



NASPI Update

Jim Follum, PNNL



Outline

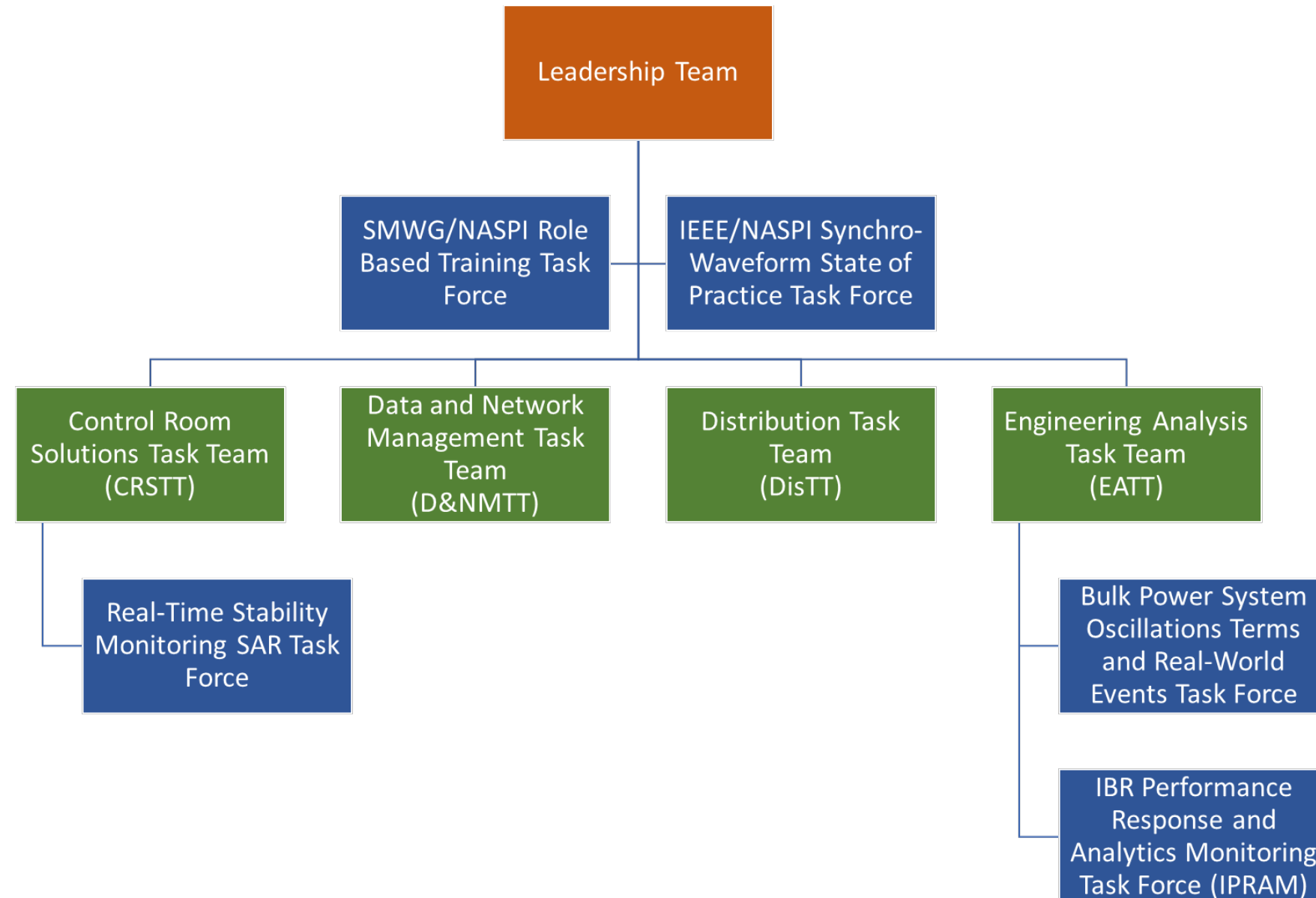
- NASPI's structure and activities
- Looking back
- This week's meeting
- Looking ahead



Outline

- **NASPI's structure and activities**
- Looking back
- This week's meeting
- Looking ahead

