NASPI Control Room Solutions Task Team
Breakout Session – Philadelphia, PA
Presenters: Mike Cassiadoro & Jim Kleitsch
October 23, 2018
Agenda

I. Introductions

II. Conduct joint panel session with PRSVTT on Use of Synchrophasor Technology for Enhanced State Estimation

III. Review action items from September 2018 call

IV. Provide update on Disturbance Detection document

V. Address recurring request for:
   - Focus Area Documents
   - Video Event Data
   - Use Case Document Ideas

VI. Discuss Use of Time-Synchronized Measurements in Real-time Ops Horizon training course

VII. Adjourn
CRSTT Sept. 2018 Meeting Minutes

Action Items
- **All**: please register for the NASPI Work Group meeting if you plan on attending. Learn more [here](#).
- **Jim K.**: will reach out to Ryan regarding current CIP information/presentation that can be shared with the CRSTT during the breakout session.
- **Mike C**: will contact SCE, SDG&E and others to determine interest in developing operational use case addressing the use of synchrophasor data to monitor synchronous devices.

New Business
- Total Reliability Solutions will be collaborating with PNNL to develop a Use of Time-Synchronized Measurements in the Real-time Ops Horizon training course. The base materials will be made available to the public upon completion. Intended audience is RC, BA, and TOP System Operators tasked with monitoring and controlling the Bulk Electric System. “Train the Trainer” class will be held at PNNL in February 2019. Eric Andersen ([eric.andersen@pnnl.gov](mailto:eric.andersen@pnnl.gov)) is PNNL’s point-of-contact. More details can be found in today’s agenda.
Focus Area Doc on Disturbance Detection

CRSTT to review and discuss latest draft of *Use of Synchrophasor Data to Determine Disturbance Location* focus area document.

NASPI Control Room Solutions Task Team Paper

October 2018
Focus Area Documents

Using Synchrophasor Data to Monitor Reactive Power Balancing

- (Cassiadoro -TRS, Peak RC –Zhang, Vaiman –V&R Energy)

- No significant progress to date
Objective – Continue building library of events to demonstrate value PMU data provides when analyzing abnormal events and disturbances.
Use Case Documents

Objective – Develop docs that demonstrate ways that grid operators and electric utilities are using synchrophasor data to provide operational value.

<table>
<thead>
<tr>
<th>Event ID</th>
<th>Event</th>
<th>Event Category</th>
<th>Entities Involved</th>
<th>Event Description</th>
<th>Safety Impact</th>
<th>Reliability Impact</th>
<th>Budgetary Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE02</td>
<td>Failing potential transformer</td>
<td>Transmission Equipment</td>
<td>ATC</td>
<td>Abnormal voltage signature found while reviewing PMU data led to discovery of a failing potential transformer which was subsequently isolated and replaced.</td>
<td>p.38</td>
<td></td>
<td>Utility avoided costs associated with customer minutes of interruption that would have resulted from the potential transformer's failure had the condition not been identified and a mobile transformer placed in service to facilitate the outages necessary for its replacement.</td>
</tr>
<tr>
<td>TE03</td>
<td>Loose connections in potential circuits</td>
<td>Transmission Equipment</td>
<td>OG&amp;E</td>
<td>Fluctuations observed in positive sequence voltage data collected from PMUs led to discovery of a loose fuse connection in a CCVT safety switch. PMU data has been used in a similar fashion to reveal faulty terminations, animal-damaged conductor and contact corrosion.</td>
<td>p.40</td>
<td></td>
<td>Utility avoided costs associated with equipment damage and customer minutes of interruption that might have resulted had the issues not been addressed.</td>
</tr>
</tbody>
</table>
Synchrophasor Training Course

TRS and PNNL are collaborating to develop a *Use of Time-Synchronized Measurements in the Real-time Ops Horizon* training course. The base materials will be made available to the public upon completion.

**Course Length:** 8 Hours (8 CEH)

**Intended Audience:** RC, BA and TOP System Operators tasked with monitoring and controlling the Bulk Electric System.

**Training Goals:**

1. Increase knowledge and advance use of synchrophasor technology by creating training materials that grid operators and electric utilities can integrate into their respective training programs.

2. Provide train-the-trainer workshops to help electric industry trainers meet the underlying knowledge requirements before delivering company-specific training on the topic.
Synchrophasor Training Course (Cont.)

Are PNNL and TRS in search of industry partners to assist with the design and development of training materials?

Yes, all grid operators and electric utilities that wish to participate in the design and development of course materials are invited to do so. Those that do will be invited to attend a “train-the-trainer” session at PNNL free of charge (entities responsible for travel costs only).

Who has agreed to participate so far?

ERCOT, ISO-NE, SCE and WAPA have tentatively agreed to support this work effort. Invites are outstanding to BPA, CAISO, Peak Reliability, PJM and SDG&E.

What’s the timeline for course development?

PNNL & TRS expect to finalize the training outline in Nov. 2018, complete the course materials in Jan. 2019, and hold the “train-the-trainer” class in Feb. 2019.

Please contact Mike Cassiadoro (mcassiadoro@totalreliabilitysolutions.com) or Eric Andersen (Eric.Andersen@pnnl.gov) if you’re interested in participating!
CRSTT – Primary Contacts

Name: Michael Cassiadoro
Email: mcassiadoro@totalreliabilitysolutions.com
Phone: 360-836-9008

Name: Jim Kleitsch
Email: jkleitsch@atcllc.com
Phone: 608-877-8102

Next NASPI CRSTT Conference Call: November 21, 2018
Next NASPI WG Meeting: April 2019 in San Diego, CA