



2nd International Symposium on Sustainable Energy and Technological
Advancements
Date: 24th -25th Feb. 2023

A Special Session on

Frontiers in Sustainable Development and Operations for Adaptation towards Climate Change in Future Smart Grid

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Aims & Scope:

The advancement in power systems for the future smart grid is highly essential as the present technologies will become outdated very soon. The advancement in power electronics technologies is already playing a significant role in the sustainable development of an intelligent and highly advanced grid. However, the effect of climate change has raised major concern for power generation as well as disturbances to the power network. Therefore the adaptation towards climate change in the power grid is highly necessary for uninterrupted power supply to the consumer. The unexpected load demand can be severely affected by the climate change effect in the future grid.

Over the past few years, researchers have focused on the development of technologies to improve the performance and efficiency of energy systems at the transmission and distribution level. Even though adaptation to climate change is also the major point of focus among researchers throughout the globe. The advanced technologies and adaptation towards unexpected changes in the environment can deal with variations in the power generation from Photovoltaic plants, wind power generation points, wave energy generation points at the seashore, battery energy storage, and fuel cell generation stations. This proposal for a special session aims for the sustainable development and operations of the future smart grid, microgrid due to the effect of climate change. The Frontier technologies in the renewable energy systems for its operations during the effect of climate change are also focused on in this session. The special session also includes the majority of related technologies for the future smart grid like recent advances in power quality improvement, harmonic reduction, EV Technology and EV integration to the grid, renewable energy, energy storage, and energy management in the smart grid. It will also provide comprehensive solutions and innovations for the advancement of the smart grid.

Subtopics:

- Microgrid/Smart grid control
- Climate change effect
- Sustainable Development
- Integration of renewable energy systems
- Control of distributed energy systems
- Efficient Power electronics converters
- Soft computing techniques for climate change adaptation
- Electric Vehicle Technology
- Energy Management Technology towards climate change
- EV to grid and Grid to Vehicle (V2G/G2V)
- High Voltage applications
- IOT Applications

Special Session Organizer 1



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Dr. Santanu received the B.Tech degree in Electronics from Biju Pattnaik University of Technology Rourkela in 2011 and M.Tech from Sambalpur University, Burla, India in 2013. He has received the Ph.D. degree in Electrical Engineering from National Institute of Technology Rourkela, India in 2019. His research interest include power quality, grid connected systems, distributed generations and embedded system application for power converter control. He has published his research articles in many IEEE Transactions, SCI and Web of Science International Journals. He is also one recognized reviewer for many reputed International Journals like IEEE Transactions on Industrial Electronics, IEEE Access , IEEE , International Journal of Electrical Power and Energy Systems, **Elsevier** International Journal of Electric Power Components and Systems, **Taylor and Francis** International Transaction of Electrical Systems, Wiley, International Journal of Electronics, **Taylor and Francis** , International Journal of Emerging Electric Power Systems, **DE GRUYTER** . He is currently working as Senior Assistant Professor in Vellore Institute of Technology, Vellore, India.

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Dr. Naayagi received the Bachelor's, and Masters degrees in electrical and electronics engineering in India with University gold medals and a Ph.D. degree in electrical and electronic engineering from the University of Manchester, Manchester, UK. She is working for Newcastle University in Singapore (NUiS) where she is currently the Director of Education & Associate Professor in Electrical Power Engineering.

Dr. Naayagi has received several merit certificates for her academic proficiency, including the Best Outgoing Female Graduate Award during her bachelor's and the Outstanding Master's Student Award. She is the first recipient of the Dorothy Hodgkin Post-Graduate Award from the School of Electrical and Electronic Engineering, University of Manchester, for her Ph.D., jointly sponsored by Rolls-Royce plc and the Engineering and Physical Sciences Research Council, U.K. She received the Woman Engineer Award from the Young Professionals Section Chennai, Institution of Engineering and Technology (IET), U.K., in 2012. She received the Newcastle University Teaching Award in 2016. She was elevated as Senior Member of the IEEE in 2015 and was awarded Senior Fellow status of the Higher Education Academy, UK in 2019. She has received the IEEE PES Outstanding Engineer Award in 2021 in recognition of her contributions to the IEEE PES Singapore chapter. She is a steering committee member of NU Women, UK and a member of the Diversity Working Group at Newcastle University, UK and She has served as the Chair of NUiS women in science and engineering network and organized many events to promote young professionals especially young women in engineering and technology. She has also served as the Chair of the IEEE Power and Energy Society, Singapore Chapter from Jan 2019 to Dec 2020. She is an Associate Editor of IEEE/CSEE Journal of Power and Energy Systems and received the Excellent Young Subject Editor Award for the year 2020 and serves as a Reviewer for the IEEE, IET, and many other international journals and conferences. Her research interests include renewable energy integration and applications in smart grid, power electronics for aerospace, electric vehicle applications, low carbon electrical energy systems, and power electronic solutions to sustainability.