Operations Implementation Task Team (OITT) Report

NASPI Workgroup Meeting
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Team's Scope, Goals and Activities

Scope

☐ <u>Deployment of and training and tools</u> enabling operators, reliability coordinators and others engaged in operational aspects of grid reliability to effectively <u>monitor and assess the real-time operations</u> of the bulk power grid on a <u>wide area</u> basis.

☐ Tools include applications that utilize PMU data for <u>state estimation</u> and <u>other real-time applications</u>.

Goals & Activities

– Expand and improve suite of tools

– Provide Operator (and Engineer) education and training on phasor technology and use of tools

– Expand and promote NASPI participation and infrastructure

– Display development and management

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Accomplishments

Goal: *Provide Operator (and Engineer) education and training on phasor technology and use of tools*

- Webcasts (<u>archived versions available</u>) conducted on:
    - *Calibration and Conversion of a DFR to a PMU.*
    - *Performing Small Signal Stability Analysis (SSSA) on PMU Data using RTDMS.*
    - *Connecting SEL Relays with PMU functionality to the NASPI Data Concentrator.*

- <u>NERC Continuing Education program</u> on synchrophasors deployed at Bismarck State College.

- Developed 6Cs Training Template for "Respond to Angular Separation" and "Small-Signal Stability".

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Accomplishments (cont.)

Goal: Expand and promote NASPI participation and infrastructure

- RTDMS User Group charter and webpage created:
    - http://www.phasor-rtdms.com/prtdms-web/rtdmsusergroup.html

- ERCOT participation on OITT has started – Starter Phasor Monitoring System and RTDMS to be installed at ERCOT by year-end.

- Data Agreements being established with BPA, SCE and others for data sharing across WECC.

- CIGRE paper and presentation on SE Enhanced Performance with PMU Pilot Project (August, Paris).

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Accomplishments (cont.)

<u>Goal</u>: Expand and improve suite of tools

- Enhanced data reporting capabilities on RTDMS – incorporates user based extraction and presentation on long-term statistics (e.g. Daily or Weekly) in support of baselining activity.
  Status: Deployed.

- Automated email notifications and associated information on:
  - (*1) threshold violations,*
  - *(2) poor data quality, (e.g. PMUs, PDCs not reporting)*
  - *(3) RTDMS system failures*
  Status: Development complete; undergoing field testing.

