



## North American SynchroPhasor Initiative Working Group Meeting March 11-12, 2014

Holiday Inn Knoxville Downtown World's Fair Park  
525 Henley Street  
Knoxville Tennessee 37902

This NASPI work group meeting will feature reports on the successful use of synchrophasor technology in and outside North America, including a variety of user success stories and synchrophasor data applications. The meeting will include a technical session on open source software and its design and use in the power industry and an update on PMU testing, performance and standards. We will also have the opportunity to visit the Center for Ultra-Wide Area Resilient Electric Energy Transmission Networks (CURENT), a National Science Foundation Engineering Research Center located at the University of Tennessee at Knoxville, during the Work Group reception on the evening of March 11.

There will be a \$350 registration fee to cover meeting costs, refreshments and lunch on the two meeting days; the fee for students is \$175. The registration link is [here](#).

You may be able to secure a room at the Holiday Inn Knoxville Downtown Worlds Fair Park using this link [reserve](#).

NASPI's Data & Network Management Task Team will be conducting a technical workshop on the topic of Phasor Data Concentrator configuration at the Holiday Inn Knoxville Downtown on Monday, March 10, from 2:00 to 5:00pm.

The Oak Ridge National Laboratory and the Electric Power Research Institute both have test laboratory facilities in Knoxville and have offered tours of these facilities for NASPI meeting attendees on the morning of Thursday, March 13, 2014. These tours should be completed by noon, and would let you get to the Knoxville Airport by 1:00 pm. Although we can arrange some carpools for the tours, it will be necessary for many participants to have rental cars to get from the meeting hotel to EPRI and then to the airport on Thursday morning. **Registration for these tours has closed and we will not be accepting additional tour participants.**

### ***Final Agenda (March 5, 2014)***

<b>Tuesday, March 11, 2014</b>		
7:30 - 8:00 am	Registration, refreshments, and networking -- <b>Tennessee Ballroom</b>	
8:00 am	Work Group meeting in <b>Grand Pavilion Ballroom</b> ; registration outside it	
8:00 - 8:10 am	Welcome, introductions, and logistics review	Jeff Dagle (PNNL) Alison Silverstein (NASPI)

8:10 - 8:15 am	Welcome to Tennessee	TVA speaker
8:15 - 8:30 am	Electric Power Research Institute keynote	Mark McGranaghan (EPRI)
8:30 - 8:40 am	Department of Energy keynote	David Ortiz (DOE)
8:40 - 10:00 am	Control Room and Operations Success Stories <ul style="list-style-type: none"> <li>Advanced grid monitoring analytics at ISO-New England using PhasorPoint – Xiaochuan Luo, Frankie Zhang, Eugene Litvinov (ISO-NE); Manu Parashar (Alstom Grid) &amp; Douglas Wilson (Psymetrix Ltd)</li> <li>Electromechanical oscillation detection based on synchrophasors – Alfredo Olachea Aguayo &amp; Felipe Federico Valle (Comisión Federal de Electricidad)</li> <li>Real-time situational awareness of WAMS at San Diego Gas &amp; Electric – Subburamen Sankaran, C. Wells, B. Bachiega &amp; R. Atkinson (SDG&amp;E)</li> <li>Oscillation detection at Bonneville Power Administration – Nick Leitschuh (BPA)</li> </ul>	
10:00 - 10:15 am	Break (refreshments and networking)	
10:15 am – 11:35 am	Data & Network Management Success Stories <ul style="list-style-type: none"> <li>PJM data quality task force and improvement – Jing Liu (PJM)</li> <li>WECC Western Interconnection Synchrophasor Project WAN – a low-latency and highly-available network – Dan Brancaccio (PEAK for WECC) &amp; Dan Maibaum (Harris Corp.)</li> <li>ERCOT data quality observations, analysis and configuration for improved data availability – Sarma Nuthalapati, Wei Liu, Bill Blevins, Rajagopalan Sidharth (ERCOT), Prashant Palayam (EPG), David Bogen (Oncor), Carlos Casablanca (AEP), &amp; Bill Bojorquez (Sharyland)</li> <li>Installing PMUs in a cavern for a Colombian generator – Santiago Mesa Jaramillo &amp; William Amador Araujo (XM Compañía de Expertos en Mercados)</li> </ul>	
11:35 - 11:50 am	Eastern Interconnection Data-Sharing Network update -- Rich Mandes (Southern Co.) & Jim McNierney (NYISO)	
11:50 - noon	Preview of the Center for Ultra-wide Area Resilient Electric Energy Transmission Networks (CURENT) -- Kevin Tomsovic (CURENT)	
noon - 1:00 pm	Lunch (provided) in <b>Tennessee Ballroom</b>	
1:00 - 1:30 pm	NERC CIP Standards Version 5 and synchrophasor system cyber-security -- Tony Johnson (SCE)	
1:30 – 2:45 pm	Technical Session 1 – Open Source Software <ul style="list-style-type: none"> <li>Introduction to open source software -- Luigi Vanfretti (KTH Royal Institute of Technology)</li> <li>Uses of open source software in the electric industry – Matt Wakefield (EPRI)</li> <li>Uses of open source software in synchrophasor applications – Russell Robertson (GPA)</li> <li>Uses of open source software in other industries – Dan Lutter (Allied Partners)</li> <li>PNNL Open Source Software – Matt Love (Pacific Northwest National Laboratory)</li> </ul>	

