October 19, 2012

Mr. Guy Zito
NPCC Assistant Vice President-Standards

Re: TFSP Interpretation of Requirements 4, 5, and 6 of the NPCC Regional Reliability Standard PRC-002-NPCC-1.

Dear Mr. Zito:

As per Mr. Pedowicz’s August 18, 2012 email message to the NPCC Task Force on System Protection (TFSP) and in accordance with the NPCC’s Regional Reliability Standard Development Procedure, the Task Force has reviewed and provided in this letter a response to the Request for an Interpretation of Requirements 4, 5, and 6 of the NPCC Regional Reliability Standard PRC-002-NPCC-1.

Text of Requirements:

**R4.** Each Generator Owner shall provide Fault recording capability for Generating Plants at and above 200 MVA Capacity and connected through a generator step up (GSU) transformer to a Bulk Electric System Element unless Fault recording capability is already provided by the Transmission Owner. [Violation Risk Factor: Medium] [Time Horizon: Planning and Operations Planning]

**R5.** Each Transmission Owner and Generator Owner shall record for Faults, sufficient electrical quantities for each monitored Element to determine the following: [Violation Risk Factor: Medium] [Time Horizon: Planning and Operations Planning]

5.1 Three phase-to-neutral voltages. (Common bus-side voltages may be used for lines.)
5.2 Three phase currents and neutral currents.
5.3 Polarizing currents and voltages, if used.
5.4 Frequency.
5.5 Real and reactive power.

**R6.** Each Transmission Owner and Generator Owner shall provide Fault recording with the following capabilities: [Violation Risk Factor: Medium] [Time Horizon: Planning and Operations Planning]

6.1 Each Fault recorder record duration shall be a minimum of one (1) second.
6.2 Each Fault recorder shall have a minimum recording rate of 16 samples per cycle
6.3 Each Fault recorder shall be set to trigger for at least the following:
   6.3.1 Monitored phase overcurrents set at 1.5 pu or less of rated CT secondary current or Protective Relay tripping for all Protection Groups.
6.3.2 Neutral (residual) overcurrent set at 0.2 pu or less of rated CT secondary current.
6.3.3 Monitored phase undervoltage set at 0.85 pu or greater.
6.4 Document additional triggers and deviations from the settings in 6.3.2 and 6.3.3 when local conditions dictate.

Requester’s explanation of clarification needed:

Requirement 4 states that Generating Plants at or above 200 MVA shall have fault recording capabilities unless this capability is already provided by the TO.

Requirements 5 and 6 do not specify a plant rating for Generator Owners, stating that Generator Owners shall record faults and specifications for fault recording.

Does Requirement 4 establish the qualification for Requirements 5 and 6, or are Requirements 5 and 6 stand-alone requirements for all Generator Owners?

TFSP’s interpretation of Requirements 4, 5, and 6 is as follows:

**R4** establishes the generator owner’s applicability. It specifies generating facilities that must have Fault recording capability installed. Generating plants at or above 200 MVA capacity and connected through a generator step up (GSU) transformer to a Bulk Electric System Element must have Fault recording capability installed. If Fault recording capability is already provided by the Transmission Owner, the generator owner of the generating plant does not have to duplicate the same Fault recording capability/installation.

**R5** specifies what electrical quantities to record at the generating plants required to be installed with Fault recording equipment as per R4.

**R6** specifies the minimum recording duration, the rate of recording, and trigger settings to be used for each Fault recorder required to be installed as per R4.

Let me know if you need further assistance on this matter.

Sincerely,

Daren

Daren Verner, Chairman
Task Force on System Protection

cc: Members, Task Force on System Protection
Mr. Lee Pedowicz – NPCC Regional Standard Process Manager
Mr. Philip Fedora - Assistant Vice President of Reliability Services
April 8, 2013

Mr. Guy Zito  
NPCC Assistant Vice President-Standards


Dear Mr. Zito:

As per Mr. Pedowicz’s March 14, 2013 email message to the NPCC Task Force on System Protection (TFSP) and in accordance with the NPCC’s Regional Reliability Standard Development Procedure, the Task Force on System Protection has reviewed the attached request for interpretation dated March 6, 2013 submitted by PurEnergy Operating Services, LLC.

A response by TFSP to PurEnergy’s request is provided below.

“TFSP confirms that if one or more Protective Relays, that form one Protection Group, perform tripping solely via the lockout relay, then SOE from the lockout relay is sufficient to satisfy the requirement.”

Let me know if you need further assistance on this matter.

