

# Coordination of Synchrophasor Related Activities

IEEE PES PSRC C23

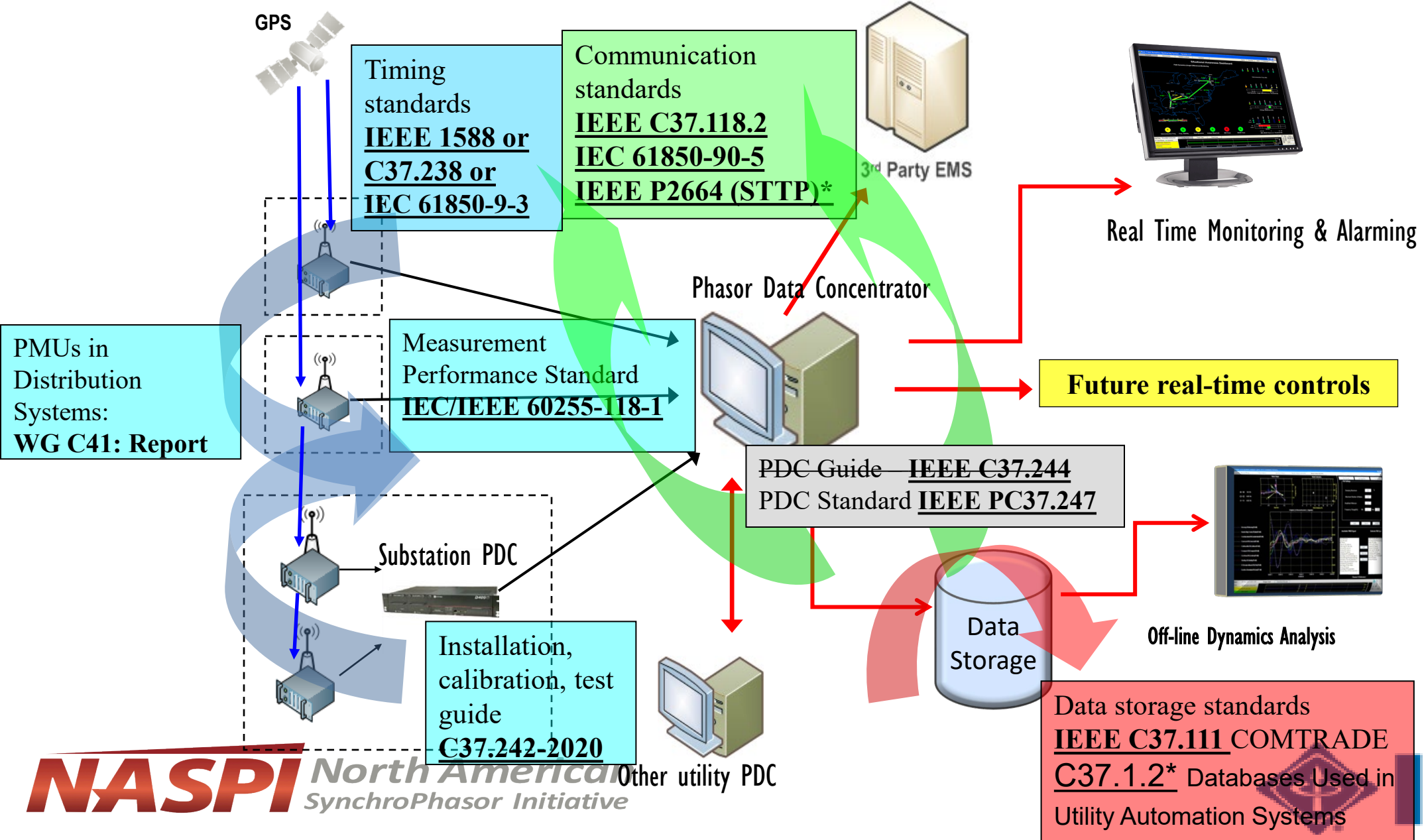
PSRC, Sept 13, 2022

Presented by:  
Allen Goldstein  
Chair

# MEMBERS

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# Phasor Measurement Systems



# How can you Cast a Ballot?

- <https://standards.ieee.org/develop/balloting-standard/castballot/>
  - The above page gives instructions for IEEE SA members to indicate interest in standards development areas and individual projects.
  - When a “balloting pool” is being formed, people who indicated an interest will be notified how to join the ballot pool.
- <https://standards.ieee.org/develop/balloting-standard/publicreview/>
  - Non IEEE members may also review the draft and submit comments but the public does not get to vote.