2:45 - 3:45 pm	<p>Engineering Analysis Success Stories</p> <ul style="list-style-type: none"> <li>• Case studies of system events analysis using PMU data at NYISO – Edwin Cano (NYISO)</li> <li>• SDG&amp;E's experiences using synchrophasor data for engineering analysis – Tariq Rahman, Hassan Ghoudgehbakou, Dan Eklund (SDG&amp;E); Armando Guzman, Saurabh Shah &amp; Kamal Garg (Schweitzer Engineering Laboratory)</li> <li>• ERCOT synchrophasor baselining study to enhance operator alarming – Sarma Nuthalapati, Bill Blevins, Rajagoplana Sidharth (ERCOT) &amp; Ajay Das (Electric Power Group)</li> </ul>
3:45 - 4:00 pm	Break (refreshments and networking)
4:00 - 6:00 pm	<p>Task Team break-out sessions</p> <ul style="list-style-type: none"> <li>• Data &amp; Network Management Task Team <ul style="list-style-type: none"> <li>◦ High-speed database platform for real-time PMU data analysis -- Yutaka Kokai (Hitachi)</li> </ul> </li> <li>• Control Room Solutions Task Team</li> <li>• Engineering Applications Task Team <ul style="list-style-type: none"> <li>◦ Hardware implementation of an automatic adaptive centralized under-frequency load-shedding scheme -- Sarra AbdElwahid &amp; Abubakr Babiker (University of Tennessee at Chattanooga)</li> </ul> </li> <li>• Performance Requirements, Standards &amp; Verification Task Team</li> </ul>
6:00 - 7:30 pm	<p>Reception at the <b>Center for Ultra-Wide Area Resilient Electric Energy Transmission Networks</b> (CURENT), Min H. Kao Building, 1520 Middle Drive, Knoxville (map on reverse), sponsored by CURENT)</p>

<b>Wednesday, March 12, 2014</b>	
7:30 - 8:00 am	Refreshments and networking in <b>Tennessee Ballroom</b>
8:00 am	Work Group meeting in <b>Grand Pavilion Ballroom</b>
8:00 - 8:10 am	NASPI Project Manager's update <span style="float: right;">Alison Silverstein (NASPI)</span>
8:10 - 9:00 am	Task Team reports
9:00 – 9:15 am	IEEE Cascading Failures Working Group Update – Milorad Papic (Idaho Power) & Marianna Vaiman (V&R Energy)
9:15 – 10:30 am	<p>Technical session 2 – PMU testing, performance and standards</p> <ul style="list-style-type: none"> <li>• High-level conclusions from NIST PMU testing – Allen Goldstein (NIST)</li> <li>• Testing PMUs using the PMU Performance Analyzer – Anurag Srivastava (Washington State University)</li> <li>• PMU user survey – Matt Wakefield (EPRI) – 10 minutes</li> <li>• Update on IEEE 37.118 – Ken Martin (Electric Power Group) – 10 minutes</li> </ul>
10:30 - 10:45 am	Break and refreshments
10:45 am – 11:45 pm	<p>Control room and operations success stories</p> <ul style="list-style-type: none"> <li>• Using synchrophasor data to diagnose grid events – Jim Kleitsch (ATC)</li> <li>• Oscillation monitoring and control – Bonian Shi (Sifang Automation)</li> <li>• Use of PMUs for on-line power system security monitoring at ISO-New England – Slava Maslennikov (ISO-NE) &amp; Marianna Vaiman (V&amp;R Energy)</li> <li>• Synchrophasor data validation study update -- Ken Martin (EPG)</li> </ul>
11:45 – 12:45 pm	Lunch (provided) in <b>Tennessee Ballroom</b>

12:45 – 2:15 pm	<p>Standards and communication success stories</p> <ul style="list-style-type: none"> <li>• Implementing phasor protocol standards – 61850 and the openPDC – Vahid Madani (PG&amp;E) &amp; Ritchie Carroll (Grid Protection Alliance)</li> <li>• Incorporating PMU requirements into tariff – Nancy Huang (PJM)</li> <li>• Overcoming standard limitations in synchrophasor systems – Yi Hu &amp; Vasudev Gharpure (Quanta Technology)</li> <li>• Synchrophasor data validation study update -- Ken Martin (EPG)</li> </ul>
2:15 – 4:00 pm	<p>Academic updates (15 minutes each)</p> <ul style="list-style-type: none"> <li>• Synchrophasor data stream compression – Raymond deCallafon (University of California San Diego) &amp; Chuck Wells (OSIsoft)</li> <li>• Demonstration of wide-area monitoring algorithms on a U.S.-wide Exo-GENI communication network testbed – Aranya Chakraborty (North Carolina State University)</li> <li>• Leveraging the use of PMU data for power system model identification through Modelica and FMI technologies – Tetiana Bogodorova &amp; Luigi Vanfretti (KTH Royal Institute of Technology)</li> <li>• Eastern Interconnection model validation using phasor data – Derek Kou &amp; Yilu Liu (University of Tennessee, ORNL &amp; Tennessee Valley Authority)</li> <li>• Online wide-area voltage stability monitoring and control algorithm for power systems: RT-VSMAC – Saugata Biswas &amp; Anurag Srivastava (Washington State University)</li> <li>• Qualifying control loop stability measures and ICT network latency requirements in wide-area control design – Luigi Vanfretti (KTH Royal Institute of Technology)</li> </ul>
4:00 pm	Meeting adjourns

Map to walk from Holiday Inn World’s Fair Park (A) to CURENT (B) for reception Tuesday evening:

