

List of potential PhD Projects

No.	Project Titles	Project Details
1	Siting and Sizing of Battery Energy Storage Systems	Optimizing the placement and capacity of BESS to enhance power system reliability and cost-effectiveness in distribution networks.
2	Smart Electric Charging Strategy with Reinforcement Learning for Urban Distribution Systems	Developing adaptive EV charging control using reinforcement learning to reduce stress on urban grid infrastructure.
3	Uncertainty Management in Urban Distribution Systems	Modelling and mitigating the impact of renewable variability, load fluctuations, and market volatility in urban networks.
4	Machine Learning for Fault Detection, Isolation and Restoration	Applying machine learning to detect, locate, and recover from faults in smart distribution systems for enhanced reliability.
5	A Multi-Agent System Approach to Ensure a Resilient Cyber-Physical System	Designing decentralized control frameworks using multi-agent systems to improve the resilience of modern power grids.
6	Design and Implementation of Vehicle-to-Grid (V2G) Systems for Urban Energy Integration	Investigating control strategies, grid impact, and business models for bidirectional EV-grid interaction in urban areas.
7	Digital Twin Framework for Battery Manufacturing Process Optimization	Creating a real-time digital twin to monitor, simulate, and optimize battery manufacturing processes for quality and efficiency.
8	Evaluating the Role of Energy and Carbon Markets in Net Zero Transitions	Develop market structures and analyze the impact of market-based policies and mechanisms in accelerating net-zero energy system implementation.
9	Decision-Making Framework for Recycling vs. Refurbishment of EV Batteries	Developing data-driven models to support optimal end-of-life decisions for EV batteries, balancing cost, performance, and sustainability.
10	The Role of Battery Passports in the Electrification of Transport	Exploring the design and implementation of digital battery passports to improve traceability, compliance, and circularity in the EV sector.

Updated: June 2025