

# IEEE Communications Society Emerging Technical Subcommittee on Smart Grid Communications

IEEE ICC'16, Kuala Lumpur

Room: Citrine  
Mandarin Oriental Hotel

Tuesday, May 24, 2016  
8 – 9 am

# Agenda

- Mission Statement
- Current Status
- Our ETC
- Update on Activities
- Discussion

# Mission Statement

- Support the IEEE Smart Grid Initiative
- Promote ComSoc's position in the development and promotion of smart grid related technologies
- Ensure that ComSoc members play a decisive technological role in smart grid communications

# Current Status of Smart Grid Communications ETC

- Our ETC has 92 registered members as of May 20, 2016.
- Our last meeting was held on Wednesday, November 4, 2015, from 5:30 pm to 6:30 pm at Miami Marriott Biscayne Bay Hotel during IEEE SmartGridComm'15.

# Current Status of Smart Grid Communications ETC

- Officers (November 1, 2014 – Present)
  - Chair: Vincent Wong
  - Vice Chair: Stephen Bush
  - Vice Chair: Lutz Lampe
  - Secretary: George Michailidis
- Past Officers
  - Chair: Petar Popovski (2011 – 2014)
  - Chair: Stefano Galli (2011 – 2012)

# Our Smart Grid Communications ETC

- Website:

<http://sg.committees.comsoc.org/>

- To become a **member**, it is necessary to subscribe to the Smart Grid Communications mailing list as specified on the above website.

# Update on Activities

- Nomination of **Symposium Co-chairs** of IEEE ICC and Globecom, Selected Areas in Communications (SAC) Symposium, **Smart Grid Communications Track**.
  - IEEE Globecom 2015, Shalinee Kishore
  - IEEE ICC 2016, Lutz Lampe
  - IEEE Globecom 2016: Dusit Niyato
  - IEEE ICC 2017: Deepa Kundur
  - IEEE Globecom 2017: Walid Saad (nominated).
- If you are interested in co-chairing future conferences, please let one of ETC officers know.

# IEEE Globecom'15

- Selected Areas in Communications (SAC) Symposium, Smart Grid Communications Track
- December 6 – 10, 2015, San Diego, CA, USA
- Chair: Shaline Kishore
- Number of TPC members (including self): 11
- Number of papers submitted: 23
- Number of papers accepted: 8
- Acceptance rate: ~35%
- Number of sessions: 1

# IEEE ICC'16

- Selected Areas in Communications (SAC) Symposium, Communications for the Smart Grid Track
- May 23 – 27, 2016, Kuala Lumpur, Malaysia
- Chair: Lutz Lampe
- Number of TPC members: 35
- Number of papers submitted: 29, but one was moved due to fit, so 28 left for review
- Number of papers accepted: 11
- Acceptance rate:  $11/28$  (= 39%)
- Number of sessions: 1 oral with 6 papers, remaining in interactive session (only 4, as 1 withdrawn after acceptance)

# IEEE Globecom'16

- Selected Areas in Communications (SAC) Symposium, Smart Grid and Power Line Communications Track
- December 4 – 8, 2016, Washington DC, USA
- Chair: Dusit Niyato
- Number of TPC members: 58
- Number of papers submitted: 27

# IEEE JSAC Special Issue

- IEEE Journal on Selected Areas in Communications (JSAC), special issue on Emerging Technologies, March 2016.
- Guest Editor: Vincent Wong
- List of invited papers
  - Tianyi Chen, Yu Zhang, Xin Wang, and Georgios B. Giannakis , “Robust Workload and Energy Management for Sustainable Data Centers”
  - Liyan Jia and Lang Tong, “Renewables and Storage in Distribution Systems: Centralized vs. Decentralized Integration”
  - Lingwen Gan and Steven H. Low, “An Online Gradient Algorithm for Optimal Power Flow on Radial Networks”
  - Yashar Ghiassi-Farrokhfal, Catherine Rosenberg, Srinivasan Keshav, and Marie-Bénédicte Adjaho, “Joint Optimal Design and Operation of Hybrid Energy Storage Systems”

# Activities between our ETC and IEEE Power and Energy Society (PES)

Hamed Mohsenian-Rad, University of California,  
Riverside

Liaison between our ETC and IEEE PES Power System  
Communications and Cybersecurity Committee

# Panel Session #1

- Craig Preuss and Hamed Mohsenian-Rad are organizing a Panel Session on "Research Priorities and Open Problems in Power Systems Communications and Networking" at the IEEE PES General Meeting, Boston, MA, in July 2016.
- Seek to identify the industry requirements, research priorities, open problems, and emerging applications of communications and networking in power and energy systems.
- Communications architectures and protocols as well as communication-centric data-management solutions will be discussed with applications at transmission, distribution, and utility-scale microgrid settings.