Work Group Structure





Task Teams: Incubators for New Ideas and Approaches to Solve Challenges

- **Control Room Solutions Task Team (CRSTT):** works to advance the use of real-time applications to improve control room operations and grid resilience and reliability.
 - Leads: Michael Nugent and Kliff Hopson
- **Engineering Analysis Task Team (EATT):** develops, tests, and validates engineering applications, assists in their deployment and utilization, and recommends R&D activities.
 - Leads: Lin Zhu and Urmila Agrawal
- **Data and Network Management Task Team (DNMTT):** provides guidance for data networking, archiving, and access issues, and reviews new archiving and networking technologies.
 - Lead: Dan Brancaccio
- **Distribution Task Team (DisTT):** fosters the use and capabilities of synchronized measurement data at the medium-voltage distribution level.
 - Leads: Panos Moutis and Bryce Johanneck

Send an email to naspi@pnnl.gov to get involved!

Task Forces: Delivering Impactful Work Products

- **IBR Performance Response and Analytics Monitoring:** documenting the unique capabilities of synchronized measurements to monitor IBRs
 - Lead: Priya Mana
- **Bulk Power System Oscillations Terms and Real-World Events (new!):** promoting consensus by updating an oscillation terminology document
 - Leads: Urmila Agrawal and Jimmy Zhang
- **Real-Time Stability Monitoring SAR (new!):** developing a NERC Standard Authorization Request (SAR) to require real-time stability monitoring
 - Leads: Kevin Ostash, Mani Venkatasubramanian, Marianna Vaiman
- **Joint NERC SMWG/NASPI Task Force for Role-Based Synchrophasor Training (new!):** empowering utility stakeholders with tailored synchrophasor knowledge
 - Leads: Clifton Black and Eric Andersen
- **Joint IEEE/NASPI Task Force on Synchro-Waveform State of Practice (new!):** conducting an industry survey to summarize current state-of-practice and emerging interests
 - Leads: Hamed Mohsenian-Rad, Jhi-Young Joo, and Kaustav Chatterjee

Send an email to naspi@pnnl.gov to get involved!

Meeting Cadence

May	June	July	August	September	January	February	March	April
Webinar	Webinar	Virtual Quarterly Task Team Meetings	Webinar	Charlotte Work Group Meeting	Virtual Quarterly Task Team Meetings	Webinar	Webinar	In-Person Work Group Meeting

Task Forces meet as needed throughout the year



Outline

- NASPI's structure and activities
- **Looking back**
- This week's meeting
- Looking ahead

Summer Webinar Series

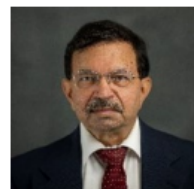
NASPI

THE NORTH AMERICAN SYNCHROPHASOR INITIATIVE WEBINAR SERIES

Vasudev Gharpure, Quanta Technology

IEEE C37.118.2-2024: Revised Standard for Synchrophasor Data Transfer for Power Systems

The synchrophasor data transfer standard (C37.118.2-2024) was revised recently. This webinar will describe the new features introduced in the updated version. It will provide a brief history of this standard, outline the revision needs identified through use, and explain how this revision addresses those needs. The session will also cover backward compatibility with devices already in the field and describe a path for mixed-version deployment when the updated standard is implemented in newer devices.



Vasudev Gharpure has been with Quanta Technology for 15 years and brings 42 years of experience in various electrical engineering fields. He has designed hardware and firmware for digital and analog protection relays, phasor measurement units, phasor data concentrators, power system stabilizers, and other real-time embedded systems-based industrial products. He has also developed specifications for wide-area applications based on synchrophasor technology.

His areas of interest and expertise include the application and testing of synchrophasor technology; protection and control of power systems; embedded control applications; automation and automated test equipment; distribution system studies using CYME, Synergi, and PSCAD; and power electronics.

To attend this free webinar, please register at <https://www.naspi.org/node/1011>.

Check out our prior webinars and related content here: <https://www.naspi.org/webinars>.

Please email naspi@pnnl.gov if you would like to be on our email list. For more information about how you can support NASPI and participate in our face-to-face Work Group meetings please visit www.naspi.org/work-group-meetings.

Wednesday, May 28, 2025
10:00 a.m. Pacific / 1:00 p.m. Eastern (1 hr.)
Please share with colleagues

NASPI

THE NORTH AMERICAN SYNCHROPHASOR INITIATIVE WEBINAR SERIES

Developing Methods for Locating Oscillation Sources by Extracting Interharmonic Components from Synchrophasor Data

Wilson Xu, University of Alberta

Recent advancements in power system oscillation research have revealed that phasor oscillations originate from the beating-wave phenomenon of voltage and current waveforms. Fourier analysis of these waveforms shows that certain spectral components, known as interharmonics, are the principal contributors to these oscillations. By extracting interharmonic components from waveform data, several practical applications have emerged—including the identification and localization of oscillation sources.

