

IEEE Communications Society
Emerging Technologies Initiatives on
Smart Grid Communications

IEEE SmartGridComm 2018

Room 4, Comwell Hotel Hvide Hus,

Tuesday, Oct. 30, 2018

17:30-18:30

Agenda

- Welcome and Introduction
- Reports on Member Development
- Special Interest Groups (SIGs)
- Reports on Position Paper
- Reports on Policies and Procedures
- Reports on Biannual Report
- Reports on Nominations
- Conference and Journal Reports
- Any Other Business

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, control, and computing
- Website: <http://sg.committees.comsoc.org/>

History

- Started as an Ad-Hoc Smart Grid Communications Committee in 2010.
- Renamed as Emerging Technical Committee on Smart Grid Communications in 2013.
- Past Officers
 - 2014-2017: Vincent Wong (Chair), Lutz Lampe (Vice Chair), Hamed Mohsenian-Rad (Vice Chair), Stephen Bush (Vice Chair), George Michailidis (secretary)
 - 2012-2014: Petar Popovski (Chair)
 - 2011-2012: Stefano Galli (Chair)

Officers

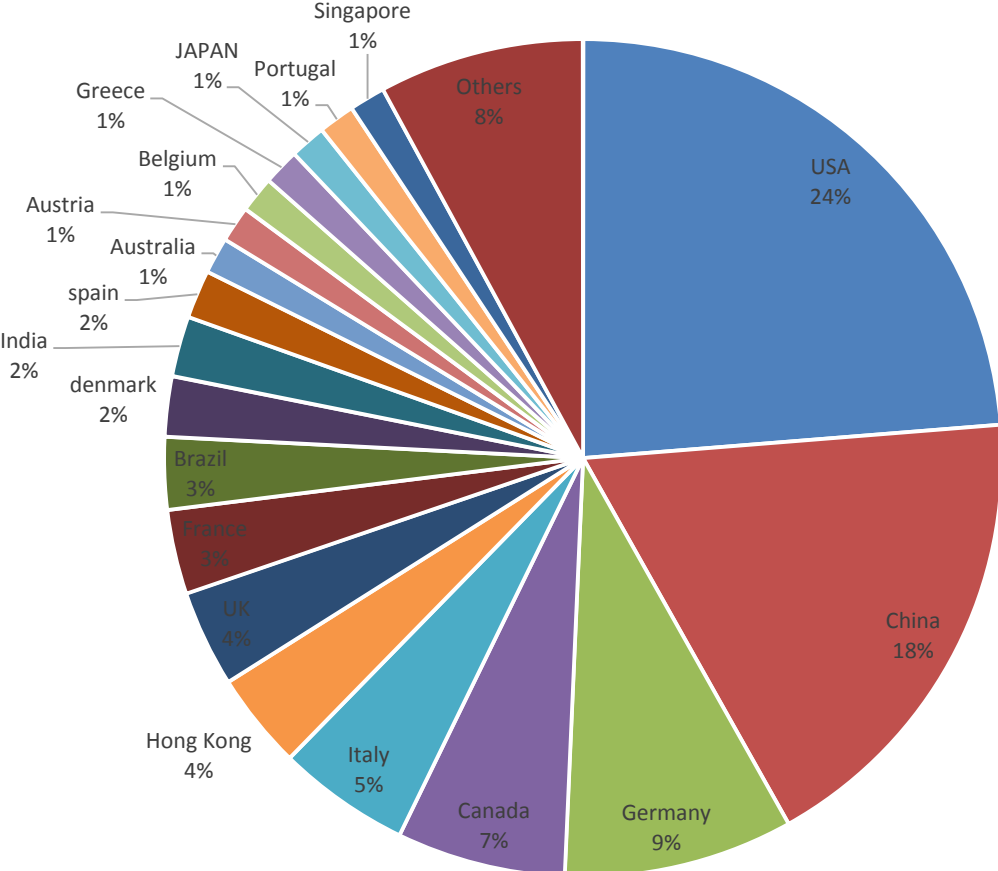
- Chair: Angela Yingjun Zhang, CUHK, Hong Kong
- Vice Chair: Hamed Mohsenian-Rad, UCR
- Vice Chair: Hans-Peter Schwefel, Aalborg
- Secretary: Christian Wietfeld, TU Dortmund

