Item 1 – Administrative:
Shawn Jacobs, Chairman, called the System Protection and Control Working Group (SPCGWG) meeting to order at 9:00 a.m.

Following members were available for this meeting:

Shawn Jacobs   : OG&E
Heidt Melson   : Xcel Energy
Lynn Schroeder : Westar
Ken Zellefrow  : City Utilities, Springfield, MO
Louis Guidry   : Cleco
Tim Hinken     : KCPL
Doug Jackson   : AEP
Bud Averill    : GRDA
Mathew Thykkuttathill : Sunflower Electric
Steve Wadas    : NPPD
Ron McIvor     : OPPD
Paul Crist     : LES
Mak Nagle      : SPP (Secretary)

Other meeting attendees were:
Katy Onnen      : SPP
Alan Wahlstrom  : SPP RE
Jeff Wooldridge : Empire District
Jason Speer     : SPP
Charles Yeung   : SPP
Mike Wech       : SWPA
Fred Meyer      : Empire District
Rick Koch       : NPPD
John Allen      : City Utilities, Springfield, MO
Shane McMinn    : GSEC
Jeff Knottke    : City Utilities, Springfield, MO
Ibrahim Oweis   : FERC

Item 2: SPP UFLS Regional Standard
The SPCWG/SDT discussed some details of the SPP UFLS Regional Standard (Attachment 1 - SPP UFLS Regional Standard Draft - First Draft). SPP staff was asked to check with the SPP RE on whether there were any LSE’s that were registered entities.
Requirements R1.4 and R1.5 were discussed in detail. On R1.4, the discussion centered around the opinion that 20 cycles for the intentional relay time delay needed to be supported on a technical basis. The SDT decided to leave the 20 cycles in the draft to get feedback from the comments submitted on the first draft.

On R1.5, the discussion was about the under voltage inhibit being set at 80% of the nominal voltage. There was some discussion again about supporting this figure on a technical basis. The SDT decided to leave the 80% in the draft to get feedback from the comments submitted on the first draft.

**Item 3: Next Steps and Timeline for SPP UFLS Standard**
The timeline for the overall process for the implementation of the SPP UFLS Standard was discussed (Attachment 2 - SPP UFLS Standard Timeline).

**Item 4: Closing Administrative Duties**
The next net conference has been set up for March 26, 2009 from 1:30 p.m. till 2:30 p.m. The SPCWG/SDT will finalize the SPP Regional UFLS Standard Draft during this meeting.

The net conference was adjourned at 12:00 p.m.

Respectfully submitted,

Mak Nagle, Secretary
A. Introduction

1. Title: SPP Automatic Underfrequency Load Shedding Program

2. Number: PRC-006-SPP-01

3. Purpose: Provide an adequate level of reliability for the Bulk Electric System by implementing a Regional Underfrequency Load Shedding (UFLS) program in accordance with NERC UFLS Continent Wide Reliability Standard.

4. Applicability:

   4.1 Transmission Owners

   4.2 Distribution Providers

      4.2.1. Any supplier of end-use Load not registered as a Distribution Provider may be required to register as a Distribution Provider if the Planning Coordinators or Transmission Planner determines that shedding this load is material to the reliability of the Bulk Electric System.

   4.3 Load-Serving Entities (LSE with a peak load (integrated hourly) > 25MW and is directly connected to the Bulk Electric System (69kV and above).

   4.4 Generator Owners (all generators with an individual nameplate rating or plants, including Wind Generating Stations, with an aggregate nameplate rating of 10 MVA or greater.)

      4.4.1. Generator Owners not meeting the above criteria may be required to register as a Generator Owner if the Planning Coordinators or Transmission Planner determines the generating unit(s) is material to the reliability of Bulk Electric System.

   4.5 Planning Coordinator and Transmission Planner

5. Effective Date: TBD

B. Requirements

R1. Each Distribution Provider, LSE, and Transmission Owner with end-use Load customer(s) connected to their facilities shall implement an automatic UFLS program or shall

Version 1 – DRAFT – 03/24/2009 Approval Date: Page 1 of 6
participate with one or more Distribution Providers, LSE’s, and Transmission Owners with end-use Load customer(s) connected to their facilities to collectively implement a single automatic UFLS program. Entities that participate with other Distribution Providers, LSE’s, or Transmission Owners by mutual agreement may designate and report to SPP a single entity responsible for compliance reporting purposes. The automatic UFLS program shall include the following requirements:

R1.1. Have the capability of automatically shedding at least 30 percent of forecasted peak native load for the upcoming year.

R1.2. Automatic UFLS program shall be initiated in three steps as indicated in the table below.

