Performance and Standards Task Team

- Task Team Leader: Vahid Madani/PG&E
- Task Team Co-Leader: Damir Novosel/Quanta Technology
- Task Team Technical Support: Henry Huang/PNNL
- Task Team Administrative Support: Teresa Carlon/PNNL

This task team comprises ~ 200 members (>70 Active)
Summary of PSTT Activities

PMU/PDC Hardware

Phasor Network

Applications

Accomplished
Recently Accomplished
Ongoing High Priority
Ongoing

PMU Testing And Calibration
Phasor Accuracy
Define PMU
Commissioning & Maintenance
PDC Functions
PDC Testing
Multi-function PMUs
IEC 61850 for PMU
C37.118 for “Dynamic” Phasor

Synchronization Techniques
PMU Installation
PDC Communication
HW & SW Upgrade

Network Connection
Network Configuration
*Network Testing
*Naming Convention
*Cyber Security Std for Phasor

Phasor Accuracy
Define PMU
Commissioning & Maintenance
PDC Functions
PDC Testing
Multi-function PMUs
IEC 61850 for PMU
C37.118 for “Dynamic” Phasor

Phasor Network

Phasor Data

*Format & compression std
Phase Angle Reference
Phasing Survey
Phase Mapping
Archival System

Applications

Req’t for Visualization
Advanced Applications & Deployment
Phasor “ROI”

Req’t for State Estimation
Performance Matrix
Phasor Tools Repository

Archival System

* Coordination with DNMTT

PSTT-IEEE Standard Development
Phasor Tutorials
Synchrophasor System Standards/Guides

- IEEE 37.118.1
- IEEE 37.242
- IEEE 37.238
- IEEE C37.244
- IEC 61850
- IEEE 37.118-2

**PMU**
- Measurements
- Synchronization
- Calibration
- Testing
- Installation

**PDC**
- Requirements
- Communication
- Testing
- Installation

**Comm. System**
- Consistency
- Interoperability

- Guide on using PMUs in multi-function devices
- Application requirements and benefit metrics
- Data repository and archiving
- “Tutorials” about the documents and guides

* Collaboration with other TTs.

**NASDAQ SynchroPhasor Initiative**

**IEEE/IEC**

**NASPI**

**IEC 61850**

**IEEE**
# Current PSTT Goals and Metrics

<table>
<thead>
<tr>
<th>Goal</th>
<th>Goal</th>
<th>Metric</th>
<th>Deliverable</th>
<th>Priority</th>
<th>Lead</th>
</tr>
</thead>
</table>
| 1    | Oversee the process of moving PSTT documents to IEEE/IEC and to expedite the process. | - IEEE 37.118.1 & .2  
- IEEE C37.242  
- IEEE C37.244  
- IEEE C37.238  
- IEC 61850 | Various due date for each standard | High | Group effort: Vahid Madani, Damir Novosel, Paul Myrda, Ken Martin, Mladen Kezunovic, Galina Antonova, Farnoosh Rahmatian |
| 2    | Phasor Requirements and Benefit Metrics for Tools and Applications | Develop a draft guide                                                  | October '13       | High     | Dave Bertagnolli & Tony Weekes                                      |
| 3    | Guide for Phasor Data Repository and Archiving                       | Develop a draft guide for review at PSTT                             | October '13       | High     | Vahid Madani & Henry Huang                                         |
| 4    | Guide on Using PMU in Multi-Function Devices                        | Develop a draft guide                                                  | October '13       | High     | Yi Hu                                                               |
| 5    | Tutorials on Phasor Technology and Applications                      | Develop a draft tutorial                                               | October '13       | High     | Harold Kirkham                                                      |
| 6    | Sharing Specification and Functional Requirements                   | Review and Approve documents submitted by NASPI members               | on-going           | Medium   | Vahid Madani                                                       |
| 7    | Support SGIP/NIST/DOE activities on interoperability standards: Ex: Time | Participation at NIST/Enernex review meetings                          | on-going           | Medium   | Ron Farquharson                                                     |
| 8    | Support other TTs as needed                                          | Joint meetings                                                        | on-going           | Medium   | Vahid Madani, Damir Novosel                                        |
Strengthen NASPI/IEEE Collaboration

- IEEE C37.242 Guide for Synchronization, Testing, Calibration and Installation of PMUs
  - Scheduled to be published March 4, 2013.
- IEEE C37.244 Guide for PDC Requirements
  - 2nd circulation. Scheduled for approval by IEEE REVCOM March 2, 2013. If approved, then publish in 2-3 months.
- Participate in ICAP* Synchrophasor Conformity Steering Committee for PMU certification.
- PSTT Task Force on PMU Certification Process
- Get ready to transition to IEEE

*ICAP = IEEE Conformance Assessment Program
PSTT Four New Initiatives

- Guide on Application Requirements and Benefit Metrics (Phasor “ROI”)
- Guide on Data Archival Systems
- Guide on Using PMUs in Multi-Function Devices
- Synchrophasor System Tutorials

Plan to complete all these activities by October 2013, aligned with NASPII transition.
Guide on phasor application requirements and benefit metrics (*Phasor “ROI”*)

- **Scope**: Develop a guide for developing phasor system specifications and evaluating benefits of intended phasor applications. (Defining phasor “ROI”)

- **Background**: Post-SGIG needs investment from utility companies to sustain phasor development. This guide will help them to determine their phasor “ROI” in decision making.

- **Status**: Defined requirements and metrics. In the process of writing the guide.
Guide on phasor data archival systems

● **Scope:** Develop a guide that addresses the following topics:
  - Archiving system hardware requirements
  - Data types and categorization
  - Data Management and Administration
  - Data query and reconstruction
  - Data compression
  - Testing, training, and information dissemination
  - Cost vs. performance

● **Background:** Multiple formats for phasor data archiving exist, limiting data sharing, storage capabilities, portability, and interoperability.

● **Status:** Outline developed. In the process of writing the guide.
Guide on using PMUs in multi-function devices

- **Scope**: Develop a guide on the use of phasor functions in multi-function devices.

- **Background**: More and more multi-function devices (relays, DFRs, ...) provide phasor functions. Concerns exist about availability, interference, resource competition, and cyber security.

- **Status**: Draft developed. In the process of review via regular teleconferences.
Phasor “Tutorials”

● **Scope**: Develop a series of tutorials based on PSTT-developed documents and IEEE/IEC standards as well as today’s practices.

● **Background**: Documents and standards exist on individual topics. Users want a systematic view of phasor technology.

● **Status**: Coordinated with DNMTT. Revising tutorial outline.

● Target to present the tutorial at IEEE PES General Meeting 2014.