

# IEEE PES Subcommittee on Big Data & Analytics

Chair: Dr. Yannan Sun, Oncor Electric Delivery

Past Chair: Dr. Le Xie, Texas A&M University

Vice Chair: Dr. Hung-Ming Chou, Dominion Energy

Secretary: Dr. Yang Weng, Arizona State University

7/20/2022



# Agenda

- Welcome and Member Introduction
- Approval of 2021 Meeting Minutes
- Announcements
- Subcommittee Sponsored Activities for the Past Year
- TCPC Reports on GM2022 Papers and Panel Sessions
- Call for Panel Ideas for GM2023

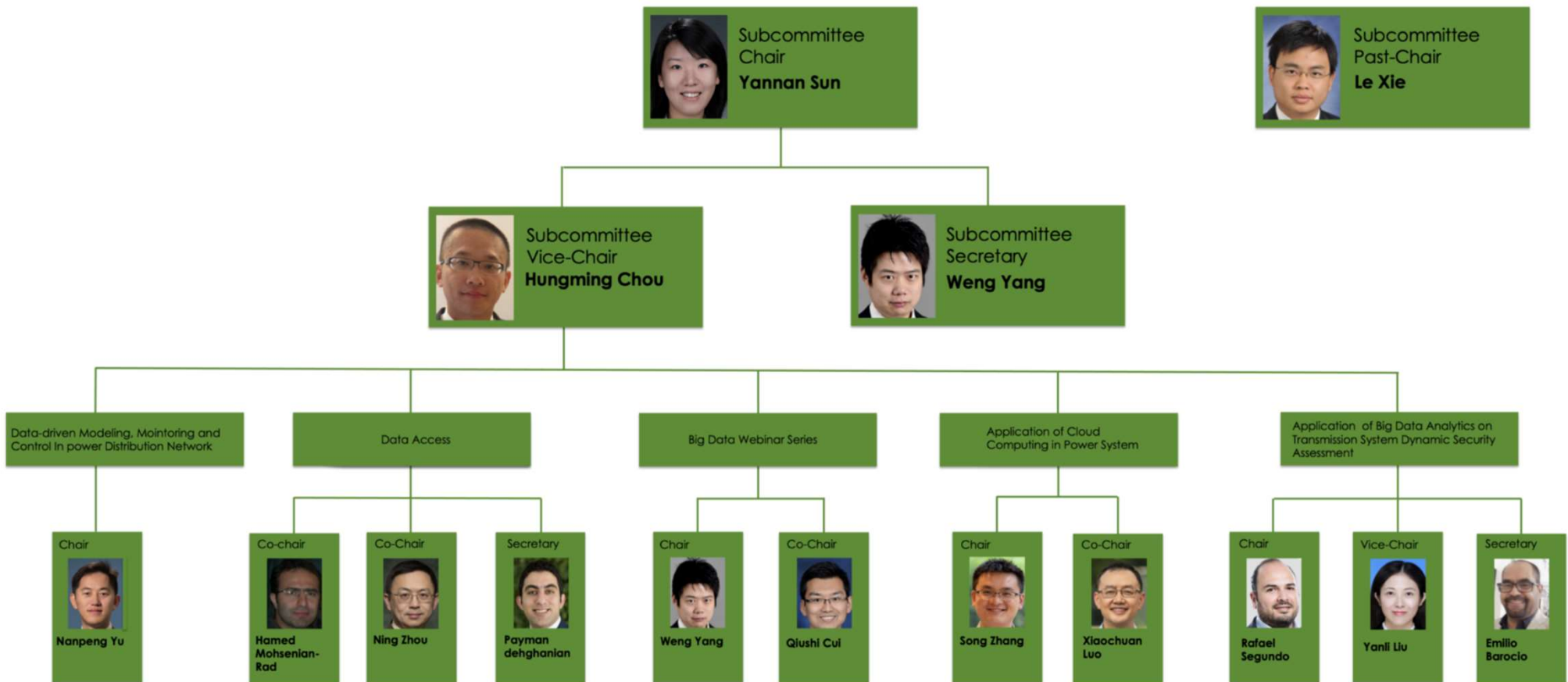


# Agenda

- **Welcome and Member Introduction**
- Approval of 2021 Meeting Minutes
- Announcements
- Subcommittee Sponsored Activities for the Past Year
- TCPC Reports on GM2022 Papers and Panel Sessions
- Call for Panel Ideas for GM2023



# Subcommittee Structure



<https://site.ieee.org/pes-bdaps/resources/>

# Big Data & Analytics Subcommittee: Mission

The BDA subcommittee focuses on developing and advancing data-driven analytics for power grid planning and operation.

