> <p>Revise R6 to R5.1 and do away with R6. R5.1 - Identified islands shall be analyzed by the Planning Coordinator and the affected entities to determine if any additional UFLS capability should be installed, and how that capability should be implemented.</p> <p>R5 and R6 have been modified.</p> |
| SPRM | <p>a. There is still some confusing language in the standard related to applicability that in my opinion isn't needed. The Applicability section and the Requirements should only state which Functional Entity the standard applies to. All other language trying to explain exactly which Transmission Owners, Distribution Providers, Generator Owners and/or Planning Coordinators should be handled during registration and/or the Compliance Monitoring and Enforcement Process. The SPP Regional Entity should know if it applies to a particular entity (currently registered or not) based on the results of the assessment required in R4.</p> <p>b. Should M1 say "...evidence that its UFLS scheme meets the planning (instead of performance) requirements in</p> |

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| | |
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| | <p>R1.”? R1 has been modified.</p> |
| SPS | <p>Please clarify that R1, R3 and R6 do not apply to the Generator Owner. R1 and R3 would not apply to the Generator Owner. R6 would apply to all applicable entities in the island to include the Generator Owner to assess Gnerator/load imbalances, trip points, etc.</p> <p>Under Applicability, SPS would like to see a clearer definition of which Generator Owners this standard applies to. The assumption is that the SDT is trying to capture wind generation attached to the distribution system. The previous version (version 1) had specific generation levels for units, or aggregate levels. The applicability section has been changed to state “Generator Owners”. Requirement R2 has been modified to identify which Generator Owners. R2 reads “Each Generator Owner with individual generating units greater than 20 MVA (gross nameplate rating) or generating plant/Facilities greater than 75 MVA (gross nameplate rating) directly connected to the BES…….”</p> <p>SPS would also like to see a definition for "end-use Load entities". How these are identified is unclear, as well as how these entities would be held to compliance with this standard, especially if they are not a registered entity. “end-use Load Entities” has been removed from the standard.</p> <p>Under Applicability, how is "authorized" as a Planning Coordinator different than being registered as a Planning Coordinator? SPS would suggest using only the term "Planning Coordinator". The applicability section has been changed to state “Planning Coordinator”.</p> <p>SPS would suggest that the requirements under R2 be broken out into separate requirements, to make measuring compliance more straight-forward. R2 has been modified.</p> <p>SPS would suggest eliminating R4.1 by incorporating the 2nd sentence in with R4. R4.1a should be made a stand-alone requirement, as it has no relation to either R4 or R4.1. R4 has been modified.</p> <p>SPS would like to see clarification as to who determines the "Credible Islands": “Credible Islands” has been removed and the definition has been removed.</p> <p>Under R5, it is unclear if the RC must share the results of the assessment with any other entity, and if so, what happens if the entity chooses to not take any action based on the assessment? Yes the results would be shared. R5 has been modified and a new R1 and R2 created.</p> |
| SUNC | <p>Applicability: 4.2 Extremely broad language essentially giving SPP authority for ANY load determined by the regional entity to have a material impact on the Bulk Electrical System. Need to be consistent with NERC Statement of Compliance Registry Criteria’s registration requirements for Load-</p> |

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Serving Entities (“LSEs”) or Generator Owners (“GOs”). Specifically, the Registration Criteria limit registration for LSEs to those entities having peak loads of greater than 25 MW and a direct connection to the Bulk Electric System or designated as the responsible entity for facilities that are part of required Under-Frequency Load Shedding (“UFLS”) or Under-Voltage Load Shedding programs.

The SDT has removed the wording “any other entity with end-use load” and “material impact on the Bulk Electrical System” from the applicability section.

4.3 Same as 4.2. Extremely broad language giving SPP extraordinary powers over any generator determined by the RE to have material impact on the Bulk Electrical System even if they are not currently registered as a Generator Owner.

The SDT has removed the wording “material impact on the Bulk Electrical System” from the applicability section.

R5. An essential function of the Planning Coordinator. We have two utilities located inside our Balancing Area. Neither of them have generation to balance their native system load. At 58 HZ. our system would separate from the Bulk Electrical System and these two utilities load would have to be served by our generation. This requirement will study the situation and enforce additional UFLS tripping to assure the Credible Island remains stable.