# IEEE PES PSRC Activities

- C23: Coordination of Synchrophasor Related Activities
- C46: Prepare a summary transactions paper on C37.242 – is a working group. Meets ~~monthly~~ weekly. Draft 1.0 is being reviewed by full WG.
- C41: Investigate Measurement Performance Requirements for PMUs in Distribution System Applications – Draft a report. - meets monthly, still about 1 yr. to completion.
- C40: Tutorial on C37.247 Standard for Phasor Data Concentrators (approval to present 4 hour tutorial at PES General Meeting)
- **C43: Report on Use of AI and ML for protection and control**
  - Report submitted to C subcommittee for review, expected to be published by January
  - Work is ongoing, likely a new TF will form for the next step – Tutorial, revision, etc
    - This is an ongoing effort, report hoped to provide guidance/justification for research. We know it is a fast developing subject area so ongoing IEEE effort is justified.
- H40: Guide for Databases used in Utility Automation Systems C37.1.2 (Draft 3.x?)
  - Has an annex on Synchrophasor Data Recording
  - Forming a ballot pool late August or sooner, please show your interest at IEEE SA website.
- H50: Requirements for Time Sources in Protection & Control Systems in progress.



# IEEE PES PSCC activities

- P1: Std. Profile for ... 1588... in Power Systems...Amendment adding a TLV for Leap Second, holdover and UTC declaration. **Resolving ballot comments, expected recirculation before September**
- P9: Revision of C37.118.2 Synchrophasor Data Transfer for Power Systems
  - **Sponsor Ballot group will be forming after this meeting!**
- P10: IEEE Standard for Streaming Telemetry Transport Protocol (IEEE P2664)
  - **More WG review is needed with hope of forming a ballot group between October and February**
- P20: Joint revision of IEC 61850-9-3 (IEEE 1588) Power Utility Profile
- S5: Revision of IEEE C37.240 Cyber Security Requirements for Power System Automation, Protection and Control Systems
- S8: P2658 Guide for Cybersecurity Testing in Electric Power Systems
- S15: Guide for Securing Generic Object Oriented System Events (GOOSE) and Sampled Values (SV) Protocols of IEC 61850 using IEC 62351-6 and IEC 62351-9
  - Particular interest to NASPI is R-GOOSE and R-SV security.

# NASPI past work

- **CRSTT:**
  - TRS & PNNL: Operational Use Cases for Time-Synchronized Measurements.
  - Using Synchrophasor Data to Determine Disturbance Location.
  - Using Synchrophasor Data for Oscillation Detection.
  - PMU versus SCADA Video Events Library.
  - Time synced measurements training for operators.
- **DNMTT:**
  - NASPI 2020 Survey of Industry Best Practices for Archiving Synchronized Measurements
  - NASPInet 2.0 Architecture Guidance (led by PNNL's Dr. Taft)
  - Utility survey of those collecting PMUs for architecture structure and analytics interface.
- **PSRVTT:**
  - Phasors or Waveforms: Considerations for Choosing Measurements to Match Your Application (PNNL)
  - Categorizing Phasor Measurement Units by Application Data Requirements.
  - ~~A Guide for PMU Installation, Commissioning and Maintenance.~~
- **DisTT:**
  - Distribution Synchronized Measurements Roadmap Final Report
  - Synchronized Measurements and their Applications in Distribution Systems: an update
  - DG-Load Disaggregation Use Case
  - Equipment Health Diagnostics Use Case
  - Fault Location Use Case
  - Phase Identification Use Case
  - Wildfire mitigation webinar
- **EATT:**
  - Data Mining Techniques and Tools for Synchrophasor Data.
  - Integrating Synchrophasor Technology into Power System Protection Applications.
  - Phase Angle Calculations: Considerations and Use Cases.

# NASPI current work

- CRSTT:
  - ERCOT update (Apr 27)
  - System Inertia Monitoring use case white paper.
  - Time synchronized measurements *simulation* training virtual course. Hope to get the course face to face again as the country opens.
  - Coordination with DisTT.
  - NASPI WG Spring 2022 panel session with operations personnel presenting.
  - Looking for presenters, ideas, new members.
- DNMTT:
  - Data Sharing (naming, formats, RT/archived, meta data)
  - Clocks and clock failure (lessons learned)
  - Synchrophasor Archive and Network Strategy Task Force (SANSTF) co-led by Laurel Dunn and Manjari Asawa are working on a Synchrophasor Application-Based Guide for Archive and Network Strategies (SABGANS).
  - Investigation of network architecture for synchrophasor edge computing solutions
  - Archive strategies
  - PMU Registry
  - Looking for a co-chair



# NASPI current work

- DisTT:
  - Use Case documents development with CRSTT.
  - Proposals for simulations of PMU in distribution systems.
  - Calls the 4<sup>th</sup> Wednesdays @ 4 pm.
- EATT:
  - Continues to make progress on the white paper, “Advanced Model Validation & Calibration” – **target completion Oct. 2022.**
  - Edge Computing Database
    - Education and real-world applications
- PSRVTT:
  - Survey of PMU connected instrument transformers.
  - Development of three white papers **nearing completion:**
    - Survey of Existing PMU applications Around the World and Classification.
    - Analyzing Synchrophasor Performance Requirements for Synchrophasor based Control Applications.
    - Data Quality Impacts on Synchrophasor based Control Applications.

Thank you

Allen Goldstein (outgoing C23 Chairman)

NIST

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Incoming C23 Chairman

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