- Member Relations Chair: Liping Qian, ZUT

Member Development

- Our ETI has 224 registered members as of Oct 2018.
- To become a member, sign up the ETI-SG mailing list at <https://comsoc-listserv.ieee.org/cgi-bin/wa?SUBED1=asgcc&A=1>
- To become a **voting member**, attend at least **two** out of the last five ETI-SG meetings
- ETI-SG meetings are held twice a year at IEEE ICC and IEEE SmartGridComm.

Composition of Members in Different Countries



Special Interest Groups

- Based on the research interests of our members, we have initiated 8 SIGs
 - Communications and Networks to Enable the Smart Grid
 - Chair: Andrea Tonello, U. of Klagenfurt
 - Cyber Security and Privacy for the Smart Grid
 - Chair: Chen Chen, Argonne, USA
 - Vice Chair: Kevin Dong Jin, IIT, USA
 - Active Distribution Grids and Microgrids
 - Chair: Zhao Xu, PolyU, Hong Kong
 - Vice Chair: Junhua Zhao, CUHK Shenzhen, China

Special Interest Groups (Cont'd)

- Smart metering, Demand Response and Dynamic Pricing
 - Chair: Sid Chau, Australia National University
 - Vice Chair: Hossein Akhavan-Hejazi, UC Riverside
- Big Data Management and Analytics
 - Chair: Hamed Mohsenian-Rad, UCR
 - Vice Chair: Marco Levorato, UC Irvine
- ICT-Enabled Transactive Energy and Grid Economics
 - Chair: Lijun Chen, Colorado
 - Vice Chair: Emiliano Dall'Anese, Colorado

Special Interest Groups (Cont'd)

- Energy Storage and Electric Vehicles
 - Chair: Chris Develder, U. Ghent, Belgium
 - Vice Chair: Hamid Nazaripouya, UC Riverside
- Energy Internet and Energy System Integration
 - Chair: Qinglai Guo, Tsinghua, China
 - Vice Chair: Hao Zhu, UT Austin, USA
- Details of the SIGs can be found at <http://sg.committees.comsoc.org/special-interest-groups/>

Position Paper

<http://sg.committees.comsoc.org/files/2018/09/IEEE-ETI-SG-Position-Paper-2018.pdf>

Position Paper

- Title: Emerging Technical Committee ‘Smart Grid Communications’: Information Technology for Smart Utility Grids
- Purpose:
 - Define the scope of ETI-SG and of Special Interest Groups
 - Act as a living document to be adjusted according to the developments in ETI-SG
- Drafted by ETI-SG officers, with the input from the SIG and the Advisory board.
- Accepted by IEEE SGC2018 as a position paper

Position Paper: Table of Contents

- **SCOPING OF SMART GRIDS FOR THE EMERGING TECHNICAL COMMITTEE**
 - The scope of the ETC Smart Grid Communications (ETC-SGC) is delimited to Utility Grids, including in particular electricity, gas, heat, and water grids, and the intelligent systems that are connected to it, (...).
- **THE PAST 8 YEARS: HYPE AND CONSOLIDATION**
- **THE PATH TO THE FUTURE**
 - Emerging topics 1 – top-down
 - Transactive Energy
 - Multi-Energy Systems and Interdependencies of Grids
 - Emerging topics 2 – bottom up – enabling technologies
 - Data analytics/Big Data
 - Novel distributed approaches for secure transactions
 - Scalable computing architectures
 - IoT platforms for heterogeneous data and control
 - Communication as a sensor
 - Structure of Research Agenda
 - 8 SIGs (see earlier)
 - Relation to Neighbouring Societies
- **SUMMARY AND CONCLUSIONS**