Generator Under Frequency and Over Frequency curves were added to ensure performance characteristics are met and frequency restored prior to 58.0Hz. A new requirement R1 was added for the Planning Coordinator to identify island(s) as a basis for designing a UFLS program and created requirement R2 which is the assessment and mitigation plan for the UFLS program.

R6. We applaud the intent of R6. The requirement is written concisely. Nice job by the drafting team on this one.

Thank you for your comment.

Title: SPP Automatic Underfrequency Load Shedding

A. Introduction

1. **Title:** Southwest Power Pool (SPP) Automatic Underfrequency Load Shedding
2. **Number:** PRC-006-SPP-01
3. **Purpose:** To develop, coordinate and document requirements for automatic underfrequency load shedding (UFLS) programs to arrest declining frequency and assist recovery of frequency following underfrequency events
4. **Applicability:**
 - 4.1. Planning Coordinator
 - 4.2. Distribution Provider or any provider that does not have an agreement with a Transmission Owner to provide UFLS (referred to hereafter as a UFLS Participating Distribution Provider)
 - 4.3. Transmission Owner that has an agreement to provide UFLS for a Distribution Provider (referred to hereafter as a UFLS Participating Transmission Owner)
 - 4.4. Generator Owners
5. **Effective Date:** Requirements R1, R6 and R7 shall become effective 1 year after the first day of the first quarter following regulatory approval. This 1 year period is needed to allow time for Planning Coordinator to perform the studies necessary to assess the effectiveness of the UFLS program.

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

B. Requirements

- R1. The Planning Coordinator shall identify an island(s) as a basis for designing a UFLS program. These islands shall be chosen from historical events, system studies, any portion of the BES that are designed to be detached from the interconnection (planned islands) as a result of the operation of a relay scheme or special protection system, or any other islands necessary to ensure that all portions of the region's BES are included in at least one island. Identified islands will be assessed to determine if any additional UFLS capability should

Title: SPP Automatic Underfrequency Load Shedding

be installed and how it should be designed and implemented. [VRF: Medium][Time Horizon: Long-term Planning]

R2. Each Participating Distribution Provider, Participating Transmission Owner and Generator Owner identified in those island(s) identified in R1 shall participate with the Planning Coordinator in an engineering assessment and mitigation plan that specifically address the Generation/Load imbalances. [VRF: High][Time Horizon: Long-term Planning]

R3. Each Participating Distribution Provider and Participating Transmission Owner shall develop and implement an automatic UFLS program. Participating Distribution Providers and Participating Transmission Owners may coordinate with other Participating Distribution Providers or Participating Transmission Owners to collectively implement the UFLS scheme. [VRF: High][Time Horizon: Long-term Planning]

The automatic UFLS program shall include the following requirements:

3.1. Automatic UFLS program for Participating Distribution Providers and Participating Transmission Owners that have a total Load greater than 100 MW shall be initiated in three separate steps as indicated in the table below.

| (1) UFLS Step | (2) Frequency (hertz) | (3) Minimum accumulated load relief as percentage of forecasted peak Native Load (%) | (4) Maximum accumulated load relief as percentage of forecasted peak Native Load (%) |
|---------------------|-----------------------------|---|---|
| 1 | 59.3 | 10 | 15 |
| 2 | 59.0 | 20 | 30 |
| 3 | 58.7 | 30 | 45 |

3.2. Automatic UFLS program for Participating Distribution Providers and Participating Transmission Owners that have a total Load less than 100 MW and have not aggregated their Load with other Participating Distribution Providers or Participating Transmission Owners to implement a collective UFLS program shall implement the following requirements:

Title: SPP Automatic Underfrequency Load Shedding

- 3.2.1.** Must have a minimum of one UFLS step with the frequency set point as assigned by the Planning Coordinator.
 - 3.2.2.** The Minimum accumulated Load Relief shall be at least 30% of the forecasted peak system load.
 - 3.3.** The intentional relay time delay for UFLS shall not be greater than 30 cycles.
 - 3.4.** Undervoltage inhibit shall be set as low as practical, but shall not be greater than 85 percent of nominal voltage.
 - 3.5.** Each Participating Distribution Provider and Participating Transmission Owner electing to use islanding schemes shall only operate after all 3 steps of UFLS have been exhausted and the frequency continues to fall below 58.5Hz.
- R4.** Each Participating Distribution Provider and Participating Transmission Owner shall report by April 1st of each year to the Planning Coordinator the amount of Load as a percentage of forecasted peak system load it expects to automatically shed for each step identified in R3.1 or R3.2 for the current calendar year. [VRF: Lower][Time Horizon: Long-term Planning]
- R5.** The Planning Coordinator shall create and maintain an UFLS equipment database. This database shall include all information identified in R7. [VRF: Lower][Time Horizon: Long-term Planning]
- R6.** The Planning Coordinator shall periodically conduct and document a technical assessment of the effectiveness of the design of the UFLS program. [VRF: Medium][Time Horizon: Long-term Planning]
 - 6.1.** These assessments shall be completed at least every five years or within one year for any of the following situations:
 - An actuation of UFLS resulting in 500 MW or greater loss of load.
 - Design changes are made to the scheme parameters.
 - Changes to the boundaries of a specified island are identified.
- R7.** Each Participating Distribution Provider, Participating Transmission Owner and Generator Owner shall maintain and submit the following UFLS data to the Planning Coordinator at least every 5 years or within (30) calendar days upon request from the Planning Coordinator: [VRF: Medium][Time Horizon: Long-term Planning]

Title: SPP Automatic Underfrequency Load Shedding

- 7.1.** Each Participating Transmission Owner and Participating Distribution Provider shall supply the following:
 - 7.1.1.** Number of UFLS relays installed.
 - 7.1.2.** Facility location of installed UFLS relays.
 - 7.1.3.** Breaker, circuit switcher, or device identification the UFLS relays are tripping.
 - 7.1.4.** Trip frequency for each installed relay.
 - 7.1.5.** Total time delay of each UFLS relay scheme, including the intentional relay delay, unintentional relay delay, and breaker operating time.
 - 7.1.6.** Total amount of forecasted peak system load shed by each trip frequency and the total amount of forecasted peak system load the entity has.
 - 7.1.7.** Tie tripping schemes.
 - 7.1.8.** Islanding schemes and the frequency at which they operate.
 - 7.1.9.** Undervoltage inhibit settings for each installed relay.
 - 7.1.10.** A map or chart which shows additional automatic actions that will be taken below a frequency of 58.7Hz shall be furnished to the Planning Coordinator.

- 7.2.** Each Generation Owner shall supply the following:
 - 7.2.1.** Underfrequency trip set points.
 - 7.2.2.** Overfrequency trip set points
 - 7.2.3.** Time Delays
 - 7.2.4.** Provide the data specified in R7.1 for any additional arranged load shed per R8.1. Also, specify the provider of the additional arranged load shed.

- R8.** Each Generator Owner with individual generating units greater than 20 MVA (gross nameplate rating) or generating plant/Facilities greater than 75 MVA

Title: SPP Automatic Underfrequency Load Shedding

(gross nameplate rating) directly connected to the BES shall verify by review of relay settings, generator control system settings, and generator operating guides that their generating unit(s) will not trip above the Generator underfrequency curve in Attachment 1 and will not trip below the Generator overfrequency curve in Attachment 2. Should this not be practical due to the operating characteristics of certain units, the Generator Owner shall arrange for Load shedding to be installed in addition to that required Load shedding as listed in R3. [VRF: Medium][Time Horizon: Long-term Planning]

- 8.1.** This additional Load shedding shall be equal to or greater than the maximum amount of generation that can be tripped, instituted at the same frequency and time delays as the generator would be expected to trip and shall be within the same island.

Title: SPP Automatic Underfrequency Load Shedding

C. Measures

The following documentation will be used to determine compliance with the above requirements.

- M1.** The Planning Coordinator shall have evidence that islands were studied as required in R1.
- M2.** Each applicable entity identified in areas of island shall have evidence of an engineering assessment and mitigation plan per requirement R2.
- M3.** Each Participating Transmission Owner and Participating Distribution Provider shall have evidence that its UFLS scheme meets requirement R3.
- M4.** Each Participating Distribution Provider and Participating Transmission Owner shall have evidence of reporting load requirement per R4.
- M5.** The Planning Coordinator shall have evidence that it established and maintained an UFLS database as required in R5.
- M6.** The Planning Coordinator shall have evidence that it performed technical assessment per requirement R6.
- M7.** Each Participating Distribution Provider, Participating Transmission Owner and Generator Owner shall have evidence that the information as required in R7 was supplied to the Planning Coordinator.
- M8.** Each Generator Owner shall have evidence that it complies with the R8 or has made arrangements for additional Load shedding, if appropriate, as required in R8.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

SPP Regional Entity

1.2. Compliance Monitoring Period and Reset

Upon request (within 30 calendar days)

1.3. Data Retention

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Six years

1.4. Compliance Monitoring and Assessment Process

Text

1.5. Additional Compliance Information

None

2. Violation Severity Levels

| R # | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|-----------|--|--|--|
| R1 | N/A | N/A | N/A | The Planning Coordinator did not have documentation that identified an island(s). |
| R2 | N/A | N/A | N/A | Participating Distribution Provider, Participating Transmission Owner and or Generator Owner did not participate with the Planning Coordinator in an engineering assessment and mitigation plan that specifically address the Generation/Load imbalances |
| R3.1 | N/A | Participating Distribution Provider and or Participating Transmission Owner did not demonstrate one of the three separate steps as | Participating Distribution Provider and or Participating Transmission Owner did not demonstrate two of the three separate steps as | Participating Distribution Provider and or Participating Transmission Owner did not demonstrate any of the three separate steps as indicated in the table |

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| | | indicated in the table | indicated in the table | |
|-------------|---|---|---|---|
| R3.2 | N/A | N/A | Participating Distribution Provider and or Participating Transmission Owner did not demonstrate one UFLS step with the frequency set point as assigned by the Planning Coordinator OR Did not demonstrate the minimum accumulated load relief less than 30 % of forecasted system peak load | Participating Distribution Provider and or Participating Transmission Owner did not demonstrate one UFLS step with the frequency set point as assigned by the Planning Coordinator AND Did not demonstrate the minimum accumulated load relief less than 30 % of forecasted system peak load |
| R4 | Participating Distribution Provider and or Participating Transmission Owner did report by May 1 st to the Planning Coordinator the amount of load as a percentage of forecasted peak system Load it expects to automatically shed for each step identified in R3.1 or R3.2 for the current calendar year | N/A Participating Distribution Provider and Participating Transmission Owner did not report to the Planning Coordinator the amount of load as a percentage of forecasted peak system Load it expects to automatically shed for each step identified in R3.1 or R3.2 for the current calendar year | N/A | Participating Distribution Provider or Participating Transmission Owner did not report to the Planning Coordinator within 12 calendar months the amount of load as a percentage of forecasted peak system Load it expects to automatically shed for each step identified in R3.1 or R3.2 for the current calendar year N/A |

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| <p>R5</p> | <p>The Planning Coordinator did create and maintain UFLS equipment database with part of the information identified in R7</p> | <p>The Planning Coordinator did create but failed to maintain UFLS equipment database with all the information identified in R7</p> | <p>The Planning Coordinator did not create and maintained UFLS equipment database with all the information identified in R7N/A</p> | <p>The Planning Coordinator did not create and maintained UFLS equipment database with all the information identified in R7N/A</p> |
| <p>R6</p> | <p>The Planning Coordinator conducted and performed technical assessment after five years or within two years after one of the situations listed in 6.1</p> | <p>N/A</p> | <p>N/A</p> | <p>The Planning Coordinator did not conduct and perform technical assessment at least every five years or after one of the situations as listed in 6.1</p> |
| <p>R7</p> | <p>Participating Distribution Provider and or Participating Transmission Owner and or Generator Owner provided required data within 31 to 45 days after the request was made</p> | <p>Participating Distribution Provider and or Participating Transmission Owner and or Generator Owner provided required data within 46 to 60 days after the request was made. OR Participating Distribution Provider or Participating Transmission Owner or Generator Owner did not provide one piece of</p> | <p>Participating Distribution Provider and or Participating Transmission Owner and or Generator Owner provided required data within 61 to 75 days after the request was made. OR Participating Distribution Provider or Participating Transmission Owner or Generator Owner did not provide two pieces of</p> | <p>Participating Distribution Provider and or Participating Transmission Owner and or Generator Owner did not provide required data after the request was made. OR Participating Distribution Provider or Participating Transmission Owner or Generator Owner did not provide any pieces of information listed in R7 1.</p> |

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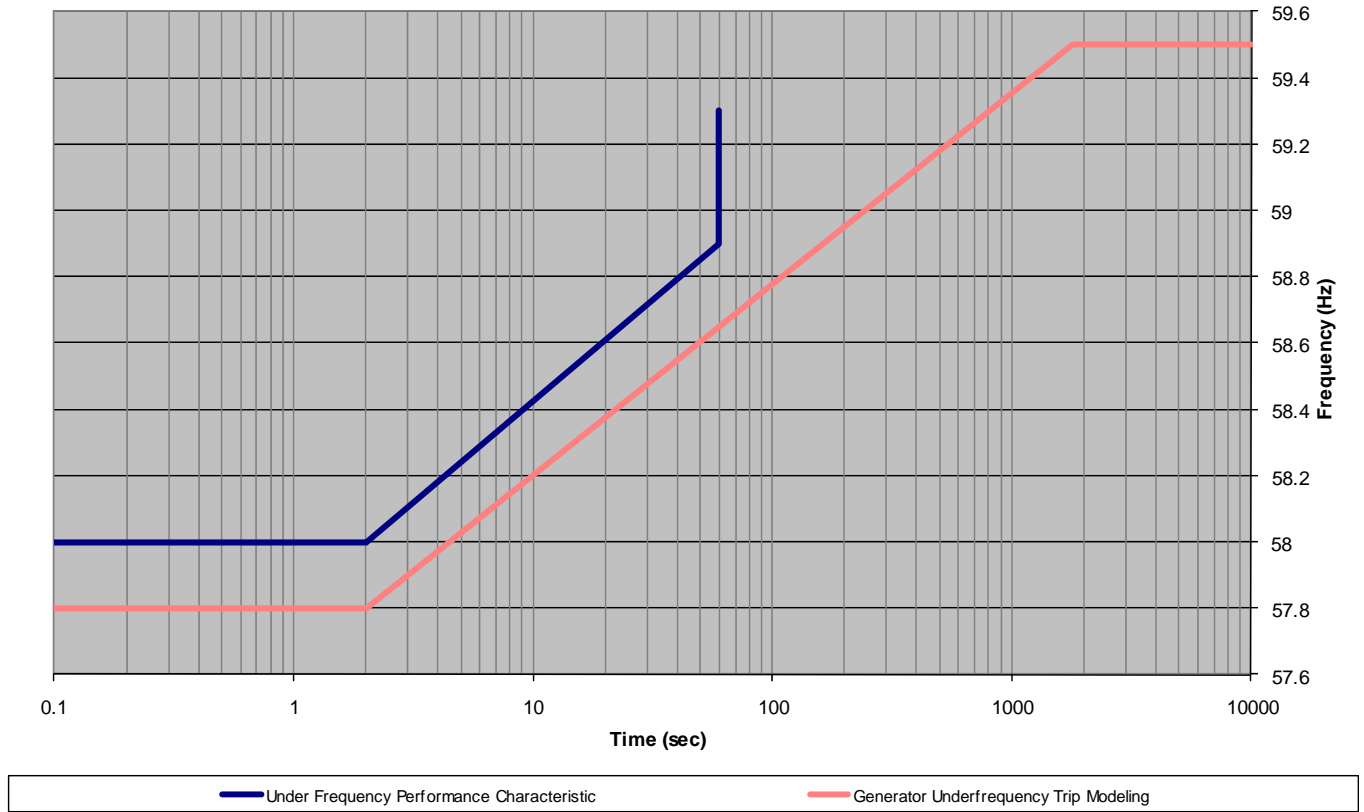
| | | | | |
|-----------|-----|---|---|---|
| | | information listed in R7 | information listed in R7 | |
| R8 | N/A | The Generator Owner did not provide or comply with one of the requirements listed in R8 and 8.1 | The Generator Owner did not provide or comply with two of the requirements listed in R8 and 8.1 | The Generator Owner did not provide or comply with three or more of the requirements listed in R8 and 8.1 |

E. Associated Documents

Version History

| Version | Date | Action | Change Tracking |
|----------------|--------------------------|---|--|
| Draft 1 | 3/31/2009 thru 4/30/2009 | Posted for 1 st Comment Period | Initial version |
| Draft 2 | 8/12/2009 thru 9/30/2009 | Posted for 2 nd Comment Period | Revised to address comments from Draft 1 |
| Draft 3 | 1/13/2010 | | |

**Attachment 1
Underfrequency Curves for Requirements R2**



**Attachment 2
Overfrequency Curves for Requirements R2**