# Panel #1: List of Presentations

- Deepak Maragal: Modern Substation Automation System: Current status & Potential Areas of Development
- Andrea Tonello: Power Line Communications for the Smart Grid: Realities and Future
- Jay Murphy: Precise Time Synchronization: Importance, Challenges and the Future
- Rajit Gadh: Distributed Energy Resources integrated with Microgrids, Electric Vehicles, Solar Generation and Energy Storage - A Model for the Modern Grid
- David Bakken: Communications and Coordination Requirements and Technologies for the Wide-Area Smart Grid
- Manimaran Govindarasu: Cyber Physical System Security Testbeds for the Smart Grid: Research Priorities and Challenges

# Panel Session #2

- Craig Preuss and Hamed Mohsenian-Rad are organizing a Panel Session on "Domain-Specific Big Data Analytics Tools in Power Systems" at the IEEE PES General Meeting, Boston, MA, in July 2016.
- There is a growing interest in employing big data analytics in the context of power systems to examine diverse data sets of large volumes to uncover hidden patterns, unknown correlations, market trends, customer preferences, and other useful business information.

# Panel #2: List of Presentations

- Zhenyu Huang: From data to actionable information: data curation, assimilation, and visualization
- Chuanyi Ji: Resilience of power distribution: Large scale data analysis
- Le Xie: Dimensionality reduction and system identification using synchrophasor data
- Seung-Jun Kim: Online learning and optimization approaches for smart power grids
- Panel Discussion

# Activities in IEEE Smart Grid

Angela Yingjun Zhang, CUHK

Yiyu Shi, University of Notra Dame

Representatives of our ETC to serve as  
committee member in IEEE Smart Grid

# IEEE Smart Grid

- A initiative first conceptualized and led by IEEE Future Directions Committee.
- Now a fully functioning program of IEEE
- Committees
  - Education
  - Marketing
  - Operations
  - Policy Technical Support
  - Publications
  - R&D
  - Technical Activities
  - Steering

# Publication Committee: Main Duty

- To promote and support IEEE Smart Grid newsletter by providing article, special issues and contents
- To support smart grid related articles in existing publications, such as special issues

# Newsletters

- May – special issue on Transmission
- June – special issue on Foundation Support Systems Domain
- July – special issue on Customer Domain
- August – special issue on Smart Grid in the Asia Pacific Region
- ...

Articles and special issues are solicited.

Please contact Angela Yingjun Zhang at [yjzhang@ie.cuhk.edu.hk](mailto:yjzhang@ie.cuhk.edu.hk) if you are interested!

# Smart Grid R&D Committee

- Scope
  - Engage in identifying emerging pivotal R&D areas in the Smart Grid related domain.
  - Support and collaborate with public/private enterprises to assess priority areas and disseminate Smart Grid and sustainable energy research and implementation strategies.
- Current Activity: Preparing a Smart Grid Emerging Technology white paper

Please contact Yiyu Shi at [Yiyu.Shi.31@nd.edu](mailto:Yiyu.Shi.31@nd.edu) for details

# Activities in IEEE Smart Grid R&D Activities (SG-R&D)

Stefano Galli

ComSoc representative on IEEE Smart Grid  
Steering Committee

Chair of IEEE Smart Grid Technical Activities  
Committee (SG-TAC)

# IEEE Smart Grid R&D Activities (SG-R&D)

- Mission: collecting, collating, and organizing, and cataloguing research and development topics related to Smart Grid.
- The white paper is attached and contains an initial set of topics categorized by Society.
- The paragraph related to ComSoc is 4.3.5 and it is largely incomplete, requiring a substantial revision from our side.
- Recommendation: identifying a set of missing elements that need to be added to the ComSoc paragraph and then also establish a small team to work with Stefano on the revision of this paragraph.
- These revisions would be submitted to the R&D committee as a TAC submission.
- Need to finalize the comments by first week of June.

# Other Activities

- IEEE SmartGridComm Steering Committee
  - Lutz Lampe, Petar Popovski
- IEEE Transactions on Smart Grid
  - Hamed Mohsenian-Rad, Editor

# Discussion

- How to recruit more members?
- Other activities we can organize?
- Future direction?
  - Apply to become a Full Technical Committee in August 2016