

International Conference on Electrical and Electronics for Sustainable Innovations 2026 (ICEESI 2026)

(Hybrid Conference with IEEE Record Number #68020)

27th & 28th March 2026

Special Session on

SS 01: Generative AI Applications in Renewable Energy: Emerging Paradigms for Sustainable Power Systems

Organized & Co-Chaired by:



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CALL FOR PAPERS

The integration of **Generative Artificial Intelligence (GenAI)** with renewable energy systems has opened new frontiers in modeling, simulation, forecasting, design, and optimization. Unlike traditional AI models, GenAI—including Generative Adversarial Networks (GANs), Variational Autoencoders (VAEs), and Large Language Models (LLMs)—enables synthetic data generation, emulation of energy system behaviors, and creation of novel system configurations for improved sustainability, resilience, and operational efficiency. This special session aims to explore recent breakthroughs, applications, and interdisciplinary advances where GenAI contributes to solving complex challenges in renewable energy systems.

TOPICS OF INTEREST, BUT NOT LIMITED TO:

We invite original research contributions and case studies on (but not limited to):

- **Synthetic Data Generation** for wind/solar resource forecasting using GANs
- **AI-Generated Scenarios** for grid integration, load profiles, and energy demand
- **Design Optimization** of renewable energy systems using GenAI frameworks
- **Climate-Aware Forecasting** with multimodal generative models
- **GenAI-Enhanced Digital Twins** for PV plants, wind farms, and energy storage systems
- **Prompt Engineering in Energy Management** using LLMs
- **Generative AI for Predictive Maintenance** in smart grids and microgrids
- **Sustainability Decision-Making** with AI-generated simulations and policies
- **Explain ability and Bias Mitigation** in GenAI energy applications
- **Security, Ethics, and Regulatory Aspects** of using GenAI in critical infrastructure

IMPORTANT DATES:

Paper submission opens: July 25, 2025

Paper submission closes: December 15, 2025

Paper acceptance notification: January 01, 2026

Early Bird Registration opens: January 02, 2026

Last date of Early Bird Registration: January 31, 2026

Normal Registration opens: February 01, 2026

Last Date of Camera-ready paper submission: February 15, 2026

Last Date of Normal Registration: February 16, 2026

Conference Date: 27-28 March 2026

The detailed information can be found here:

Conference URL: <https://iceesi2026.opju.ac.in/>

Submission Link: <https://cmt3.research.microsoft.com/ICEESI2026>

(Please Submit Under SS1: Generative AI Applications in Renewable Energy: Emerging Paradigms for Sustainable Power Systems Tab).

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