Despite the growing recognition of the value of waveform data for power system monitoring, its availability for oscillation monitoring remains limited. In contrast, PMU-based synchrophasor data is more readily accessible. This disparity prompts the question: is it feasible to extract interharmonic information from phasor data and develop similar applications without relying on waveform data? This presentation shares findings related to this inquiry. It demonstrates that for certain oscillation phenomena, interharmonic components can indeed be extracted from phasor data and used to locate oscillation sources. This presentation also addresses the limitations and challenges associated with inferring waveform-level information from phasor data.



Dr. Wilson Xu received his Ph.D. from the University of British Columbia, Canada, in 1989. He worked at BC Hydro in Vancouver, Canada, for seven years before joining the University of Alberta in Edmonton, Canada, in 1996, where he is currently a professor. Dr. Xu has been engaged in power quality research, education, and consulting for over 30 years and is an IEEE Fellow for his contributions to power system harmonics research. From 2007 to 2020, he served as the Senior Power Quality Industrial Research Chair of the Natural Sciences and Engineering Research Council of Canada. Dr. Xu's research on disturbance source location and disturbance signal analysis has led to the findings shared in this webinar.

To attend this free webinar, please register at https://pnnl.zoomgov.com/webinar/register/WN_ViXKKW1RRWGxDaPLcqr-aw.

Interested in learning more? Explore our previous webinars and related materials here, including the May session, [*"IEEE C37.118.2-2024: Revised Standard for Synchrophasor Data Transfer for Power Systems."*](#) presented by Vasudev Gharpure.

Please email naspi@pnnl.gov if you would like to be on our email list. For more information about how you can support NASPI and participate in our face-to-face Work Group meetings please visit www.naspi.org/work-group-meetings.

Wednesday, June 25, 2025
10:00 a.m. Pacific / 1:00 p.m. Eastern (1 hr.)
Please share with colleagues.

NASPI

THE NORTH AMERICAN SYNCHROPHASOR INITIATIVE WEBINAR SERIES

Julia Matevosyan, Energy Systems Integration Group

Post-Commissioning Monitoring Aspects of IEEE P2800.2

IEEE P2800.2 is currently being drafted. It defines recommended practices for conformity assessment procedures that should be used to verify plant-level conformity with IEEE Std 2800 for IBR plants interconnecting with a bulk power system. An IBR plant level conformity needs to be assessed not only during interconnection and commissioning processes but also during the lifetime of the plant. Post-commissioning conformity assessment is generally not being carried out for IBR plants today. This creates a reliability concern, since IBR plant model can only be truly validated and IBR plant performance evaluated on actual disturbance events. This webinar will cover the post-commissioning model validation, monitoring and periodic testing aspects proposed by IEEE P2800.2.



Julia Matevosyan is ESIG's Associate Director and Chief Engineer, and has more than 25 years of experience in the power industry. Prior to joining ESIG, Matevosyan was the Lead Planning Engineer of the Electric Reliability Council of Texas (ERCOT). In her time with ERCOT, she worked on system flexibility, frequency control and performance issues related to high penetration levels of inverter-based generation and ancillary services market design. Matevosyan received her BSc from Riga Technical University in Latvia, and her MSc and PhD from the Royal Institute of Technology in Sweden.

To attend this free webinar, please register: https://pnnl.zoomgov.com/webinar/register/WN_s79mlI9DRkWyv9ypP9-BQg#registration

Check out our prior webinars and related content: <https://www.naspi.org/webinars>.

Please email naspi@pnnl.gov if you would like to be on our email list. For more information about how you can support NASPI and participate in our face-to-face Work Group meetings please visit www.naspi.org/work-group-meetings.

Wednesday, August 20, 2025
10–11 a.m. Pacific (1 p.m. Eastern)
Please share with colleagues

July Task Team Meeting Series

Wednesday, July 16, 2025	
9:00 – 10:50 PT 12:00 – 1:50 ET	Data and Network Management Task Team (D&NMTT) D&NMTT provides guidance for data networking, archiving, and access issues, and reviews new archiving and networking technologies.
10 minutes	Welcome – DNMTT Lead Dan Brancaccio (Quanta Technology)
10 minutes	NASPI Work Group Updates – Jim Follum (PNNL)
30 minutes	Backfilling Synchrophasor Data Following Communication Losses and the Applicability of STTP for POW Data Delivery – Ritchie Carroll (Grid Protection Alliance)
30 minutes	Overview of Changes in IEEE C37.118.2-2024 Specification – Vasudev Gharpure (Quanta Technology)
30 minutes	D&NMTT Work Products Discussion & Planning – Dan Brancaccio (Quanta Technology)
Break – 10 Minutes	
11:00 – 12:50 PT 2:00 – 3:50 ET	Distribution Task Team (DisTT) DisTT fosters the use and capabilities of synchronized measurement data at the medium-voltage distribution level.
10 minutes	Welcome – DisTT Co-Leads Panos Moutis (City College of New York) and Bryce Johanneck (Quanta Technology)
10 minutes	NASPI Work Group Updates – Jim Follum (PNNL)
40 minutes	Challenges to synchrophasor measurement deployments in distribution grids from a system operations perspective – Bryce Johanneck (Quanta Technology)
10 minutes	Break
40 minutes	Developing Material for Promoting Synchronized Measurement Among Distribution System Stakeholders – Panos Moutis (City College of New York) & Discussion

Thursday, July 17, 2025	
9:00 – 10:50 PT 12:00 – 1:50 ET	Engineering Analysis Task Team (EATT) EATT develops, tests, and validates engineering applications, assists in their deployment and utilization, and recommends R&D activities.
10 minutes	Welcome – EATT Co-Leads Urmila Agrawal (EPG) and Lin Zhu (EPRI)
10 minutes	NASPI Work Group Updates – Jim Follum (PNNL)
20 minutes	Grid-Forming Model Development – Wei Du (PNNL)
20 minutes	Managing Grid Stability in Low-Inertia Environments: Practical Approaches Using Real-Time PMU Measurements – Krish Narendra (EPG)
30 minutes	IBR Performance Response and Analytics Monitoring (IPRAM) Task Force Update – Priya Mana (PNNL)
20 minutes	White Paper Update: Bulk Power System Oscillation Terms – Urmila Agrawal (EPG)
Break – 10 Minutes	
11:00 – 12:50 PT 2:00 – 3:50 ET	Control Room Solutions Task Team (CRSTT) The CRSTT works to advance the use of real-time applications to improve control room operations and grid resilience and reliability.
10 minutes	Welcome – CRSTT Co-Leads Mike Nugent (NextEra Energy) and Kliff Hopson (BPA)
10 minutes	NASPI Work Group Updates – Jim Follum (PNNL)
20 minutes	Maintaining Oscillation Alarm Limits at BPA – Kliff Hopson (BPA)
45 minutes	Operations PMU Applications at ONS – Ricardo Lira (ONS – National Electric System Operator of Brazil)
25 minutes	Updates on Ongoing CRSTT Initiatives <ul style="list-style-type: none"> Real-Time Monitoring Requirements SAR Development Task Force – Kevin Ostash (Manitoba Hydro) Joint CRSTT/SMWG Roadmap for Integrating Synchrophasors into Operations – Mike Nugent (NextEra Energy) and Kliff Hopson (BPA)



Outline

- NASPI's structure and activities
- Looking back
- **This week's meeting**
- Looking ahead

Thank you NASPI Partners!

Gold Partners



Silver Partners

PingThings

OSCILLOQUARTZ
A division of Adtran

 Electric Power Group

Tuesday's Agenda

Tuesday, September 23, 2025	
8:30 – 9:30 am	Registration and coffee
9:30 – 9:35 am	Welcome, Introductions, and Logistics Review: Jim Follum (PNNL)
9:35 – 9:55 am	Keynote 1: Welcome – Aidan Tuohy, Director of EPRI Transmission Operations & Planning (EPRI)
9:55 – 10:15 am	Keynote 2: NASPI History – Jeff Dagle (PNNL)
10:15 – 10:35 am	NASPI Update – Jim Follum (PNNL)
10:35 – 11:00 am	Break
Session 1 – Large Electronic Loads Panel	
11:00 – 12:00 pm	<ul style="list-style-type: none"> Large Electronic Load Events in ERCOT – Patrick Gravois (ERCOT) Emerging Challenges from Data Centers in Dominion Energy – Chetan Mishra, Kevin Jones, and Jaime De La Ree (Dominion Energy)
	<ul style="list-style-type: none"> Southern Company's Experience with Large Electronic Loads – Clifton Black (Southern Company)
12:00 – 1:00 pm	Lunch
Session 2 – Synchro-Waveform Applications Panel	
1:00 – 2:00 pm	<ul style="list-style-type: none"> Coordination and Augmentation Requirements for AI/ML in Distribution Waveform Analytics - Hamed Valizadeh-Haghi (Southern California Edison) Observed Effects of Geomagnetic Disturbances from Wide Area Monitoring System – Theo Laughner (Lifescale Analytics) Challenge in Synchronization: Time-Stamping Synchronized Waveforms – Christoph Lackner (Grid Protection Alliance)
Session 3 - Technology Partner Flash Talks	
2:00 – 2:40 pm	<ul style="list-style-type: none"> Schweitzer Engineering Laboratories Electric Power Group Oscilloquartz PingThings
2:40 – 3:00 pm	Break

Tuesday's Agenda

	Session 4 - Task Team Breakout Sessions
3:00 – 5:00 pm	<p>Control Room Solutions Task Team (CRSTT)</p> <ul style="list-style-type: none"> Welcome from Task Team Leads – Mike Nugent (NextEra Energy) and Kliff Hopson (Bonneville Power Administration) NASPI Role-Based Training (Operations) – update and discussion CRSTT/SMWG Roadmap for Integrating Synchrophasors into Operations – discussion Real-Time Stability Monitoring SAR Task Force – overview and working session
	<p>Data & Network Management Task Team (DNMTT)</p> <ul style="list-style-type: none"> Welcome from Task Team Lead - Dan Brancaccio (Quanta Technology) Comparing Different Architectures for Synchronized Measurements in the Cloud: Results from DOE's GOAAT-IBR Project – Chris Carpenter (Quanta Technology) Streaming Event-Triggered Point-On-Wave Measurements for Disturbance Monitoring and Analysis – Kaustav Chatterjee (Pacific Northwest National Laboratory) COMTRADE for Point on Wave Data: What's Old is New Again – Dan Brancaccio (Quanta Technology) DNMTT Work Products Discussion & Planning
	<p>Distribution Task Team (DisTT)</p> <ul style="list-style-type: none"> Welcome from Task Team Leads – Panos Moutis (City College of New York) and Bryce Johanneck (The Grid Company) Progress and Next Steps of Promotional Video/Slide-Deck Development – Panos Moutis (City College of New York) Synchronized Measurements for Monitoring Distribution Grid Cable Installations – Bryce Johanneck (The Grid Company) Round Table Discussion: The who-is-who of synchronized measurements at the distribution level Round Table Discussion: Data and communication concerns with synchronized measurements at the distribution level
	<p>Engineering Analysis Task Team (EATT)</p> <ul style="list-style-type: none"> Welcome from Task Team Leads – Urmila Agrawal (Electric Power Group) and Lin Zhu (EPRI) IBR Performance Response and Analytics Monitoring (IPRAM) Task Force Update – Priya Mana (PNNL) White Paper Update: Bulk Power System Oscillation Terms – Urmila Agrawal (EPG) Regional Grid Inertia Estimation and Nadir/RoCoF Prediction Using Ambient Synchrophasor Measurements - Lin Zhu (EPRI) Optimal PMUs/WMUs Placement for Oscillations Monitoring and Detection - Jin Tan (NREL) Round table discussion on next steps
5:00 – 7:30 pm	NASPI Reception, Vendor Show

Wednesday's Agenda

8:30 – 9:30 am	Registration and coffee
	Session 5 – NASPI Task Team Updates
9:30 – 10:15 am	<ul style="list-style-type: none"> • CRSTT – Michael Nugent and Kliff Hopson • DNMTT – Dan Brancaccio • DisTT – Panos Moutis and Bryce Johanneck • EATT – Urmila Agrawal and Lin Zhu
	Session 6 – NASPI Task Force Updates
10:15 – 10:40 am	<ul style="list-style-type: none"> • SMWG/NASPI Role-Based Training Task Force – Clifton Black and Eric Andersen • IEEE/NASPI Synchro-Waveform State of Practice Task Force – Hamed Mohsenian-Rad, Jhi-Young Joo, and Kaustav Chatterjee
10:40 – 11:00 am	Break
	Session 7 – Oscillation Monitoring and Analysis
11:00 – 11:20 am	Duke Energy's Experience with Oscillation Monitoring and Analysis – Kat Sico (Duke)
11:20 – 11:40 am	KGRID: Crowd Sourced Voltage Waveform Monitoring – David Daigle (CAISO)
	Session 8 – Utility Success Story
11:40 – 12:00 pm	Utilizing Synchrophasor Data for Non-Intrusive Equipment Failure Detection and Asset Health Monitoring: Lessons learned from two case studies at New York Power Authority – Reza Pourramezan (New York Power Authority)
12:00 – 1:00 pm	Lunch

Wednesday's Agenda

12:00 – 1:00 pm	Lunch
	Session 9 – Distribution
1:00 – 1:20 pm	Analysis of Waveform Measurements from Utility Distribution Systems: Lessons Learned – Jhi-Young Joo (Lawrence Livermore National Laboratory)
1:20 – 1:40 pm	Investigation of Performance Requirements for Distribution PMUs – Ken Martin (Electric Power Group)
	Session 10 – Organization Updates
1:40 – 2:40 pm	<ul style="list-style-type: none"> • IEEE PSRC/PSCC – Yi Hu • NERC SMWG – Clifton Black • CIGRE C4/C2.62 – Evangelos Farantatos • IEEE Synchro-Waveform Task Force – Hamed Mohsenian-Rad and Jhi-Young Joo • IEEE Forced Oscillation Task Force – Farrokh Aminifar • Smart Grid Synchronized Measurements and Analytics (SGSMA) – Panos Moutis
2:40 – 3:10 pm	Break
	Session 11 – Data Management
3:10 – 3:30 pm	Operator Analytics and Assessment Tools for Inverter-Based Resources Dominated Grid (GOAAT-IBR): Q1-Q4 Project Updates – Farrokh Aminifar and David Hart (Quanta Technology)
3:30 – 3:50 pm	PMU Data Quality Monitoring at BPA - Kliff Hopson (BPA)
	Session 12 – NASPI Challenge
3:50 – 4:10 pm	Exploring Approaches to Time-Series Streaming and Event Triggers – Jared Bestebreuer (Schweitzer Engineering Laboratories)
4:10 – 4:30 pm	Grid Data Commons – A Shared Resource for AI-Driven Analytics – Sean Murphy (PingThings)
	Closing
4:30 – 4:45 pm	Closing remarks, open discussion, next steps – moderated by Jim Follum
4:45 pm	Adjourn

Introducing the NASPI Challenge

- NASPI's technology partners play a vital role in the working group
 - Financial support
 - Increase awareness of existing solutions
 - Provide thought leadership
- The NASPI Challenge is an opportunity for technology partners to take an even stronger role in shaping the future of synchronized measurement
 - A forum where innovative ideas can be shared for the benefit of all
 - Participants will share their concepts and demonstrate the value of their ideas
- Structure
 - Phase 1: concepts presented at September 2025 meeting
 - Phase 2: work to achieve progress on their concept, potentially with help from a team
 - Phase 3: present accomplishments at the April 2025 meeting



Outline

- NASPI's structure and activities
- Looking back
- This week's meeting
- **Looking ahead**

As power systems evolve...

- Rapid development of large loads (AI/ML training, datacenters, cryptomining)
- IEEE P2800.2: Recommended Practice for Test and Verification Procedures for Inverter-based Resources Interconnecting with Bulk Power Systems
- Reliability impacts of fast-acting phenomena
- Greater variety of oscillations with increased prevalence
- Increasingly active nature of distribution systems
- Expanding measurement networks
- Acceptance of cloud-based solutions

so does NASPI...