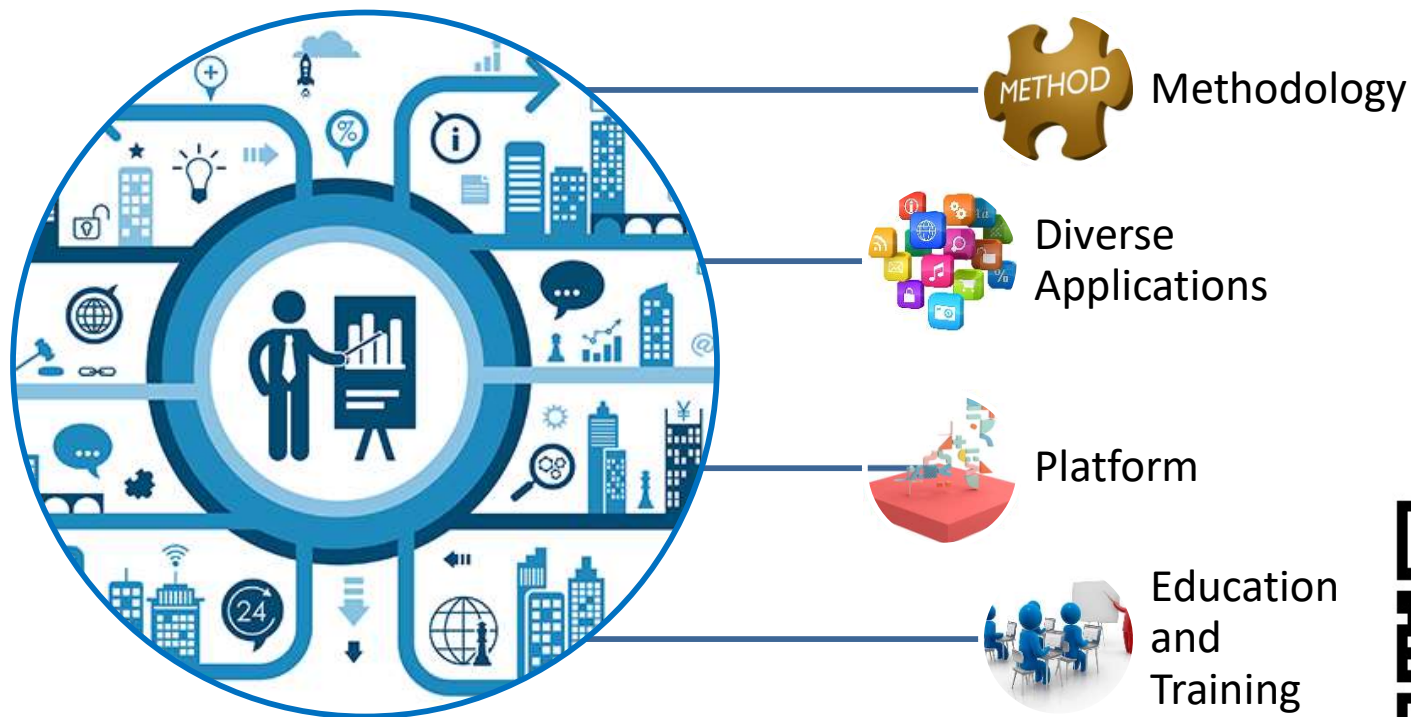
In particular we analyze “big” datasets---those data with at least one of: large volume, high velocity, diverse variety, and high veracity.

We seek to amplify impact through deep collaborations among academia, industry, and regulatory agencies by promoting data-driven solutions of real-world problems.



# Value Proposition

## Big Data & Analytics for Smart Grid



# A Trajectory of Growth and Impact

Year	Milestones	Panels	Participants
2012-2013	TF on Big Data established	44	2500+
2015	Panels at PESGM		
2016	BDA Subcommittee Established		
2017	1 <sup>st</sup> BDA Webinars and Big Data Workshop		
2018	1 <sup>st</sup> Super Session at PESGM		
2017-2021	3 TFs, 2 WGs		
2022	2 TFs promoted to WGs		
2022	2 new TFs proposed		

# Agenda

- Welcome and Member Introduction
- **Approval of 2021 Meeting Minutes**
- Announcements
- Subcommittee Sponsored Activities for the Past Year
- TCPC Reports on GM2022 Papers and Panel Sessions
- Call for Panel Ideas for GM2023





# Minutes from 2021 Meetings

Draft minutes for 2021 IEEE PESGM Big Data Analytics (BDA) Subcommittee Meeting  
July 19, 2021  
Virtual

## 1. Introduction

Le Xie introduced the subcommittee and reviewed the meeting agenda

## 2. Approval of minutes from the 2020 meeting

Yannan Sun moved, Yang Weng seconded. Members voted in favor of approving the 2020 meeting minutes

## 3. Announcements/summary

- Subcommittee website is established and linked with AMPS website
- Officer transition: Yannan Sun serves as chair, while Hung-Ming Chou serves as TCPC/vice chair
- TCPC announcement
  - Next year GM is in Denver, CO, in person
  - Deadline for the tutorial proposal is on Aug 6
  - Send the panel proposal to Hung-Ming
- Papers statistics: total paper submitted: 15, accepted: 7. Thanks for all the reviewers for their help.
- NSF Program manager provided update
- Activities from last year
  - Organize annual workshop on grid resiliency, more than 600 participants
  - Videos/presentations are available on IEEE Smart Grid Resource Center
- Report from WG/TF
  - Big data application in power distribution system TF
  - Big data webinar series TF
  - Application of big data analytic on transmission system dynamic security assessment
  - Cloud computing for power grid operation, planning, monitoring and control TF
- Panel session chairs provided updates on the BDA sponsored panels at 2021 PES GM:
  - **Big data analysis of synchrophasor data: experience from the US (Academic Track) LIVE**  
(Session chair: Nanpeng Yu)
  - **Big data analysis of synchrophasor data: experience from the US (Industry Track) LIVE**  
(Session chair: Nanpeng Yu)
  - **Physics-informed machine learning for power system LIVE**  
(Session chair: Hao Zhu)
  - **Security and reliability leverage cloud computing for grid operation, planning, control & IoT LIVE**  
(Session chair: Song Zhang)
  - **Distribution system operations in the age of big data**  
(Session chair: Anamika Dubey, Nanpeng Yu)
  - **Advanced data analytics for probabilistic security assessment**  
(Session chair: Yanli Liu)