Sincerely,

Daren

Daren Verner, Chairman  
Task Force on System Protection

Attachment

cc: Members, Task Force on System Protection  
Mr. Lee Pedowicz – NPCC Regional Standard Process Manager  
Mr. Philip Fedora - Assistant Vice President of Reliability Services
NPCC Request for Criteria Interpretation

<table>
<thead>
<tr>
<th>Request for an Interpretation of a Regional Standard</th>
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</thead>
<tbody>
<tr>
<td>Date submitted: March 6, 2013</td>
</tr>
<tr>
<td>Contact information for person requesting the interpretation:</td>
</tr>
<tr>
<td>Name: Susan Flash</td>
</tr>
<tr>
<td>Organization: PurEnergy Operating Services, LLC</td>
</tr>
<tr>
<td>Telephone: (508) 769-9764</td>
</tr>
<tr>
<td>E-mail:</td>
</tr>
<tr>
<td>Identify the Regional Standard that needs clarification:</td>
</tr>
<tr>
<td>Standard Number: PRC-002-NPCC-01</td>
</tr>
<tr>
<td>Standard Title: Disturbance Monitoring</td>
</tr>
<tr>
<td>Identify specifically what portion of the criteria needs clarification:</td>
</tr>
<tr>
<td>B. R1.2  Monitor the following at each location listed in 1.1:</td>
</tr>
<tr>
<td>1.2.2 Protective Relay tripping for all Protection Groups that operate to trip circuit breakers identified in 1.2.1.</td>
</tr>
<tr>
<td>Please confirm that for a generator or GSU protection relay that trips a lockout relay, only the lockout relay needs to be wired to the SOE, and not the individual protection relay.</td>
</tr>
<tr>
<td>Identify the material impact associated with the interpretation:</td>
</tr>
<tr>
<td>This clarification is important to ensure appropriate scoping and engineering design options of SOE recording systems at affected PEOS facilities. In general, the generating facilities that PEOS operates are older units with electromechanical and/or solid state relays that may not be straightforwardly configured for a standalone SOE. Monitoring at the protection group or lockout level offers a reasonable approach for older facilities.</td>
</tr>
</tbody>
</table>
March 6, 2013

Mr. Gerry Dunbar  
Regional Standards Process Manager  
Northeast Power Coordinating Council, Inc.  
1040 Ave of the Americas  
New York, NY 10018  

Submitted by email to: NPCCstandard@npcc.org

RE: Request for an Interpretation of a Regional Standard  
PRC-002-NPCC-01 Disturbance Monitoring

Regional Standards Process Manager:

PurEnergy Operating Services, LLC ("PEOS", NCR10026) is a registered Generator Operator within the Northeast Power Coordinating Council, Inc. ("NPCC") region. PEOS, and the owners of the generating facilities that it operates, are directly and materially affected by the NPCC bulk power system reliability. As such, and pursuant to Section II.1., Characteristic Attributes defined in the NPCC Regional Reliability Standards Development Procedure (Adopted by FERC on March 21, 2008), PEOS respectfully submits the attached request for Interpretation of Standard.

PEOS appreciates the open, inclusive, balanced and transparent processes employed by NPCC in the development and on-going interpretation of its Regional Standards. Please do not hesitate to contact me if you have any questions.

Sincerely,

Susan Flash  
Director of Regulatory Affairs

SF/dmc

Attach: One (1), as stated

cc:  W. Akay, MAXIM  
J. Wolf, PEOS  
J. Hanlon, PEOS  
R. Taikowski, PEOS  
Compliance Files
May 16, 2013

Mr. Guy Zito
NPCC Assistant Vice President-Standards


Dear Mr. Zito:

As per Mr. Pedowicz’s April 2, 2013 email message to the NPCC Task Force on System Protection (TFSP) and in accordance with the NPCC’s Regional Reliability Standard Development Procedure, the Task Force on System Protection has reviewed the attached request for interpretation dated March 7, 2013 submitted by PurEnergy Operating Services, LLC.

A response by TFSP to PurEnergy’s request is provided below.

TFSP interprets the term “control scheme” to be not solely applied to protection. The term “control scheme” does extend to the physical configuration and design limitations under various operating conditions that can result in the loss of generation greater than 50 MVA Nameplate Capacity. In all examples described in the Request for Interpretation by PurEnergy Operating Services, LLC for illustrative purposes, SOE is required for all units.

Let me know if you need further assistance on this matter.

Sincerely,

Daren

Daren Verner, Chairman
Task Force on System Protection

Attachment

cc: Members, Task Force on System Protection
Mr. Lee Pedowicz – NPCC Regional Standard Process Manager
Mr. Philip Fedora - Assistant Vice President of Reliability Services
March 7, 2013

Mr. Gerry Dunbar  
Regional Standards Process Manager  
Northeast Power Coordinating Council, Inc.  
1040 Ave of the Americas  
New York, NY 10018

Submitted by email to: NPCCstandard@npcc.org

RE: Request for an Interpretation of a Regional Standard  
PRC-002-NPCC-01 Disturbance Monitoring

Regional Standards Process Manager:

PurEnergy Operating Services, LLC ("PEOS", NCR10026) is a registered Generator Operator within the Northeast Power Coordinating Council, Inc. ("NPCC") region. PEOS, and the owners of the generating facilities that it operates, are directly and materially affected by the NPCC bulk power system reliability. As such, and pursuant to Section II.1., Characteristic Attributes defined in the NPCC Regional Reliability Standards Development Procedure (Adopted by FERC on March 21, 2008), PEOS respectfully submits the attached request for Interpretation of Standard.

