# 6th IEEE International Conference on Sustainable Energy and Future Electric Transportation (IEEE SeFet 2026)

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# Advanced Energy Storage and Electric Vehicle Integration Strategies for Reliable and Efficient Renewable Grids


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## A BRIEF DESCRIPTION OF THE AREA

This special session focuses on emerging technologies and intelligent strategies essential for improving the stability and performance of renewable-rich power systems. As solar and wind penetration increases, optimized energy storage systems and EV-based grid support play a vital role in mitigating intermittency, enhancing flexibility, and ensuring reliable power delivery. This session invites contributions on advanced battery technologies, hybrid storage architectures, optimal sizing and placement methods, and intelligent control of charging–discharging processes. It also highlights the growing significance of electric vehicles through coordinated charging, Vehicle-to-Grid (V2G) capabilities, and their integration with renewable energy and microgrids. Topics related to AI/ML-driven forecasting, predictive energy management, and power electronics interfaces, and techno-economic assessments of storage and EV integration are encouraged. The goal is to advance innovation that supports efficient, resilient, and sustainable renewable grid operations.

## TECHNICAL OUTLINE OF THE SESSION AND TOPICS

- Advanced Battery Energy Storage Systems for Renewable-Rich Grids
- Optimal Sizing and Placement of Energy Storage for Solar–Wind Integration
- Vehicle-to-Grid (V2G), Vehicle-to-Home (V2H), and Grid-Interactive EV Technologies
- AI/ML-Based Forecasting and Predictive Energy Management for Storage and EVs
- Power Electronics Interfaces for Storage–EV–Grid Coordination
- Hybrid Energy Storage Systems (Battery–Supercapacitor/Flywheel) Optimization
- EV Smart Charging Strategies and Demand Response Integration
- Reliability, Safety, and Thermal Management of Large-Scale Battery Systems
- Techno-Economic Analysis of Energy Storage and EV Grid Services
- Battery Degradation Modeling and Life Extension Techniques
- DC Microgrids with Integrated Storage and Electric Vehicles
- Control and Stability Analysis of Renewable-Driven Storage and EV Systems

## SUBMISSIONS PROCEDURE

All the instructions for paper submission are included in the conference website**:** **https://vnit.ac.in/sefet26/**

## DEADLINES

- **Full paper submission:** **1 October, 2025**
- **Paper acceptance notification:** **15 March, 2026**
- **Final submission and registration:** **5 June, 2026**
- **Conference dates:** **8-11 July, 2026**