- **Artificial intelligence to cope extreme natural events in power system**  
(Session chair: Reza Arghandeh)

## 4. Proposed 2022 GM panel session

- It is highly encouraged to contact with other subcommittees for panel slot
- Please submit the panel proposal to subcommittee. Subcommittee will ask members to vote to rank the proposals
- Panel proposal presentation
  - Ming Dong
  - Nanpeng
  - Lina He
  - Kevin Chen

## 5. New Initiative

- We are relatively young subcommittee. We want a thoughtful growth and try to attract talent. The key is to be able to substantiate the efforts.
- It is important to differentiate proposed TF/WG from other TF/WG
- Please submit the TF proposal, describing the concrete scope, deliverable, and outcome

## 6. Future activities

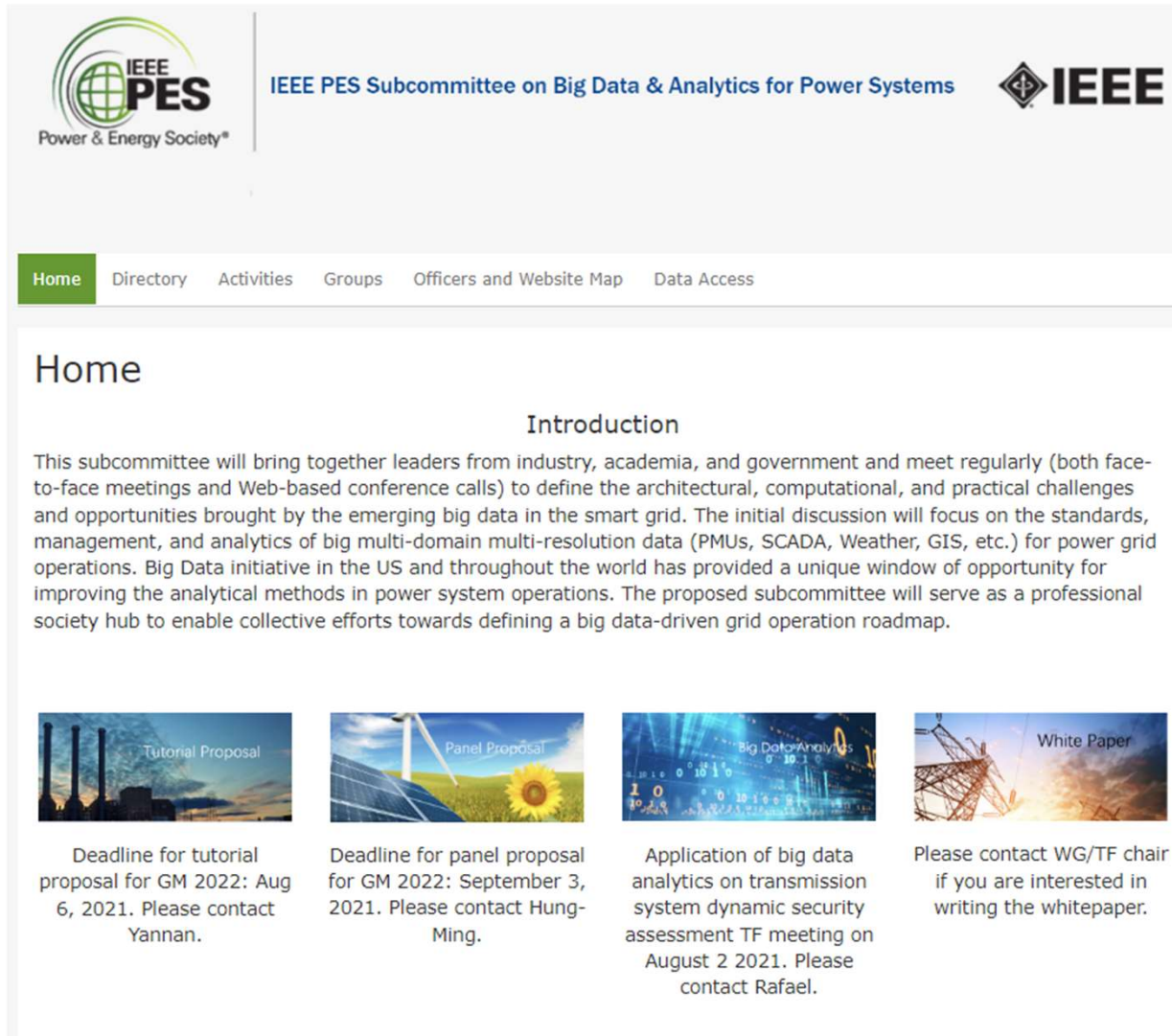
- Currently the BDA core team consists of Chair, Vice-chair, Secretary, TF leaderships, and IEEE Big Data liaison, the core team will meet bi-weekly or quarterly for subcommittee activities.
- Will host annual workshop on the big data analytics for smart grid community. We will need volunteer!

