



**NASPI VOLTAGE STABILITY AND  
OSCILLATION DETECTION TOOLS  
TECHICAL WORKSHOP**

**October 22, 2014**

**8am to 12:30pm**

**Royal Sonesta Hotel  
2222 West Loop South  
Houston Texas 77027**

Synchrophasor technology is the most significant electric grid monitoring and control center data improvement tool introduced over the past decade. High-speed synchrophasor data can enhance the quality, speed and effectiveness of control room situational awareness and operational responses to potential grid security problems.

While SCADA systems sample and report grid conditions every four to six seconds, phasor measurement units (PMUs) sample grid conditions at thirty samples per second or higher -- one hundred times faster than SCADA. These high-speed, time-synchronized data allow detection and analysis of grid oscillations and voltage stability that were not detectable before widespread PMU deployment. Both local and interconnection-wide oscillations have the potential to harm grid assets and could set off wide-scale blackouts. Similarly, local voltage instability can cause local power quality issues and could cascade into major grid disruptions.

A number of software applications have been developed to monitor synchrophasor data in real time and identify and diagnose oscillations and/or voltage problems to improve wide-area situational awareness. This NASPI technical workshop will look at the current capabilities of several commercial-grade oscillation detection tools and at several voltage stability tools, with the goal of assessing the diagnostic capabilities and information delivery capabilities of each tool. Active grid operators will be invited to review the tools and provide feedback on each.

As with NASPI's 2012 visualization tools workshop (<https://www.naspi.org/techworkshops>), this workshop will select several vendors to participate in the voltage stability tool comparison, and several others for the oscillation detection tool comparison. We will provide each set of vendors with PMU datasets for three different oscillatory or voltage stability events. We will ask each provider to prepare video clips showing how the tool displays and analyzes the event data. First in the oscillation detection session and then in the voltage stability session, we will show the vendor's videos for each event so the audience members can compare between the tools'

visual displays, information delivery, analytical conclusions and recommendations for grid management (if any).

We will be inviting grid operators to participate in the workshop as reviewers, asking them to score each tool video and provide feedback and commentary about the effectiveness, pros and cons of each tool. The event presentations will deepen the audience's appreciation for the phenomena and potential impacts of grid oscillations and voltage instability. The operators' feedback will help the vendors improve the quality and usability of their oscillation detection and voltage detection tools. Operator guidance will also help applications developers, grid engineers and others better understand how to design and deliver actionable information for control room use.

**NASPI ANTICIPATES PROVIDING NERC-CERTIFIED OPERATOR TRAINING CONTINUING EDUCATION HOURS** for operators participating in this workshop.

**Vendor participation:**

We select three or four vendors each for oscillation detection and voltage stability tests. Vendors should contact Alison Silverstein ([alisonsilverstein@mac.com](mailto:alisonsilverstein@mac.com)) by May 16, 2014 to indicate interest in participating in the workshop. That email should indicate which portion of the workshop you wish to participate in and which software you want to feature in the workshop. The NASPI workshop team will then select which vendors and software will participate, and notify all vendors who expressed interest by June 6. We will provide the workshop test datasets and presentation guidelines to the vendors in July, with a likely submittal deadline in early September.

**Rough time allocation:**

8am to 8:20 -- intro and human factors overview and visualization and feedback guidance for operators  
8:20 to 10:00 am -- show and grade three or four OD clips (per clip -- 2 mins to view clip, 8 mins for grading, 5 mins for discussion), 15 mins closing discussion including presentation of actual events and outcomes test sets based on  
10:00 -10:15 -- break  
10:15 - 11:45 -- show and grade three or four VS clips (etc)  
11:45 - 12:15 -- closing discussion, maybe including observations from the human factors experts

**Expected audience:**

30 operators, 120+ attendees from NASPI, 40 from CIGRE

**Workshop registration:**

Workshop registration will be available in August 2014. A registration announcement will be sent to NASPI, CIGRE, NERC OC-PC, and other interested groups.