Policy and Procedures

- Drafted in May 2018
- Discussed and endorsed by the members at the ETI meeting at ICC 2018
- ToC
 - Name
 - ETI-SG Charter
 - Membership Requirements
 - Elected and Appointed Officers
 - Nomination and Election Procedures
 - Conduction of ETI-SG Meetings
 - Supporting Activities
 - ETI-SG Awards
 - ETI-SG Information Dissemination
- Can be viewed at <http://sg.committees.comsoc.org/files/2018/05/Policies-and-Procedures.pdf>

Biannual Report

- Submitted in Sept. 2018 to Emerging Technologies Committee for biannual ETI review.
- ETC will decide on Elevate, Disband, or Other (remain an ETI, etc.) for each ETI.
- ETIs selected for Elevation to a Technical Committee will presented to TEAC.
- Can be viewed at <http://sg.committees.comsoc.org/files/2018/10/2018-Biannual-Report.pdf>

Nominations

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- IEEE Globecom 2018 SAC Smart Grid and Power Line Communications: Giacomo Verticale, Politecnico di Milano
- IEEE ICC 2019 SAC Smart Grid Communications: Kemal Akkaya, Florida International University, USA
- IEEE Globecom 2019 SAC Smart Grid Communications: Suzhi Bi, Shenzhen U, China
- IEEE ICC 2020 SAC Smart Grid Communications: Anna Scaglione, Arizona State University, USA
- IEEE Globecom 2020 SAC Smart Grid Communications: Yang Xiao, The University of Alabama, USA

Nominations (Cont'd)

- IEEE SmartGridComm 2018
 - Dana Analytics and Computation Symposium: György Dán, KTH
- IEEE SmartGridComm 2019
 - Communications and Networking Symposium: Anurag Srivastava, Washington State University
 - Control and Operation Symposium: Ruilong Deng, Nanyang Technological University
 - Data Analysis and Computation Symposium: Yuen Chau, Singapore University of Technology and Design
 - Cyber Security and Privacy Symposium: Daisuke Mashima, Illinois at Singapore Pte Ltd.

Nominations (Cont'd)

- IEEE Comsoc Distinguished Lecturers
 - Three candidates were nominated to ComSoc DL Committee in 2018
 - The results will be announced in GLOBECOM 2018
- Selection Committee, The 6th IEEE ComSoc Student Competition Program, 2018
 - Fang Yang, Tsinghua University, China

Call for Nominations announced regularly via the
ETI-SGC mailing list

Conferences

IEEE ICC'18

- Selected Areas in Communications (SAC) Symposium, Communications for the Smart Grid Track
- May 20 – 24, 2018, Kansas City, MO, USA
- Chair: Vincent Wong
- Number of TPC members: 36
- Number of papers submitted: 33
- Number of papers accepted: 12
- Acceptance rate: 36.4%

IEEE GLOBECOM 2018

- Selected Areas in Communications (SAC) Symposium, Smart Grid and Power Line Communications Track
- Dec. 9-13, 2018, Abu Dhabi, UAE
- Chair: Giacomo Verticale, Politecnico di Milano, Italy
- Number of TPC members (confirmed): 30
- Number of papers submitted: 31 (about 24 from Smart Grid area and the rest from PLC area).

IEEE SmartGridComm 2018

- Renamed as IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids
- Oct. 29 – Nov. 1, 2018, Aalborg, Denmark
- General Chair: Petar Popovski (Aalborg U.)
- TPC Co-Chairs:
 - John Thompson (U. of Edinburgh)
 - Hamed Mohsenian-Rad (UC Riverside)
 - Deepa Kundur (U. of Toronto)
 - Linus Thrybom (ABB Corporate Research)

IEEE SmartGridComm 2018: Technical Tracks

- Communications and Networking
 - Chairs: Woo Hau Chin (Toshiba Research Europe, UK), Deniz Gündüz (Imperial College London), Melike Erol-Kantarci (U. of Ottawa, Canada), Walid Saad (Virginia Tech., USA)
- Control and Operation
 - Chairs: Mahnoosh Alizadeh (UCSB), Hossein Akhavan-Hejazi (UCR), Hongjian Sun (Durham University, UK)
- Data Analytics and Computation
 - Chairs: Emre Can Kara (Stanford), Manish Marwah (HP Lab, USA), György Dán (KTH)
- Cyber Security and Privacy
 - Chairs: Rakesh Bobba (OSU), Lalitha Sankar (ASU), Saman Zonouz (Rutgers)