# Agenda

- Welcome and Member Introduction
- Approval of 2021 Meeting Minutes
- **Announcements**
- Subcommittee Sponsored Activities for the Past Year
- TCPC Reports on GM2022 Papers and Panel Sessions
- Call for Panel Ideas for GM2023



# 1. Updated Website Established and Linked with AMPS



**IEEE PES**  
Power & Energy Society®

IEEE PES Subcommittee on Big Data & Analytics for Power Systems


**IEEE**

Home Directory Activities Groups Officers and Website Map Data Access

## Home


### Introduction

This subcommittee will bring together leaders from industry, academia, and government and meet regularly (both face-to-face meetings and Web-based conference calls) to define the architectural, computational, and practical challenges and opportunities brought by the emerging big data in the smart grid. The initial discussion will focus on the standards, management, and analytics of big multi-domain multi-resolution data (PMUs, SCADA, Weather, GIS, etc.) for power grid operations. Big Data initiative in the US and throughout the world has provided a unique window of opportunity for improving the analytical methods in power system operations. The proposed subcommittee will serve as a professional society hub to enable collective efforts towards defining a big data-driven grid operation roadmap.




**Tutorial Proposal**

Deadline for tutorial proposal for GM 2022: Aug 6, 2021. Please contact Yannan.




**Panel Proposal**

Deadline for panel proposal for GM 2022: September 3, 2021. Please contact Hung-Ming.



**Big Data Analytics**

Application of big data analytics on transmission system dynamic security assessment TF meeting on August 2 2021. Please contact Rafael.



**White Paper**

Please contact WG/TF chair if you are interested in writing the whitepaper.

<http://sites.ieee.org/pes-bdaps/>

# 1. Updated Website: Site Structure



## IEEE PES Subcommittee on Big Data & Analytics for Power System

### Home Page

- Introduction
- Upcoming Event
- Big Data webinar
- Form submission
- Contact button

### Directory

- Subcommittee Map
- Subcommittee meeting
- Presentations

### Activities

- Upcoming activities
- Past activities
- PES general meeting

### Groups

- Working groups
- Task forces

### Officers and Website Map

- Chair
- Vice-Chair
- Past-Chair
- Secretary
- Website map

<https://site.ieee.org/pes-bdaps/officers/>

# 1. Updated Website: Archived Activities

IEEE.org | IEEE Xplore Digital Library | IEEE Standards | IEEE Spectrum | More Sites

IEEE PES Subcommittees on Big Data & Analytics for Power Systems

Home Directory **Activities** Groups Officers and Website Map Data Access

## Activities

### Upcoming Activities

Webinar Series on Big Data & Analytics for Power Systems. ([Link](#))

### 2021 PES General Meeting Subcommittee Meeting

Predictive Big Data Analytics for Outage Management	Monday, August 3
Artificial Intelligence and the Future of Distribution Management systems	Monday, August 3
Integration of Various Source Data for Enhanced Situation Awareness of Power System	Tuesday, August 4
Learning to Model, Monitor, and Control Power Distribution Systems	Tuesday, August 4
Advanced-Data Analytics for Power Asset Management	Tuesday, August 4
Learning to Optimize Power Transmission Systems	Thursday, August 6
Observability and Controllability of Power Distribution System in Big Data Era	Thursday, August 6
<b>Big Data Analytics Subcommittee Meeting</b>	Monday, August 10

### Panel Session

Big data analytics for power system economy, reliability, and security	Room 308	Tuesday, August 6	8:00 to 10:00
Frontiers of big data analytics in the operation and maintenance of power distribution systems	Room 308	Monday, August 5	13:00 to 17:00
Data analytic tools for dynamic security assessment of bulk power systems	Room 312	Tuesday, August 6	10:00 to 12:00
Big data application in power system distribution system TF	Room 405	Tuesday, August 6	15:00 to 16:00
Big data webinar series TF	Room 405	Tuesday, August 6	13:00 to 14:00
Big data access WG	Room 405	Tuesday, August 6	14:00 to 15:00
Big Data & Analytics Subcommittee	Galleria 3	Wednesday, August 7	15:00 to 17:00

### 2018 PES General Meeting (Panel Session)

Panel session: Big data analytics for emerging power sensors and internet-of-things. (Session chair: Hamed Mohsenian-Rad, Emma Stewart)

- Deep data from optical sensors ([slide](#))
- The advent of the "One Second Home" ([slide](#))
- Time series data at scale ([slide](#))

### 2018 PES General Meeting (Panel Session)

Panel session: Big data analytics focus on end-use customers in power distribution systems. (Session chair: Nanpeng Yu, Haiwang Zhong)

- Nonintrusive load modeling: advanced monitoring ([slide](#))
- Data-driven residential solar power forecasting ([slide](#))
- EnergyCoupon ([slide](#))

### 2018 PES General Meeting (Panel Session)

Panel session: Big data analytics for flexible electricity network, market, and prosumers. (Session chair: Ran Li, Tao Hong)

Panel session: Best practices in sharing big data in power systems. (Session chair: Ning Zhou, Hamed Mohsenian-Rad)

Panel session: Smart meters: from consumer behavior to planning. (Session chair: Ram Rajagopal)

Panel session: High-performance computing and big data analytics for large scale power system planning problems. (Session chair: Dimitri Papageorgiou, Yingzhong Gu)

### 2017 PES General Meeting (Panel Session)

Big Data Access and Big Data Research Integration in Power Systems. (Panel Session Chair: Dr. Hamed Mohsenian-Rad)

- Opening Remarks ([slide](#))
- System Identification of Reduced-Order Models of Power Systems from PMU Data ([slide](#))
- Advanced Analytics and Data for PMU Applications ([slide](#))
- Open Micro-PMU: A Real World Reference Distribution Micro-phasor Measurement Unit Data Set for Research and Application Development ([slide](#))
- Big Data Access, Analytics and Sense-Making ([slide](#))
- Predictive Analytics for Energy Systems State Estimation ([slide](#))

### 2017 PES General Meeting (Panel Session)

Big Data Analytics for Electricity Markets. (Panel Session Chair: Dr. Ran Li, Dr. Li Furong)

- Empowering Renewable Energy Prosumers through Big Data Analytics ([slide](#))
- Big Data Analytics to Facilitate DSO Transition ([slide](#))
- Network Pricing in the Low Carbon Power Markets ([slide](#))
- Market Integration Between Wholesale and Retail Markets ([slide](#))
- Mutual Trading Strategy between Customers and Power Generations based on Load Consuming Patterns ([slide](#))
- Consequences of Climate Change into Decision Making for Energy Market ([slide](#))
- Low Voltage Customer Characterization Options for Distribution Pricing and Demand Side Management ([slide](#))
- Research Trends in Load Forecasting and Their Implications to Energy Trading ([slide](#))
- Renewable Energy Trading in Cross-Region Power Market of China ([slide](#))
- Open Micro-PMU: A Real World Reference Distribution Micro-phasor Measurement Unit Data Set for Research and Application Development ([slide](#))

### 2017 PES General Meeting (Panel Session)

Big Data for Integrated Energy Systems. (Panel Session Chair: Dr. Goran Strbac, Dr. Bie Zhaohong)

- Real-Time Outage Detection from Utility Big Data ([slide](#))
- Research on the Framework and Data Fusion of an Energy Big-data Platform ([slide](#))
- Big Data Analysis for Energy Internet ([slide](#))
- Data-Driven Load Model ([slide](#))
- Extracting Value from Smart Grid to Support Peer-to-Peer Energy System ([slide](#))
- Understanding and Characterising the Dependence of Electricity on Gas with Big Data ([slide](#))
- Open Micro-PMU: A Real World Reference Distribution Micro-phasor Measurement Unit Data Set for Research and Application Development ([slide](#))

### 2017 PES General Meeting (Panel Session)

Big Data in Power Systems: Transmission, Distribution, and Data Analytic Applications. (Panel Session Chair: Dr. Mladen Kezunovic, Dr. Nanpeng Yu)

### 2016 PES General Meeting (Panel Session)

Panel Session on "Big Data on Power Distribution Networks". (Panel Chair: Dr. Reza Arghandeh)

Panel Session on "Big Data on Demand Response". (Panel Chair: Dr. Haiwang Zhong)

### 2015 PES General Meeting (Panel Session)

Panel Session on "Using Big Data to Enhance Transmission System Planning and Operations". (Panel Chair: Dr. Jun Wen) Wednesday July.29.2015.

- "Stop the Data Flood" by Dr. Anthony Johnson.
- "Synchrophasor-based Big Data Analytics for Grid Operations and Planning" by Dr. Manu Parashar.
- "Predictive Analytics Derived from HVAC and PMU Data, Case Histories at UCSD" by Dr. Chuck Wells.
- "Application of Synchrophasor Data to Power System Operations" by Prof. Joe Chow.

### 2014 PES General Meeting (Panel Session)

Panel discussion on "Challenges and Solutions of Big Data for Power System Operations". Tuesday July.29.2014 (10am-noon, Azalea 2)

Panel discussion on "CAMS Task Force Big Data-Driven Analytics for Smart Grid Operations". Tuesday July.29.2014 (2 pm in Potomac 5)



### 2013 PES General Meeting

2013 PES GM (Panel Discussion and Kickoff Task Force Meeting).

<https://site.ieee.org/pes-bdaps/activities/>

## 2. Data Access Page Integrated

IEEE.org | IEEE Xplore Digital Library | IEEE Standards | IEEE Spectrum | More Sites

 IEEE PES Subcommittee on Big Data & Analytics for Power Systems 

Home Directory Activities Groups Officers and Website Map **Data Access**

### Data Access

- Smart Meter Energy Research Project – UK
- Solar Power Data for Integration Studies – USA
- NYSERDA Distributed Energy Resource (DER) Dataset – USA
- Distribution PMU Data Set
- VSB Power Line Fault Detection Data
- Electric Vehicle Mobility Data Set
- High-Resolution Solar Radiation Data Set
- Texas Residential Smart Meter Data Set
- NREL Solar Radiation Data Set
- Belgium Solar PV Power Generation Data Set – Belgium
- Commercial and Residential Hourly Load Data Set
- Smart Meter Electricity Trial Data Set
- Humboldt State University (SoRMS) Radiation Data Set
- University of Oregon (SRML) Radiation Data Set
- California ISO Load Data Set
- New York ISO Load Data Set
- ERCOT Load Data Set
- ISO New England Load Data Set
- Synthetic PMU Data Set
- EPFL Campus PMU Data Set
- Midcontinent ISO Load Data
- Solar Radiation Data Set
- Wind Power Generation Data Set – Belgium
- DKASC Solar Power Data Set – Australia
- Rooftop Solar Data Set – Australia
- Solar Radiation Data Set – USA
- New Jersey State Load Data Set
- Weather Data Set – Worldwide

- Solar Generation Data Set – Worldwide
- Alberta Electric System Operator (AESO) Load Data Set
- Smart Meter Data Set – Ireland
- Wind Speed Data Set – USA
- LBNL Micro-PMU Data Set – USA
- AEMO Australian Electricity Market Data Set – Australia
- MesoWest Weather Data Set for Wind and Solar Integration
- The Reference Energy Disaggregation Data Set
- Household Load Profile Generator
- UK Domestic Appliance-Level Electricity (UK-DALE) Data Set
- EPRI Load Shape Library
- The Almanac of Minutely Power Data Set
- Private Home Electricity Consumption 1
- Private Home Electricity Consumption 2
- Private Home Electricity Consumption 3
- Private Home Electricity Consumption 4
- Private Home Electricity Consumption 5
- Private Home Electricity Consumption 6
- Private Home Electricity Consumption 7
- Private Home Electricity Consumption 8
- Private Home Electricity Consumption 9
- Private Home Electricity Consumption 10
- Office Electricity Consumption 1
- Office Electricity Consumption 2
- Office Electricity Consumption 3
- Office Electricity Consumption 4
- Commercial Electricity Consumption
- Refrigerator Electricity Consumption
- Water Heater Electricity Consumption
- Electric Vehicle Database 1
- Electric Vehicle Database 2
- Power Quality Database
- Summer PV Generation Data Set – Brazil
- Winter PV Generation Data Set – Brazil
- PV Generation Data Set
- Wind Generation Data Set

### Description

High-Resolution Solar Radiation Data.

### Data Types

Solar Radiation Data

### Categories

Solar Radiation Data

### Format

CSV

### Sampling Intervals

1-Second

### Starting Time (Year)

2014

### Time Duration

Several Days

### Total Size

1 GB

### Geographic Location

Ontario and Quebec (Canada)

### Geographic Resolution

State-Wide

### Access Tools

Website: National Resources of Canada

### Data URL

[Data](#)

### User Manual

[Data](#)

### Keywords

- Solar Radiation Data
- Solar Farm
- High-Resolution Solar Data

<https://site.ieee.org/pes-bdaps/data-access/>

### 3. Ideas and Feedbacks to the Subcommittee

Any Event You Want us to Create?


0 of 500 max characters

Submit

Contact: Subcommittee Chair, Yannan Sun

[Home](#) | [Contact & Support](#) | [Accessibility](#) | [Privacy & Opting Out of Cookies](#) | [Nondiscrimination Policy](#)

© Copyright 2022 IEEE PES Society - All rights reserved. Use of this Web site signifies your agreement to the IEEE Terms and Conditions. A not-for-profit organization, IEEE is the world's largest professional association for the advancement of technology.



## 4. Core Team Members and Bi-Annual Meetings

### Core Team Members

- Past: Chairs from Subcommittee, WG, and TF
- Future: Add Past Leads from Panels

### Public Meetings

- Past: Once a Year at the PESGM
- Future: Twice a Year – GM and Virtual

Virtual and Get More People in the Loop



## 5. Task Force Changes

Task Force: BDA Webinar

- **Promoted** to Working Group

Task Force: Application of Big Data Analytics on Transmission System Dynamic Security Assessment.

- **Promoted** to Working Group on Big Data & Analytics for Transmission Systems

**New** Task Forces to be proposed

- Continuation of Data Access Effort
- Data Analytics for Energy Storage

# Special Thanks to Past Chair Dr. Le Xie

# TCPC announcement

- PES GM 2023: July 16-20, Orlando, FL
- Tutorial proposals: 9/6/22

## IEEE PES 2023 Call For Tutorials

**Deadline for submissions - Monday, 6 September 2022**

The IEEE Power & Energy Society invites proposals for tutorials in conjunction with the following 2023 PES Conferences.

- IEEE Innovative Smart Grid Technologies – North America (ISGT-NA) – 16 to 19 January – Washington, DC, USA - “Moving to a Self-Driving Grid” - <https://ieee-isgt.org/>
  - IEEE PES Grid Edge Technologies Conference and Exposition - 10 to 13 April - San Diego, CA, USA – “Transform the Edge” - <https://pes-gradedge.org/>
  - IEEE PES General Meeting – 16 – 20 July - Orlando, FL, USA – “Meeting the Energy Needs of a Dynamic World” - <https://pes-gm.org/>
- Panel submission deadline: 8/28/22
  - Paper submission deadline: 11/21/22

<https://www.ieee-pes.org/17-meetings-conferences/calls-papers>

# Agenda

- Welcome and Member Introduction
- Approval of 2021 Meeting Minutes
- Announcements
- Subcommittee Sponsored Activities for the Past Year
- TCPC Reports on GM2022 Papers and Panel Sessions
- Call for Panel Ideas for GM2023



# Report from TF/WGs

- Data-driven Modeling, Monitoring and Control in Power Distribution Networks WG  
<https://intra.ece.ucr.edu/~nyu/IEEE%20PES%20WG.html>
- Big Data Webinar Series TF  
<https://www.public.asu.edu/~yweng2/Tutorial5/>
- Application of Cloud Computing in Power System TF  
<https://sites.google.com/view/cloud4powergrid/>
- Application of Big Data Analytics on Transmission System Dynamic Security Assessment TF  
<https://www.zhaw.ch/en/engineering/institutes-centres/iefe/energy-storage-and-energy-grids/electric-power-systems-and-smart-grids/task-force-application-of-big-data-analytic-on-transmission-system-dynamic-security-assessment/>

# TF: Application of Cloud Computing in Power System

The screenshot shows a website header with a blue navigation bar. On the left, there is a logo for 'Cloud For Power Grid' featuring a cloud and power lines. The main navigation menu includes 'Home', 'Motivation', 'Team', 'Schedules', 'Partnership', and 'Sharing', along with a search icon. A prominent blue banner at the top contains the text 'New!!! The Task Force has released a technical report on practical cloud adoption' and a 'View Report' button. The main content area has a dark background with a network diagram overlaying power lines and towers. The central text reads 'IEEE Task Force on Cloud Computing for Power Grid Operation, Planning, Monitoring and Control'.

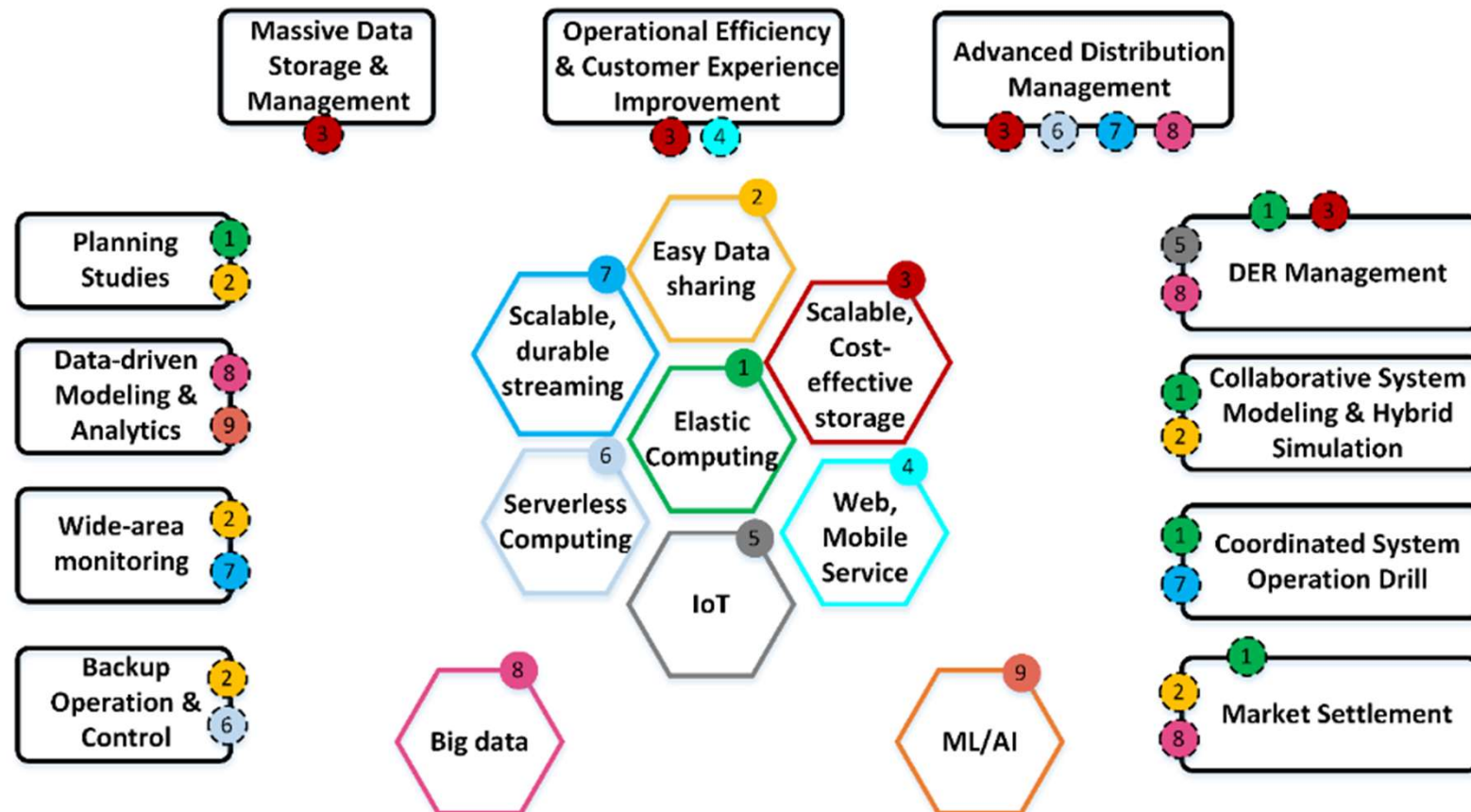
a task force under IEEE PES Big Data & Analytics (BDA) Subcommittee, Analytic Methods for Power Systems (AMPS) Technical Committee

