

# Coordination of Synchrophasor Related Activities

IEEE PES PSRC C23

April 14, 2022

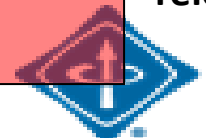
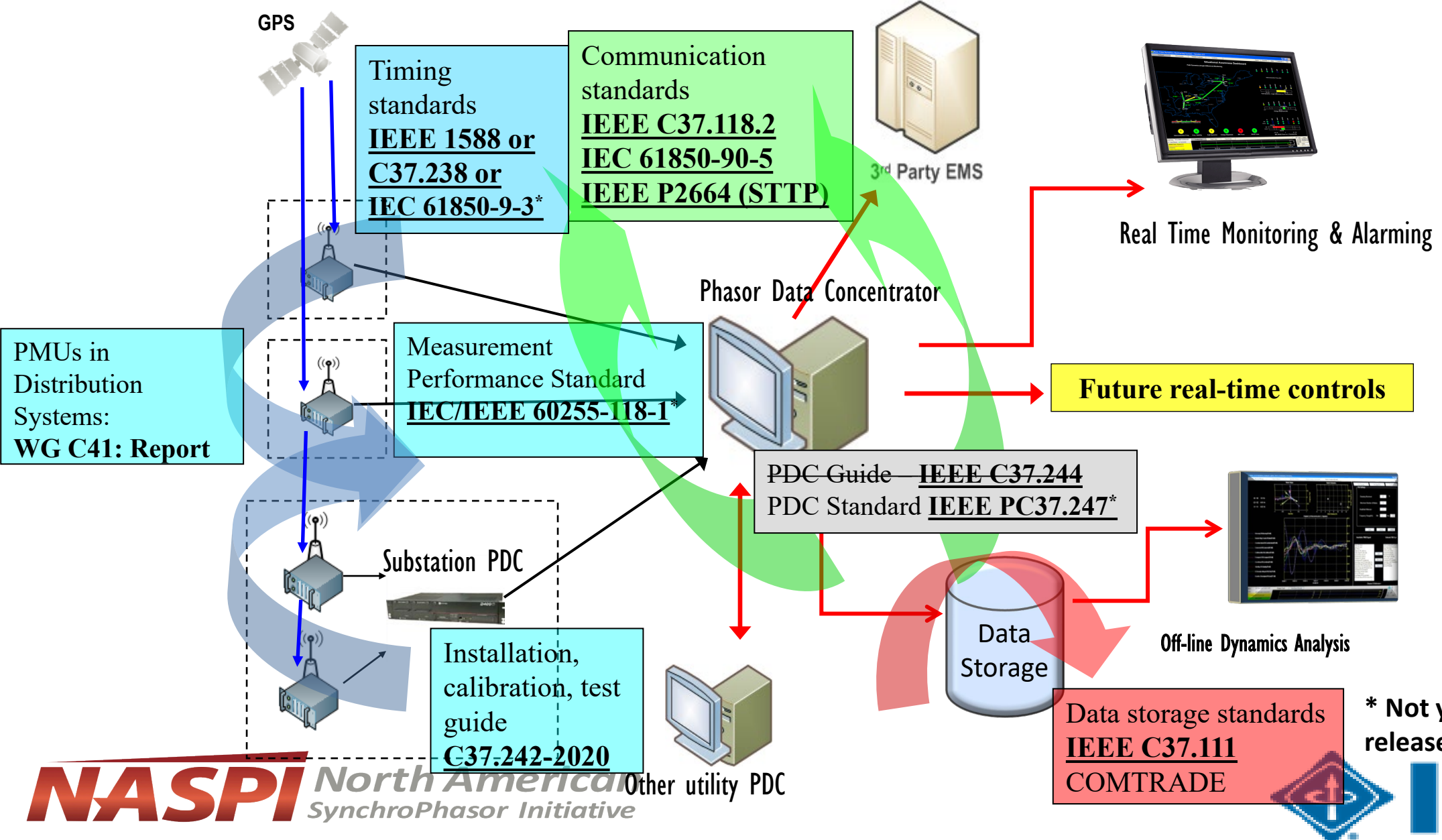
NASPI Work Group Meeting, April 12-14, 2022

Presented by:  
Allen Goldstein  
Chair

# MEMBERS

Gustavo	Brunello
Ratan	Das
Vasudev	Gharpure
Allen	Goldstein
Yi	Hu
Chris	Huntley
<del>Harold</del>	<del>Kirkham (retired)</del>
Deepak	Maragal
Kenneth	Martin
Paul	Myrda
Dean	Ouellette
Anthony	Johnson
James	O'Brien
Mital	Kanabar
Jeff	Dagle
Jim	O'Brien

# Phasor Measurement Systems



# IEEE PES PSRC Activities

- C23: Coordination of Synchrophasor Related Activities
- C28: C37.242 IEEE Guide for Synchronizing, Calibration, Testing, and Installation of PMUs – **Published in 2021, disbanding tomorrow at C Subcommittee meeting.**
- CTF46: Prepare a summary transactions paper on C37.242 – is a working group. Meets monthly
- C41: Investigate Measurement Performance Requirements for PMUs in Distribution System Applications – Draft a report. - meets monthly.
- C40: Tutorial on C37.247 Standard for Phasor Data Concentrators (approval to present 4 hour tutorial at PES General Meeting)
- 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. **Has reached a 90% consensus in the working group for submission to IEEE SA sponsor ballot**
- P9: Revision of C37.118.2 Synchrophasor Data Transfer for Power Systems
  - **Sponsor Ballot expected after May 2022 PSCC meeting.**
- P10: IEEE Standard for Streaming Telemetry Transport Protocol (IEEE P2664)
  - Possible ballot in 2022
- 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 hite 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  
NIST

[allen.goldstein@nist.gov](mailto:allen.goldstein@nist.gov)

(206) 276-7347