NASPI's Areas of Emphasis

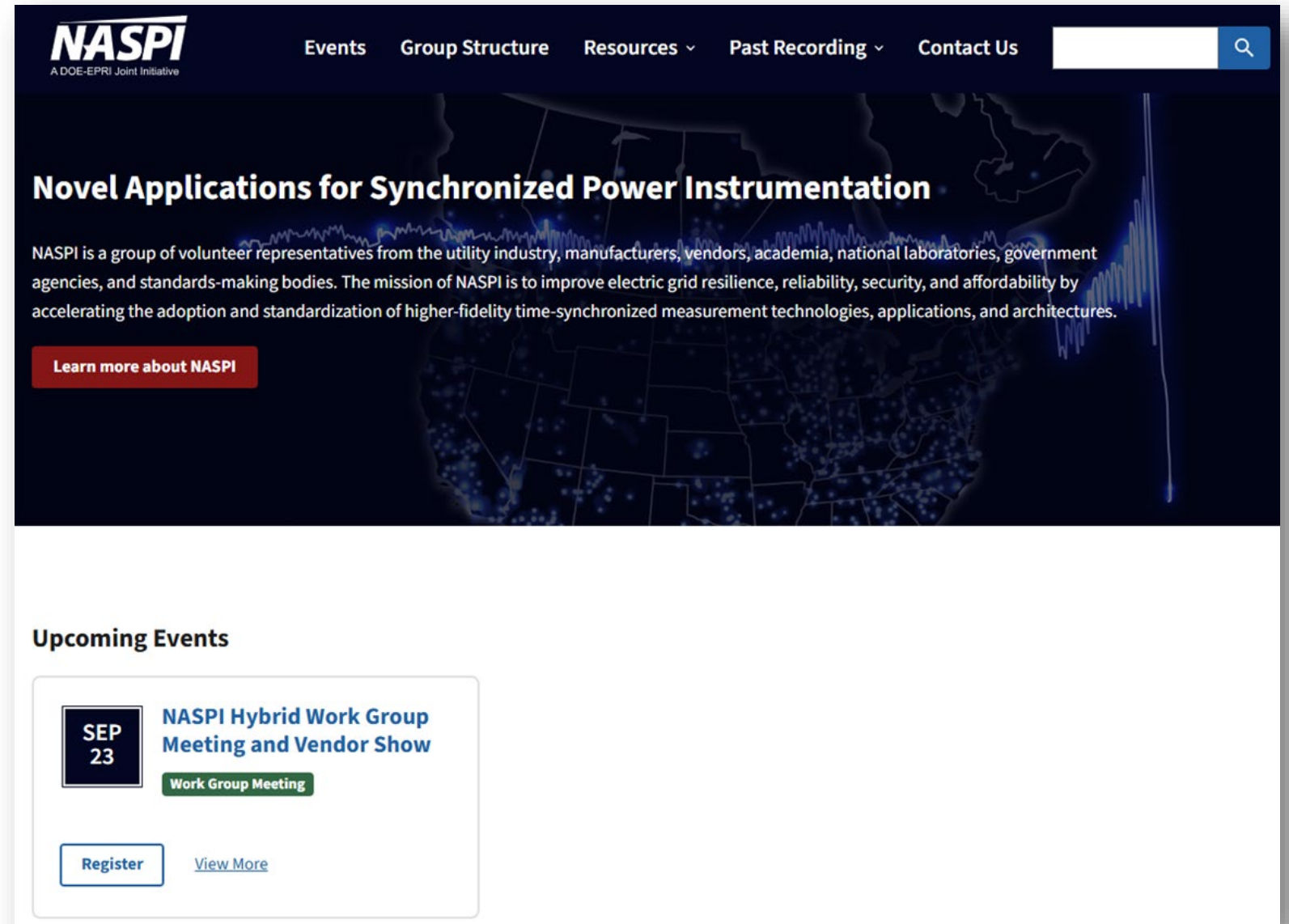
- Higher fidelity technologies, including synchro-waveform measurements
- Power system data quality
- Oscillation analysis (inter-area, subsynchronous, etc.)
- Multi-sensor analytics
- Characterizing the transient behavior of IBRs and other fast-acting phenomena
- Statistical analysis and deep learning to extract actionable information from large datasets
- Networking and communications technologies (advanced architectures)



Our new name reflects NASPI's continued emphasis on benefiting utilities and enhancing power system reliability by accelerating the adoption of synchronized measurement systems and their cutting-edge use cases

Website Update

- Improved navigation
- Comprehensive information about task teams and task forces
- Enhanced document tagging and search



Upcoming Activities

- The next virtual Task Team meeting series is scheduled for January 21-22
- The winter webinar series will be held in February and March
- Task Forces will meet as needed, typically monthly
- The next work group meeting...

May	June	July	August	September	January	February	March	April
Webinar	Webinar	Virtual Quarterly Task Team Meetings	Webinar	Charlotte Work Group Meeting	Virtual Quarterly Task Team Meetings	Webinar	Webinar	In-Person Work Group Meeting

Task Forces meet as needed throughout the year

Save the Date!

The next NASPI work group meeting will be held April 14-15 in Chicago

A call for abstracts will be released in late 2025



Thank you