<table>
<thead>
<tr>
<th>(1) UFLS Step</th>
<th>(2) Frequency (hertz)</th>
<th>(3) Minimum Accumulated Load Relief as Percentage of Forecasted Peak Native Load (%)</th>
<th>(4) Maximum Accumulated Load Relief as Percentage of Forecasted Peak Native Load (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>59.3</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>59.0</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>58.7</td>
<td>30</td>
<td>45</td>
</tr>
</tbody>
</table>

R1.3. The Distribution Provider, LSE, or Transmission Owner shall annually certify by April 1st of each year with the SPP region the amount of load as a percentage of forecasted peak native load it expects to automatically shed for each step identified in R1.2.

R1.4. The intentional relay time delay for UFLS shall not be greater than 20 cycles.

R1.5. Undervoltage inhibit shall be set as low as practical, but shall not be greater than 80 percent of nominal voltage.

R2. Generator Owners shall verify their generating unit(s) shall not trip during low frequency conditions above levels in R1. Should this not be practical due to the operating characteristics of certain units, then the Generator Owner may become compliant by arranging for Load shedding to be installed by mutual agreement with Distribution.

Deleted: (?)
Deleted: shall
Deleted: and
Deleted: maximum operate time delay (Intentional delay + relay delay + breaker delay)
Deleted: 30
Deleted: R2.

Formatted: Indent: Left: 0.5", Hanging: 0.5", Numbered + Level: 4 + Numbering Style: 1, 2, 3, ..., + Start at: 2 + Alignment: Left + Aligned at: 1.75" + Tab after: 2" + Index at: 2", Tabs: 1", List tab + Not at 2" + 2.25"
Provided, LSE’s, or Transmission Owners with end-use Load customer(s) connected to their facilities, in addition to that required Load shedding above.

R2.1. This additional Load shedding shall be equal to or greater than the generator MW dispatch, instituted at the same frequency and time as the generator would be expected to trip. For non-dispatch generators, this additional Load shedding shall be equal to or greater than amount of generation interrupted by UFLS.

R2.2. If the generator is located within a credible island, arrangement for additional Load shedding shall be within the credible island.

R3. The Distribution Providers, LSE’s, Transmission Owners and Generator Owners listed in Section 4 shall maintain and submit the following UFLS data to SPP every 5 years or within 30 calendar days upon request from Planning Coordinator:

R3.1. Number of UFLS relays installed.

R3.2. Location of installed UFLS relays.

R3.3. Breaker, circuit switcher, or device identification the UFLS relays are tripping.

R3.4. Trip frequency for each installed relay.

R3.5. Total Time Delay of each UFLS relay scheme, including the relay delay, intentional and unintentional.

R3.6. Total amount of forecasted peak native load shed by each trip frequency and the total amount of forecasted peak native load the entity has.

R3.7. Under-frequency trip set points and time delays of generating units

R3.8. Tie tripping schemes.

R3.9. Islanding schemes and the frequency at which it operates. Islanding schemes shall only operate after all 3 steps of UFLS have been exhausted and the frequency continues to fall below 58.5Hz.

R4. Transmission Owner, Distribution Provider, and Generator Owner shall analyze and document underfrequency events that occur which are below the initiating set point of their UFLS program. Documentation shall include relay operational data and any associated event analyzing data from such devices as fault, disturbance, or long term trend recorders associated with the UFLS event. Documentation of the analysis shall be provided to SPP and NERC on request. Responsible entities shall provide the requested
Entities that participate with other Distribution Providers, LSE’s, or Transmission Owners by mutual agreement may designate and report to SPP a single entity responsible for documentation for the UFLS event.

The documentation shall include:

R4.1. Overall summary of UFLS event

R4.2. Pre-disturbance system condition

R4.2.1. Electrical overview of system

R4.2.2. System constraints

R4.2.3. System status of generators, transmission lines, and major equipment

R4.3. Initiating UFLS event(s)

R4.3.1. Root cause(s) of the event

R4.3.2. Contributing factors

R4.3.3. Additional factors and events during UFLS not contributing to event

R4.4. Detailed sequence of events to include data requested in R3 and any other significant information.

R4.5. Corrective Actions and Implementation Status

R4.5.1. Including equipment description, discussion, conclusion and recommendations

R4.5.2. Incomplete corrective actions shall be reported to SPP quarterly.

R5. The Planning Coordinator shall maintain a database with information of the UFLS program.

R5.1. The Planning Coordinator shall update and maintain the UFLS equipment database. This database shall include all information identified in R3 which

Deleted: Transmission Owner, Distribution Provider, and Generator Owner shall analyze and document underfrequency events that occur which are below the initializing set point of their UFLS program. Documentation shall include relay operational data and any associated event analyzing data from such devices as fault, disturbance, or long term trend recorder associated with the UFLS event. Documentation of the analysis shall be provided to SPP and NERC on request. Responsible entities should provide the requested data within (30) calendar days. Upon review of documentation, a formal presentation to SPP may be required.

Deleted: The documentation shall include:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:

Deleted:
responsible entities or their designated representatives are required to submit to SPP every 5 years or as requested by SPP.