IEEE SmartGridComm 2018: Tutorials

- Theoretical foundations for designing an autonomous power grid: PMU data science for blackout and cyber attack early warning
 - Edward Jonckheere (USC), Paul Bogdan (USC), Laith Shalalfeh (German Jordanian University)
- General and powerful flexibility modeling and management with flex-offers
 - Torben Bach Pedersen (Aalborg), Laurynas Šikšnys (Aalborg), Bijay Neupane (Aalborg)
- Smart meter privacy-by-design
 - Deniz Gunduz (Imperial College London), Tobias Oechtering (KTH)

IEEE SmartGridComm 2018: Tutorials

- Introduction to reliable control using unreliable communication media
 - Masaaki Katayama (Nagoya, Japan)
- Convex relaxations and combinatorial optimization of alternating current (AC) electric power systems
 - Sid Chau (Masdar Institute, UAE), Majid Khonji (Masdar Institute, UAE)
- Smart battery pack
 - Remus Teodorescu (Aalborg)

IEEE SmartGridComm 2018: Workshops

- AI in Energy Systems
- Quo Vadis Blockchain in Energy?
- Future Low and Medium Voltage Distribution Grids
- Communication in Energy Grids in the Era of Tactile Internet
- Data, Analytics, and Synchrophasors for Transparent Distribution Networks
- Next Generation of Reliable Power Electronic-based Smart Grids
- Smarter Buildings in Smarter Utility Grids.

IEEE SmartgridComm 2018: Panel

- Panel: Electric vehicles in the smart grid, a reality check from real-life deployments
 - To provide a reality check, and discuss real-world studies and deployments of EV charging infrastructure and aforementioned smart grid concepts.
 - To present from actual deployments, synthesize lessons learnt, and discuss next steps
 - Organizer
 - Chris Develder (SIG Chair), U. Ghent, Belgium
 - Hamidreza Nazaripouya, (SIG Co-chair), UC Riverside

IEEE PES General Meeting 2018

- Panel on Big Data Analytics for Emerging Power Sensors and Internet-of-Things
 - Participants: PingThings, NuGrid Power Corp, CPS Energy, RPU
 - Organizers
 - Hamed Mohsenian-Rad (ETI Vice Chair, SIG Chair), UC Riverside
 - Emma Stewart, Lawrence Livermore National Lab
- Panel on Best Practices in Sharing of Big Data in Power Systems
 - Participants: Better Grids, Oncor, ISO-NY, BPA
 - Organizers
 - Hamed Mohsenian-Rad (ETI Vice Chair, SIG Chair), UC Riverside
 - Ning Zhou, Binghamton University

Workshop on Integrating Communications, Control, and Computing Technologies for Smart Grid (ICT4SG)

- Co-located with IEEE ICC
- The 4th workshop at ICC 2018
- Workshop Cochairs:
 - Ronald Y. Chang, Academic Sinica, Taiwan
 - Wei-Yu Chiu (ETI member), National Tsinghua University, Taiwan
- TPC Cochairs:
 - Hongjian Sun, Durham University, UK
 - John S. Thompson, University of Edinburgh, UK

Workshop on Future Smart Grid Technologies

- Scope
 - Integration of renewables
 - Communication-control-monitoring technologies
 - Electromobility and its impact to the grid
 - New paradigms for a fully connected and electrified world
 - Energy market in new transactive energy paradigms
- Time: 26-27 Feb., 2018
- Venue: Klagenfurt, Austria
- Chair: Andrea Tonello (SIG Chair)
- Technical Committee:
 - Reinhard Pannold
 - Khaled Ahmed
- 70 participants; good industry participation

Workshop on Smart Energy Distribution and Utilization

- Time and Venue: May 28-29, 2018, Hong Kong
- 80+ participants, heavy involvement of industry and NGOs
- Organizers:
 - Angela Yingjun Zhang (ETI Chair)
 - Zhao Xu (SIG Chair)
 - Minghua Chen
 - Jianbin Xu
 - Yi-Chun Lu



