NASPI Control Room Solutions Task Team Monthly Meeting

Presenters: Mike Cassiadoro & Jim Kleitsch August 16, 2017



Agenda

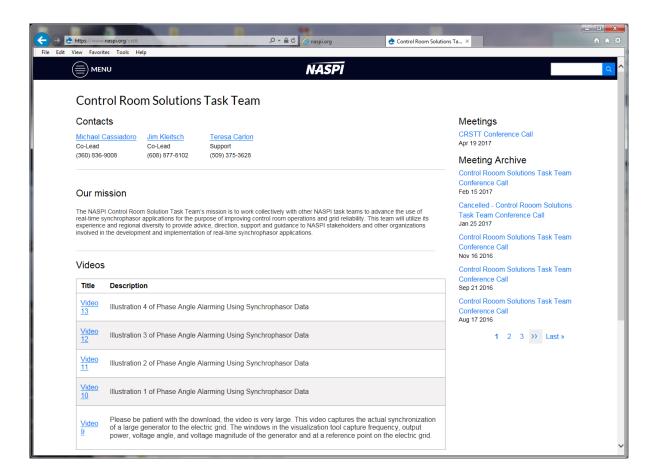
- Introductions
- II. Review Status of CRSTT Work Products
 - Focus Area Documents
 - Video Event Files
 - Use Case Documents
- III. Discuss strategy for completing use case papers
- IV. Provide tour of new NASPI website
- V. Discuss goals for Sept. 2017 NASPI WG Mtg. for NASPI face to face meeting
- VI. Adjourn

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. Oscillation Detection
 - (Nuthalapati –Peak, Dyer –EPG, Blevins and Rjagopalan –ERCOT, Patel -EPRI)
- **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

 Objective: continue to expand video library of events to demonstrate the value of synchrophasor data when analyzing disturbances



Use Case Documents

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.
	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, animaldamaged 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.
TE0 4	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. The details of a 69kV customer	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 arrestor shortly after relay operation occurred.	

- Develop 1-2 page summary docs to educate end users.
- Expand effort to other use cases once format has been agreed upon.

NASPI Website Tour

CRSTT completed use cases:

https://www.naspi.org/crstt

Documents

Title	Description
Use Case: GEN-03 – Automatic Voltage Regulator (AVR) Malfunction	NYISO System Operators observed transient voltage oscillations in Supervisory Control and Data Acquisition (SCADA) data. The oscillations lasted for three minutes and appeared on many of the western New York 345 kV busses.
Use Case: GEN-05 – Nuclear Plant Voltage Oscillations	In 2011, the Dominion System Operator requested a nuclear power plant to reduce its terminal voltage by 3 kV during light load conditions.
PMU versus SCADA Video Events Summary	
EPG Synchrophasor Data File Format (.CSV)	
EPG's Template	

NASPI Work Group Meeting – CRSTT Breakout Session

Call participants to discuss agenda for CRSTT breakout session at September 26-27, Springfield, MA, 2017 NASPI Work Group meeting.

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Next NASPI WG Meeting: September 26-27, 2017 in Springfield, MA. If you plan on attending please register for the early bird discount.