PEOS appreciates the open, inclusive, balanced and transparent processes employed by NPCC in the development and on-going interpretation of its Regional Standards. Please do not hesitate to contact me if you have any questions.

Sincerely,

Susan Flash  
Director of Regulatory Affairs

SF/dmc

Attach: One (1), as stated

cc: W. Akley, MAXIM  
J. Wolf, PEOS  
J. Hanlon, PEOS  
R. Taikowski, PEOS  
Compliance Files
NPCC Request for Criteria Interpretation

Request for an Interpretation of a Regional Standard

Date submitted: March 7, 2013

Contact information for person requesting the interpretation:

Name: Susan Flash
Organization: PurEnergy Operating Services, LLC
Telephone: (508) 769-9764
E-mail: sflash@purenergyllc.com

Identify the Regional Standard that needs clarification:

Standard Number: PRC-002-NPCC-01
Standard Title: Disturbance Monitoring

Identify specifically what portion of the criteria needs clarification:

A. Requirements

R1. Each Transmission Owner and Generator Owner shall provide Sequence of Event (SOE) recording capability by installing Sequence of Event recorders or as part of another device, such as a Supervisory Control And Data Acquisition (SCADA) Remote Terminal Unit (RTU), a generator plant Digital (or Distributed) Control System (DCS) or part of Fault recording equipment. This capability shall: [Violation Risk Factor: Medium] [Time Horizon: Planning and Operations Planning]

1.1

Be provided at all substations and at locations where circuit breaker operation affects continuity of service to radial Loads greater than 300MW, or the operation of which drops 50MVA Nameplate Rating or greater of Generation, or the operation of which creates a Generation/Load island.

Be provided at generating units above 50MVA Nameplate Rating or series of generating units utilizing a control scheme such that the loss of 1 unit results in a loss of greater than 50MVA Nameplate Capacity, and at Generating Plants above 300MVA Name Plate Capacity.

As highlighted in yellow above, it appears clear that an individual generator with a nameplate capacity rating above 50 MVA is required to have a PRC-002-NPCC-01 compliant SOE recorder installed. PurEnergy Operating Services, LLC is seeking clarification in regards the language “or series of generating units utilizing a control scheme such that the loss of 1 unit results in the loss of greater than 50 MVA Nameplate Capacity”. Specifically, is the term “control scheme” strictly related to the generator
protection system, its associated relay configuration and protective actions or does it extend to the physical configuration and potential limitations under various operating conditions? The following examples are provided for illustrative purposes:

Configuration #1: A 3-on-1 combined-cycle configuration where there are 3 combustion turbine-generators (CTG) each with a nameplate rating less than 50 MVA and a steam turbine-generator (STG) with a nameplate rating greater than 50 MVA. Under certain operating conditions, it is possible that the loss of one CTG could result in the loss of greater than 50 MVA due to the reduced steam flow to the STG. In this example, the loss of greater than 50 MVA is not related to a generator protection system control scheme but rather a physical reduction in output due to lower steam flows. In addition to the STG SOE, does each individual CTG (<50 MVA) need to have a PRC-002-NPCC-01 compliant SOE recorder installed?

Configuration #2: A 1-on-1 combined-cycle configuration where the CTG has a nameplate rating greater than 50 MVA and the STG has a nameplate rating of less than 50 MVA. If the STG trips, the plant control system will reduce the output of the CTG such that the total loss will exceed 50 MVA (please note that the CTG remains on-line). The reduction in CTG output is not related to a generator protection system control scheme (relay response to electrical quantity) but rather a physical reduction in output. In addition to the CTG SOE, does the STG (<50 MVA) need to have a PRC-002-NPCC-01 compliant SOE recorder installed?

Configuration #3: A 1-on-1 configuration where both the CTG and STG have nameplate ratings less than 50 MVA each. The loss of either the CTG or STG will result in the loss of the other generator due to the physical configuration of the facility and is not directly related to the generator protection control scheme. Do both generators, although each is rated below 50 MVA, need to have a PRC-002-NPCC-01 compliant SOE recorder installed?

**Identify the material impact associated with the interpretation:**

This clarification is important to ensure appropriate project scoping to ensure compliance with the standard.