



PLANNING IMPLEMENTATION TASK TEAM (PITT)

**Eastern Interconnection Phasor Project (EIPP)/
North American SynchroPhasor Initiative (NASPI)
Working Group Meeting
May 9-10, 2007
Long Beach, CA**



PLANNING IMPLEMENTATION TASK TEAM (PITT)

PITT CHARTER

Identify & Facilitate the Development, Deployment & Training of Tools/Techniques...

that Enable Planners/Analysts/Others to Support Assessment of System Performance & Model Validation...

and to Enhance Decision-Making Related to Bulk Grid Reliability



PLANNING IMPLEMENTATION TASK TEAM (PITT)

- **Leader: Navin Bhatt**
- **NERC Facilitator: Eric Allen**
- **Co-Leader**
 - ✓ **To Be Decided**
 - ✓ **Looking for Volunteers.**



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KEY 2007 DELIVERABLES

- **Develop a plan for baselining measurements of phase angles & small signal stability performance**
- **Gather statistics on phase angle separations across the Interconnection(s)**



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KEY 2007 DELIVERABLES

- **Get familiarized with tools/techniques to perform small signal stability using PMU data. Identify dominant frequency modes and associated damping for system ambient conditions.**
- **Report on normality of phase angle separations and dominant frequency modes.**

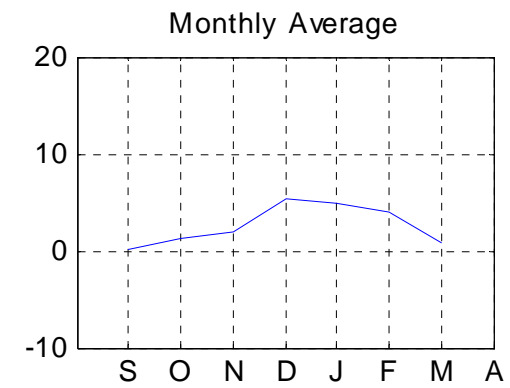
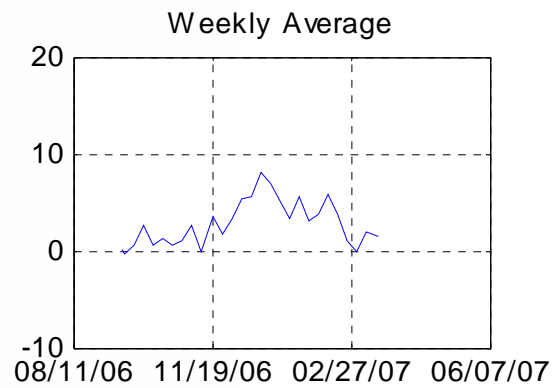
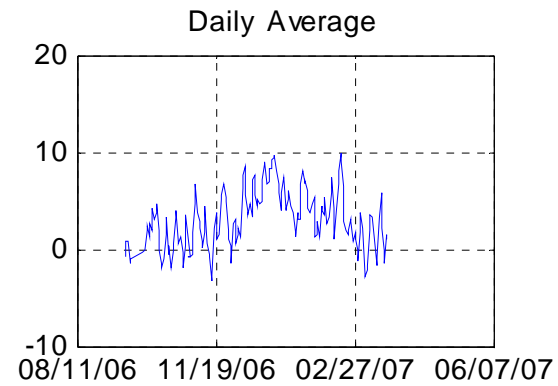
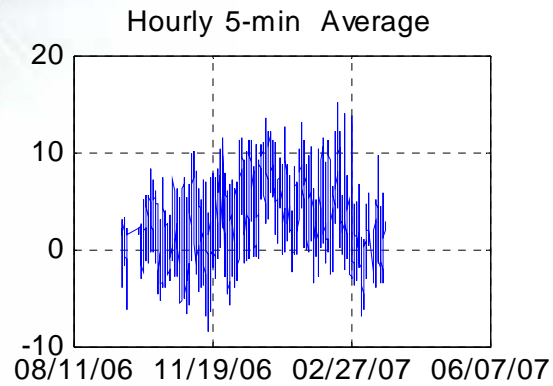


RECENT PITT ACTIVITIES

ANALYSIS ON PHASE ANGLE SEPARATION

- **Jointly with Operations Implementation Task Team Led By Terry Bilke**
- **Hourly, Daily, Weekly and Monthly Trends of Phase Angle Separation (Slide #7)**
- **Cohesiveness among PMU locations (by Manu Parashar)**

Angle Difference Trend



Angle Difference between two AEP PMUs



RECENT PITT ACTIVITIES

ANALYSIS ON PRIMARY FREQUENCY (GOVERNING) RESPONSE

- **AEP, NYISO & NEISO continue to routinely analyze generator trip incidents & document results.**



RECENT PITT ACTIVITIES

MODAL ANALYSIS

- **AEP, NYISO & NEISO continue to analyze incidents of low frequency oscillations & document results.**



RECENT PITT ACTIVITIES

- **Recently, AEP, NERC and PJM started efforts to analyze EI-wide PMU data for**
 - **Phase angle separation**
 - **Small signal stability**
 - **Governing response**



RECENT PITT ACTIVITIES

- Lesson Learned: Before embarking on an EI-wide PMU data analysis efforts:**
- **Data issues need to be addressed urgently.**
 - **Data Confidentiality/Sharing**
 - **Data Access**
 - **Data Quality**
 - **Focus: Validate the quality of PMU data archived at TVA SPDC through end-to-end data quality checks.**