Journal Special Issues

IEEE Internet of Things Journal

- Special Issue on Internet-of-Things for Smart Energy Systems
- Guest Editors:
 - Angela Yingjun Zhang (ETI Chair)
 - Vincent Wong (Past Chair)
 - Hans-Peter Schwefel (ETI Vice Chair)
 - Sid Chau (SIG Chair)
- Manuscript due: Sept. 2018
- Manuscript received: 40

IEEE Communications Magazine

- Special Issue on Internet of Electric Vehicles and Smart grid
- Submission deadline: April, 2018
- Publication date: Dec. 2018
- Guest Editors
 - Wei-Yu Chiu, National Tsinghua U.
 - Hongjian Sun, Durham U.
 - Kiyoshi Nakayama, NEC, USA
 - Shunqing Zhang, Shanghai U.
 - Vincent Wong (ETC Advisor, Past Chair), UBC

IEEE Transactions on Smart Grid

- Special issue on Theory and Application of PMUs in Power Distribution Systems
- Deadline: March 1, 2018
- Guest Editors
 - Hamed Mohsenian-Rad, (ETI Vice Chair, SIG Chair) UC Riverside
 - Mario Paolone, EPFL
 - Vassilis Kekatos, Virginia Tech
 - Omid Ardakanian, U. Alberta
 - Yan Xu, NTU Singapore
 - Di Shi, GEIRINA
 - Reza Arghandeh, Florida State U.

IEEE Transactions on Sustainable Computing

- Special Issue on Intersection of Computing and Communication Technologies with Energy Systems
- Submission Deadline: 15 Dec. 2018
- Publication: Oct.-Dec., 2019
- Guest Editors:
 - Sid Chau (SIG Chair), Australia National University
 - David Irwin, Umass Amherst
 - Minghua Chen, CUHK
 - Sarvapali Ramchurn, U. Southampton

Hindawi Journal on Security and Communication Networks

- Special Issue on Cybersecurity in Distributed Smart Systems
- Submission Deadline: 18 May, 2018
- Publication Date: Oct. 2018
- Guest Editors
 - Drago Žagar, University of Osijek, Croatia
 - Krešimir Grgić, University of Osijek, Croatia
 - Andrea Tonello (SIG Chair), U. of Khagenfurt
 - Matej Zajc, University of Ljubljana, Slovenia
 - Carolyn McGregor, University of Ontario, Canada

Hindawi Journal of Optimization

- Special issue on Optimization for Electric Power System Resilience
- Submission Deadline: 25 May 2018
- Publication Date: Oct. 2018
- Guest Editors:
 - Chen Chen (SIG Chair), Argonne
 - Pirathayini Srikantha, Western U.
 - Yin Xu, Beijing Jiaotong
 - Chau Yuen, SUTD
 - Robin Roche, U. Bourgogne Franche-Comté

IET Journal on Cyber-Physical Systems

- Special Issue on Cyber-Physical Systems in Smart Grids: Security and Operation
- Guest Editors:
 - Qinglai Guo (SIG Chair), Tsinghua
 - Kevin Dong Jin (SIG Vice Chair), IIT
 - Lin Zhang , Tsinghua
 - Ian A. Hiskens, Michigan
 - Wencong Su, Michigan-Dearborn
- Publication date: 4th Quarter, 2017

ACM Transactions on Modeling and Computer Simulation (TOMACS)

- Special Issue on Principles of Advanced and Distributed Simulation (PADS)
 - The special issue is based on significantly extended, selected papers of the 2017 ACM SIGSIM Conference on PADS
 - Paper submission deadline: Nov. 15, 2017
 - Publication date: Oct. 2018
 - Guest Editors
 - Dong Kevin Jin (SIG Vice Chair), IIT, USA
 - Philip Wilsey, U. of Cincinnati, USA

Next Meeting

- IEEE ICC 2019, 20-24 May, 2019, Shanghai, China.
- Pudong Shangri-La, East Shanghai Hotel

Thank you!