- Measurement based voltage and angle sensitivity displays to alert user on departure from the corresponding power-voltage and power-angle curves respectively.
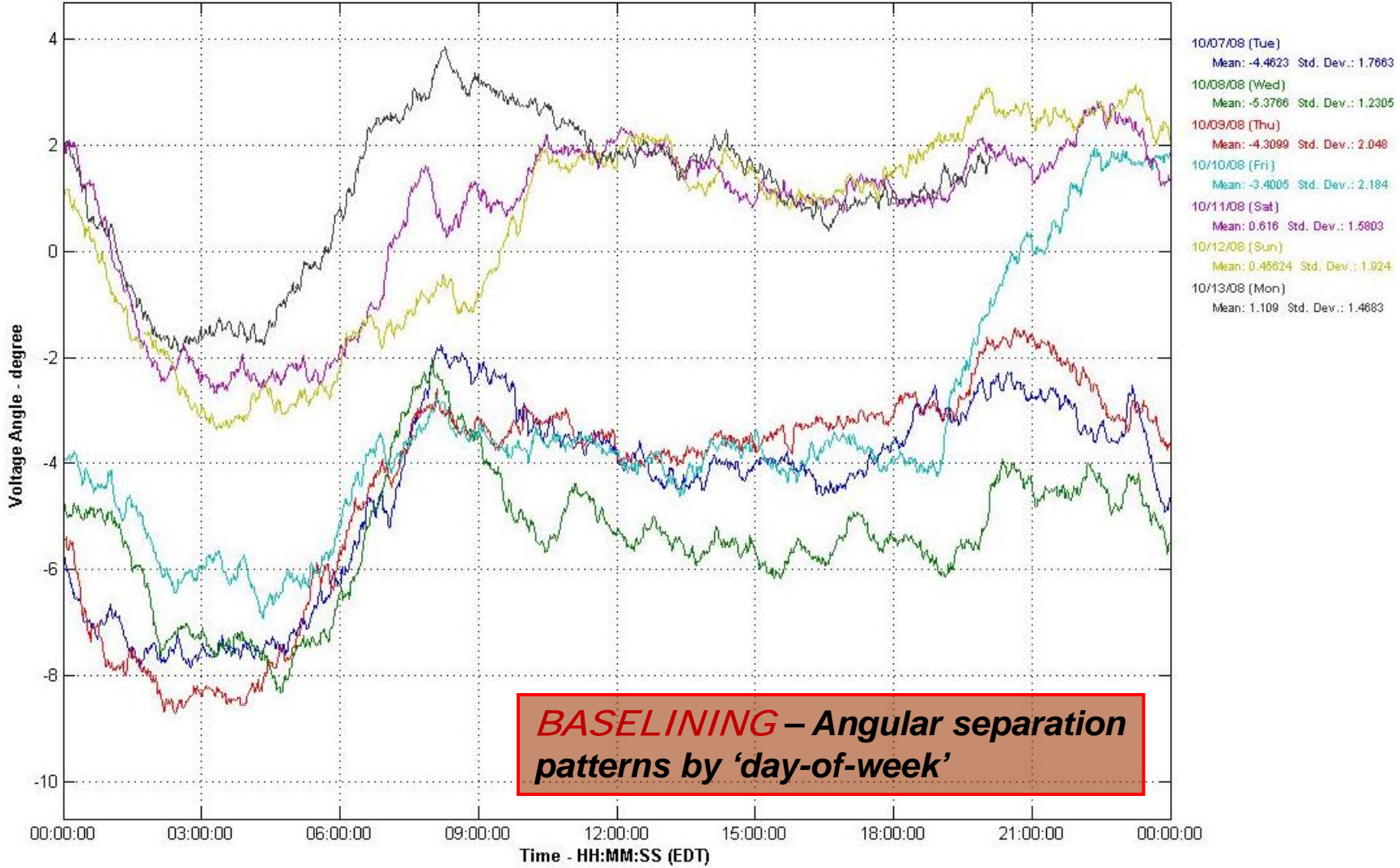 *Status: Development complete; undergoing factory testing.*

- RTDMS Visualization Client enhancements based on end-user feedback
  Status: Under development ; release targeted by Year End 2008.

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Example of New RTDMS Reports Features

Voltage Angle Data Trend (1-Minute Resolution): Rush Island.VA.Stfr-1 Line +SV- Ref: Callaway.VA.Mtgy-Cal-7 L S
Start Time: 07-Oct-2008 00:01:00 EDT
End Time: 13-Oct-2008 20:08:00 EDT

10/07/08 (Tue)
  Mean: -4.4623 Std. Dev.: 1.7663
10/08/08 (Wed)
  Mean: -5.3766 Std. Dev.: 1.2305
10/09/08 (Thu)
  Mean: -4.3099 Std. Dev.: 2.048
10/10/08 (Fri)
  Mean: -3.4005 Std. Dev.: 2.184
10/11/08 (Sat)
  Mean: 0.616 Std. Dev.: 1.5803
10/12/08 (Sun)
  Mean: 0.45624 Std. Dev.: 1.924
10/13/08 (Mon)
  Mean: 1.109 Std. Dev.: 1.4683

BASELINING – *Angular separation patterns by 'day-of-week'*

Future Plans

- Establish RTDMS Users Group & listserv as a medium to gather end-user feedback on existing and planned functionalities.

- Develop data archive for engineers and researchers.

- Establish realistic alarming limits based on angle baseline analysis as well as implementing soft limits.

- Implement automated report generation for significant alarms.

- Identify other tools that could send alerts, alarms and other cues to the RTDMS platform.

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