R5.2. Planning Coordinator shall periodically conduct and document a technical assessment of the effectiveness of the design and compliance to the latest approved NERC Continent-Wide Standard PRC-006. These assessments shall be completed at least every five years or as required by significant changes in system conditions.

R6 Planning Coordinator shall function as a requesting agent and clearing house for the collection of data following an UFLS event as stated in R3.

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

M1. Each Distribution Provider, LSE, and Transmission Owner with end-use Load customer(s) connected to their facilities shall maintain documentation that its UFLS scheme meets the performance requirements in R1.

M2. Generator Owners shall have documentation that it complies with the characteristics of R2 or has made arrangements for additional Load shedding, if appropriate, as required in R2.

M3. Each Distribution Provider, LSE, Transmission Owner and Generator Owner shall have evidence that the information as required in R3 was supplied to the Planning Coordinator.

M4. Each Transmission Owner, Distribution Provider, and Generator Owner shall have evidence that the analysis required in R4 was completed and supplied to the Planning Coordinator, if requested.

M5. Planning Coordinator shall have evidence it established and maintained an UFLS database as required in R5.

M6. Planning Coordinator shall have evidence of the data that was collected as required by R6.

D. Compliance
1. Compliance Monitoring
   1.1 Compliance Monitoring Responsibility
   Compliance Monitor: Southwest Power Pool

Deleted: Each Responsible entity or their designated representative
Deleted: Each Responsible entity or their designated representative
Deleted: R2
Deleted: R4
Deleted: R5
Deleted: 08/01/2008
Regional Reliability Standard:  PRC-006-SPP-01

Title:  SPP Automatic Underfrequency Load Shedding Program

1.2  Compliance Monitoring Period and Reset
     On request (within 30 calendar days)

1.3  Data Retention
     Five years

1.4  Additional Compliance Information
     None

2.  Violation Severity Levels (TBD)

E.  Revision History

TBD
<table>
<thead>
<tr>
<th>ID</th>
<th>Task Name</th>
<th>Duration</th>
<th>Start</th>
<th>Finish</th>
<th>Milestone Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NERC Standard Development for Project 2007-01</td>
<td>671 days?</td>
<td>Wed 11/1/06</td>
<td>Wed 12/31/08</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>SPP Regional Standards Procedure</td>
<td>1066 days?</td>
<td>Thu 11/11/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>SPP Regional Standard Development</td>
<td>911 days</td>
<td>Thu 4/8/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>SPP Regional Standard Request Form (RSRF) Drafting</td>
<td>15 days</td>
<td>Thu 6/21/07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Kick-Off meeting</td>
<td>2 days</td>
<td>Thu 9/6/07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>SPCWG Meets to Discuss SPP Regional Standard Request Form</td>
<td>0 days</td>
<td>Thu 9/6/07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>MOPC Meets to Discuss SPP Regional Standard Request Form</td>
<td>0 days</td>
<td>Thu 10/16/07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Drafting of SPP UFLS Standard</td>
<td>415 days?</td>
<td>Thu 3/31/09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>SDT Meeting to Discuss SPP UFLS Standard (First Draft)</td>
<td>0 days</td>
<td>Thu 5/22/09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>SPP UFLS Standard (First Draft) Posted for Comments</td>
<td>30 days</td>
<td>Thu 4/30/09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Revisions to Standard and Reposting Based on Comments from</td>
<td>90 days?</td>
<td>Thu 7/29/09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>SDT Meeting to review comments of the First Draft</td>
<td>0 days</td>
<td>Thu 9/3/09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>SPP UFLS Standard (Second Draft) Posted for Comments</td>
<td>30 days</td>
<td>Thu 8/28/09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Revisions to Standard and Reposting Based on Comments from</td>
<td>90 days</td>
<td>Thu 11/26/09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>SDT Meeting to review comments of the Second Draft</td>
<td>0 days</td>
<td>Thu 11/25/09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>SPP UFLS Standard Vote</td>
<td>15 days</td>
<td>Thu 1/14/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>SDT preparation of consensus draft and minority report.</td>
<td>30 days</td>
<td>Thu 2/25/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>MOPC Meeting for Final SPP UFLS Standard</td>
<td>0 days</td>
<td>Thu 3/18/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>SPP Board of Directors Approval of SPP UFLS Standard</td>
<td>0 days</td>
<td>Thu 4/8/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>SPP RE Trustees Approval of SPP UFLS Standard</td>
<td>0 days</td>
<td>Thu 4/8/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>NERC Review and File of Regional Standard</td>
<td>75 days</td>
<td>Thu 6/17/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Regulatory Approval of Regional Standard</td>
<td>90 days</td>
<td>Thu 9/16/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Implementation of Standard</td>
<td>40 days</td>
<td>Thu 11/11/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>SPP Regional Standard Effective Date</td>
<td>0 days</td>
<td>Thu 11/11/10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>