Our **Mission** - promote cloud computing in electric energy sector, facilitate the industry with use of this mature, well-proven and state-of-the-art technology in power systems reliably and securely, with a focus on non-CIP workloads for operation, planning, monitoring and control.

<https://sites.google.com/view/cloud4powergrid/>

# TF: Application of Cloud Computing in Power System

Technical Report: Practical Adoption of Cloud Computing in Power Systems- Drivers, Challenges, Guidance, and Real-world Use Cases



# Upcoming Task Forces

- Data sharing in energy systems - Continuation of the Data Access effort
- Data Analytics for Energy Storage



# Data Analytics for Energy Storage

- Mission: Using advanced data analytics to assist energy storage planning and operation, and thereby advance the development and deployment of energy storage
- Tasks:
  - Identify data needs and availability for energy storage modeling and analytics
  - Review existing data analytics methods and tools
  - Identify practical challenges and opportunities
- Expected outcomes:
  - Survey report
  - Contribute to Data Access service of BDA Subcommittee

# Agenda

- Welcome and Member Introduction
- Approval of 2021 Meeting Minutes
- Announcements
- Subcommittee Sponsored Activities for the Past Year
- **TCPC Reports on GM2022 Papers and Panel Sessions**
- Call for Panel Ideas for GM2023



# GM2022 Papers

- 2022 Papers for PES GM
  - Total paper submitted: 42
  - Accepted: 22
- Thanks to all the reviewers. All the authors have received detailed review comments and suggestions
- Willing to be a reviewer for PESGM2023? Please send a note to [Hung-Ming.Chou@domininenergy.com](mailto:Hung-Ming.Chou@domininenergy.com)

Committee	Best Papers Quotas	Paper Forum Quotas
Total Analytical Methods for Power Systems	12	36
Big Data Analytics	2	7

# Panels in GM 2022

**AMPS Total: 40, BDA: 10**

- **Learning to Predict, trade and operate in the electricity market**  
Monday 3-5pm (Session chair: Nanpeng Yu, Hao Zhu)
- **Pushing distribution grid analytics to the edge: opportunities, challenges and best practices**  
Tuesday 8-10am (Session chair: Nanpeng Yu)
- **Big Data and AI Applications for Enhanced Power Grid Security and Reliability**  
Tuesday 8-10am (Session chair: Rui Fan)
- **Event Characterization Using Synchrophasor Big Data**  
Tuesday 10-12 am (Session chair: Mladen Kezunovic)
- **Data-Driven State and Parameter Estimation in Power Distribution Systems**  
Tuesday 10-12am (Session chair: Yuzhang Lin, Nanpeng Yu)
- **Enhancing power system operation through online analytics**  
Tuesday 1-3pm (Session chair: Panagiotis Papadopoulos, Stephen McArthur)
- **Using Data Analytics to Improve Energy Storage Modeling, Dispatch, and Valuation**  
Tuesday 3-5pm (Session chair: Di Wu)
- **Data collection and future needs to account for the continuous growth of sensing data in control rooms**  
Thursday 8-10am (Session chair: Jochen Cremer, Segundo Rafael)
- **Testbed and Dataset for Machine Learning Applications in Power Systems**  
Thursday 10-12am (Session chair: Nanpeng Yu)
- **Data challenges and analytical system requirement for distribution grids with high solar penetration**  
Thursday 3-5pm (Session chair: Bo Yang)

# Agenda

- Welcome and Member Introduction
- Approval of 2021 Meeting Minutes
- Announcements
- Subcommittee Sponsored Activities for the Past Year
- TCPC Reports on GM2022 Papers and Panel Sessions
- **Call for Panel Ideas for GM2023**



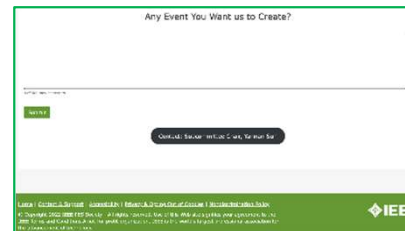
# Panel Proposal Submission for 2023 GM

- Proposal template will be sent to all registered attendees after this meeting

# Volunteers Welcome!

- How to get involved with BDA subcommittee?

- Visit <http://sites.ieee.org/pes-bdaps/>



- Please mention what initiative(s) you are interested.

- Interested in reviewing papers?

Please contact TCPC at

[hung-ming.chou@dominionenergy.com](mailto:hung-ming.chou@dominionenergy.com)

