

NASPI Working Group Meeting Control Room Solutions Task Team (CRSTT)

Update on Using Synchrophasor Data to Determine Disturbance Locations Focus Area Document

Team: Sarma (NDR) Nuthalapati, Mike Cassiadoro, James Kleitsch,
Greg Zweigle and Dan Brancaccio



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Status of CRSTT Focus Area Documents

1. [System Islanding Detection and Blackstart Restoration](#) – Posted in June 2015.
 - (Kleitsch –ATC, Cassiadoro –TRS)
2. [Using Synchrophasor Data for Voltage Stability Assessment](#) – Posted in Nov. 2015.
 - (Farantatos –EPRI, Vaiman –V&R Energy)
3. [Using Synchrophasor Data for Phase Angle Monitoring](#) – Posted in May 2016.
 - (Cassiadoro –TRS, Nuthalapati -ERCOT)
4. **Enhanced State Estimation Survey – Preliminary responses received, more analysis needed.**
 - (Vaiman –V&R Energy, Kleitsch –ATC)
5. [Using Synchrophasor Data for Oscillation Detection](#) – Posted in February 2018.
 - (Nuthalapati –Peak, Dyer –EPG, Blevins and Rjagopalan –ERCOT, Patel -EPRI)
6. **Determining Disturbance Locations – Survey to be distributed this week with request to respond by 4/30/2018.**
 - (Dyer –EPG, Zweigle –SEL Inc., Cassiadoro –TRS)
7. **Using Synchrophasor Data to Monitor Reactive Power Balancing**
 - (Cassiadoro -TRS, SCE –A.J, Peak RC –Zhang, Vaiman –V&R Energy)

Disturbance Locations

Determining disturbance location is one of the most important use cases of synchrophasor technology

This focus area document will explore the use of synchrophasor-based apps to:

- Detect disturbances
- Characterize the nature and severity of disturbances
- Identify mitigating actions

A survey was distributed to over 30+ organizations to gather information on this topic. Responses will be embedded into the final document.

Survey Template

NASPI SURVEY: USING SYNCHROPHASOR DATA TO DETERMINE DISTURBANCE (E.G. FAULT) LOCATIONS

SUBMITTED BY: (NAME OF ORGANIZATION)

1. **Is your company using, planning to use, or have an interest in a synchrophasor-based application(s) to provide System Operations staff with data, information, or guidance about an electrical system disturbance (e.g. fault or failed equipment)? If yes, please provide the info requested below.**

If your company is not using or planning to use such applications at this time but is interested in doing so in the future, please provide any feedback or insights you can offer as to what needs to happen before you can move forward. In other words, are there specific issues that need to be resolved or actions that must be taken before you can introduce such applications to the control room environment.”

2. **Application name:**
3. **Type of fault information that the application provides:**

Note: Examples of info provided include: Impacted Equipment (transmission line, station equipment, generation facility), fault type (phase-to-phase, phase-to-ground, failed equipment), fault severity (duration, percentage of voltage dip, MVA or MW interrupted), fault location (at a station, miles from station, at a tower, tower number), etc.

4. **Objective of the application:**
5. **Application requirements (coverage of the network, hardware, software, visualization, telecommunications, etc.):**
6. **The value addition from using the application in the Real-time operating environment:**

Note: The CRSTT is most interested in any operational enhancements, safety, reliability or cost benefits that your company has gained or expects to gain through use of the application.

7. **Current state of the application (in development, testing, in operation, provided by vendor, etc.):**

8. **If in operation, where (e.g. in use in the control room, in use by engineers, etc.)?**

9. **If it is not yet in operation, what is the timeline for being ready?**

10. **Application provider or developer:**

11. **Application software (in-house development, open source, proprietary):**

12. **Application's ability to integrate with other Real-time monitoring systems (e.g. EMS, SCADA):**

13. **If the application is not in use for operations yet, can it be operationalized and how can that be achieved (i.e. used in Real-time Operation Horizon):**

14. **Type of application GUI:**

15. **Operating entities (e.g. operators, engineers, etc.) that will be or are using the application:**

16. **Any other relevant information that can be provided:**

- **Example: Can you provide any sample video clips demonstrating the capabilities of the tool**
- **Any references/papers/reports published by your organization which explain more details**

Organizations Surveyed

Vendors/developers

- Electric Power Group
- Pacific Northwest National Laboratory
- Rensselaer Polytechnic Institute
- Schweitzer Engineering Laboratories
- Washington State University
- XM, Columbia
- GE
- Grid Protection Alliance
- Quanta Technology
- V&R Energy
- Electric Power Research Institute
- Montana Tech

Users

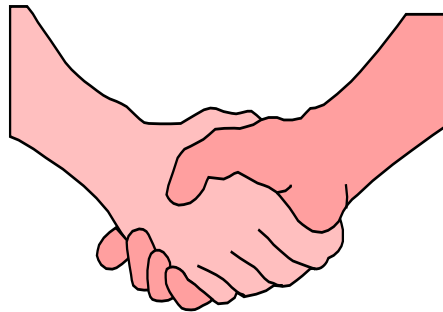
- BPA
- Dominion Virginia Power
- Duke Energy
- Entergy
- ERCOT
- Idaho Power
- ISO New England
- LCRA Transmission Services Corporation
- NY ISO
- PEAK Reliability
- PJM Interconnection
- Public Service Company of New Mexico
- San Diego Gas & Electric
- Swissgrid
- Tucson Electric Power
- American Transmission Company
- ONS, Brazil
- Power System Operation Corporation, India
- CAISO
- MISO
- PG&E
- Southern California Edison
- Southwest Power Pool (SPP)
- Western Area Power Administration

Other entities interested to participate are welcome to do so.

Please send email to Sarma (NDR) Nuthalapati at ndrsarma@ieee.org

Schedule for Completion

- July 2018 – Complete analysis of survey responses.
- Sept. 2018 – Generate draft of document for team review.
- Oct. 2018 – Release final document and present findings at NASPI Work Group Meeting in Philadelphia, PA.



Thank U !!