

**NASPI Work Group Meeting
Control Room Solutions Task Team (CRSTT)
Monthly Conference Call**

**Mike Cassiadoro & Jim Kleitsch
October 18, 2017**



Agenda

- ❑ Review *Using Synchrophasor Data for Oscillation Detection* focus area document and supplemental spreadsheet
- ❑ Review Status of CRSTT Work Products
 - Focus Area Documents
 - Video Event Files
 - Use Case Papers
- ❑ New use case document examples
- ❑ ATC event review – synchrophasor use case
- ❑ Adjourn

Oscillation Detection Paper

Review draft focus area doc and supplemental spreadsheet to gather feedback.



Microsoft Word
Document



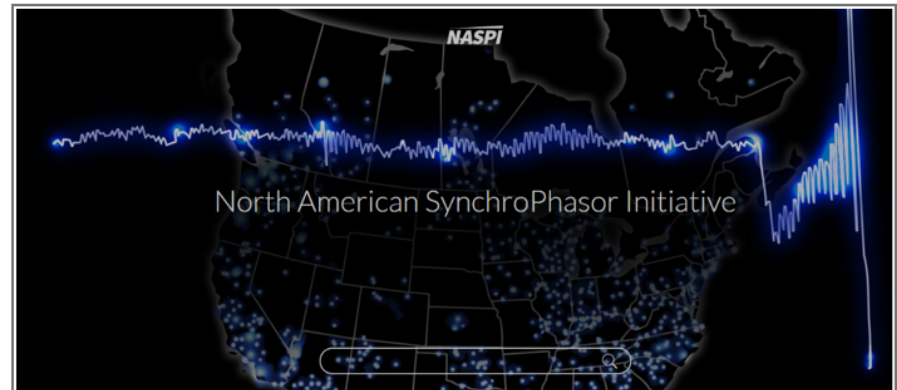
Microsoft Excel
Worksheet

(Thanks to Neeraj Nayak from EPG for their updates)

Using Synchrophasor Data for Oscillation Detection

NASPI Control Room Solutions Task Team Paper

September 2017



Focus Area Document Update

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. **Oscillation Detection – Distributed for CRSTT review in September 2017**
 - (Nuthalapati –Peak, Dyer –EPG, Blevins and Rjagopalan –ERCOT, Patel -EPRI)
5. **Enhanced State Estimation Survey –Preliminary responses received, more analysis needed.**
 - (Vaiman –V&R Energy, Kleitsch –ATC)
6. **Determining Disturbance Locations**
 - (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)

Video Event Files

How should CRSTT go about expand its video library of events to demonstrate the value of synchrophasor data when analyzing disturbances?

The screenshot shows the website for the Control Room Solutions Task Team (CRSTT) under the NASPI umbrella. The page layout includes a header with the NASPI logo and a search bar, and a main content area with several sections:

- Control Room Solutions Task Team**: The main heading for the page.
- Contacts**: A list of team members with their roles and contact information.

Name	Role	Contact Info
Michael Cassiadoro	Co-Lead	(360) 836-9008
Jim Kleitsch	Co-Lead	(608) 877-8102
Teresa Carlon	Support	(509) 375-3628
- Our mission**: A paragraph describing the team's mission to advance the use of real-time synchrophasor applications.
- Videos**: A table listing video files.

Title	Description
Video 13	Illustration 4 of Phase Angle Alarming Using Synchrophasor Data
Video 12	Illustration 3 of Phase Angle Alarming Using Synchrophasor Data
Video 11	
- Meetings**: A list of recent meetings, including the CRSTT Conference Call from April 19, 2017.
- Meeting Archive**: A list of past conference calls, including one from February 15, 2017, and another from November 16, 2016.

Use Case Paper Status

- ❑ How do we come up with a list of additional use case papers and get something on paper?
- ❑ Two published use cases so far (Thanks Mike!)
- ❑ Should we continue on with the following list?

Event ID	Event	Event Category	Entities Involved	Event Description	Extended Description in Related NASPI Technical Paper	Safety Impact	Reliability Impact	Budgetary Impact
TE02	Failing potential transformer	Transmission Equipment	ATC	Abnormal voltage signature found while reviewing PMU data led to discovery of a failing potential transformer which was subsequently isolated and replaced.	p.38	The utility avoided safety risk to personnel that might have been in close proximity to the PT during its failure.		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.
TE03	Loose connections in potential circuits	Transmission Equipment	OG&E	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.	p.40			Utility avoided costs associated with equipment damage and customer minutes of interruption that might have resulted had the issues not been addressed.
TE04	Failing voltage transformer	Transmission Equipment	Dominion	Sporadic voltage dips and fluctuations observed on a 500 kV line led to discovery of a failing CCVT which was subsequently isolated prior to its imminent failure.	p.42	The utility avoided safety risk to personnel that might have been in close proximity to the CCVT during its imminent failure.		Utility avoided costs associated with equipment damage that might have resulted from the CCVT's failure.
TE05	Identifying 69 kV arrester failure	Transmission Equipment	ATC	The details of a 69kV customer impact event were identified within two minutes by control room engineers reviewing PMU data. The fault could not be observed with SCADA data.	p.44		Utility able to identify and isolate the failed lightning arrester shortly after relay operation occurred.	

New Sample Use Case Papers

- ❑ The following describe some event analysis work done using synchrophasor data. Is there any value posting reports like this or are these too simplified to be of value?



Microsoft Word
Document

**Fault
cause
analysis**



Microsoft Word
Document

**Determining if
two events are
related**

Synchrophasor Use Case Example

- Review recent ATC system event where synchrophasor data was used to determine what happened



Microsoft
oint Macro-Enable

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 CRSTT Conference Call: November 15, 2017
@ 1230 PT.