NE-IECCE 2026 Special Session (SS-05)

Title of Proposed Session:

Integration of EV Charging Infrastructure and Renewable Energy Sources: Challenges and Opportunities

Technical Outline of the Session

This special session aims to publish original research paper related to sustainable charging infrastructure for the electric vehicles, solution of integration of electric vehicles loads and renewable energy sources (RES) at the electrical distribution system, reliability analysis of the distribution system after integrating EV load and RESs. EV load impact analysis, energy management strategies at charging stations, solution of optimization problem for installing the charging stations by considering electrical distribution network and transportation network. Techno-economic analysis of renewable energy-based charging stations.

Topics of Session

The scope of this Special Session includes, but is not limited to, the following topics:

1. Techno-economic analysis of renewable energy-based charging stations.
2. Location and capacity planning model of charging infrastructure.
3. Electric vehicle load impact analysis on electrical distribution system.
4. Energy management strategies to handle the EV load and Renewable energy sources.
5. Novel method for the placement and capacity of charging stations.

Special Session Organizers

1. Dr. Fareed Ahmad,
Assistant Professor, SND COE & RC, SPPU, Nashik, India
fareed903@gmail.com

Fareed Ahmad received a Ph.D. degree in electrical engineering from Aligarh Muslim University, Aligarh, India in 2023. He is currently an Associate Professor with the Electrical Engineering Department, SND College of Engineering and Research Center, SPPU, India. He has published more than 25 refereed journal including IEEE Transaction on Industry Applications, Energy conservation and Management, Energy Reports, Electrical Engineering, Energy Source Part A, Rec. Uti. & Env. Effects, and conference papers in power system areas. His current research interests include EV and Renewable energy source integration in electrical network and optimization of energy networks, optimization of energy storage systems. He got Third Prize Award during IEEE IAS annual meeting 2024 in Phoenix, USA. He successfully organized more than 10 special sessions in 2024-2025.

2. Dr. Farhad Ilahi Bakhsh
Assistant Professor, National Institute of Technology Srinagar
farhad@nitsri.ac.in

Dr. Farhad Ilahi Bakhsh received B. Tech degree in Electrical Engineering and M. Tech. degree in Power Systems & Drives from Aligarh Muslim University (AMU), Aligarh, India in 2010 and 2012, respectively. Then he pursued Ph.D. from Indian Institute of Technology Roorkee, India in 2017. During his Ph.D. he developed a new method for grid integration for wind energy generation system which has been recognized worldwide. He developed an automatic solar tracking system which has been appreciated by IEEE India Council, Centre for Embedded Product Design, Centre for Electronics Design and Technology, Netaji Subhas Institute of Technology in association with IEEE Delhi Section & IEEE CAS, Bangalore Chapter. Currently he is serving as Assistant Professor in Department of Electrical Engineering, National Institute of Technology Srinagar, Jammu & Kashmir, India. He is founder and Counselor of IEEE Student Branch, NIT Srinagar. He has won “10 for 10 Typhoon HIL Award” from Switzerland, Europe. He delivered a number of Keynote talks, Invited talks and Expert Lectures at National and International level in conferences, workshops, STC, etc. He has more than 80 published papers in Scopus or Web of Science based International reputed Journals and Conferences. He has also published one Springer book and more than 10 book chapters. Many times, he got best paper awards in international conferences. Moreover, he has Indian, Australian and South African granted patents in his credit. Recently, he has been enlightened with “Award of Excellence in Research” by VALLWAY International. He served as Lead Guest Editor in IET Generation, Transmission and Distribution Journal; Guest Editor in IET Renewable Power Generation Journal; and Guest Editor of Distributed Generation & Alternative Energy Journal. He is the Associate Editor of Distributed Generation & Alternative Energy Journal; Lead Guest Editor in IET Power Electronics Journal; Guest Editor in Renewable Energy Focus, Elsevier; Guest Editor in Frontiers in Energy Research; and Guest Editor in Recent Advances in Electrical & Electronic Engineering. His research area of interests includes Performance Analysis and new applications of Variable Frequency Transformer, Application of Power Electronics & Drives in Renewable Energy Systems (Solar & Wind), Multilevel Converters, Alternate Energy Vehicles (Electric/Hybrid) and Multi-phase Drives.

3. Prof. Atif Iqbal
Professor, Qatar University, Qatar
atif.iqbal@qu.edu.qa

ATIF IQBAL (Fellow IEEE (USA), Fellow IET (UK), Fellow IE (India), Fellow AIAA (Asia Pacific), Fellow AAIA) received the B.Sc. and M.Sc. degrees in Electrical Engineering from the Aligarh Muslim University (AMU), Aligarh, India, in 1991 and 1996, respectively, and Ph.D. degree from Liverpool John Moores University, Liverpool, U.K., in 2006. He received D.Sc. degree (Habilitation) in control, informatics, and electrical engineering from the Gdansk University of Technology, Gdansk, Poland in 2019. He is a Full Professor with the Department of Electrical Engineering, Qatar University, Doha, Qatar, and a former Full Professor of the Department of Electrical Engineering, AMU, Aligarh, India. Prof. Iqbal is Honorary Adjunct Professor at M.A. American University, Nigeria, and

Bharath University, India, He is also Adjunct Faculty at the Community College, Doha, Qatar. Prof. Iqbal has been listed in top 2% highly cited scientists of the world (Stanford University, USA) since 2019. He has published widely in international journals and conferences on his research findings related to power electronics, variable speed drives, e-mobility, smart grid, complex energy transition, micro and nano grids and renewable energy sources. He has authored or coauthored more than 600 research articles, 8 patents, and four books and several chapters in edited books. He has supervised several large research and development projects worth several million USD. He has supervised 21 PhD He was also a recipient of the Outstanding Faculty Merit Award for year 2014–2015 and the Research Excellence Awards at Qatar University, in 2015, and 2022. He has received Research Excellence Award from the College of Engineering, Qatar University in 2019. He has received several best research papers awards in top International Conferences. He is serving as the Vice-Chair of the IEEE Qatar Section. He is an Associate Editor of the IEEE Transaction on Industrial Electronics Senior Editor IEEE Access and Editorial Board Member IEEE ACCESS.	