ELECTRIC-VEHICLE SMART CHARGING

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Shared Prosperity Dignified Life

Emerging Technologies for The Renewable Energy Sector

What is Smart Charging?

Smart charging means adapting the charging cycle of EVs to both the conditions of the power system and the needs of vehicle users. This facilitates the integration of EVs while meeting mobility needs.



The Role of Smart Charging in The Power Sector

Electric vehicle fleets have the capacity to create electricity storage capacity. They can function as flexible loads as well as decentralized storage resources, offering additional flexibility to power system operations. EVs might change their charging patterns to flatten peak demand, fill load valleys, and enable real-time grid balancing by altering their charging levels.



Applications of Smart Charging in The Energy Sector



SYSTEM FLEXIBILITY		LOCAL FLEXIBILITY	
Wholesale market	Transmission System Operator	Distribution System Operator	Behind-the-meter
 Peak-shaving Portfolio balancing 	 Frequency control (primary, secondary and tertiary reserve) Other ancillary services (e.g., voltage management, emergency power during outages) 	 Voltage control Local congestion and capacity management 	 Increasing the rate of Renewable Energy self-consumption Arbitrage between locally produced electricity and electricity from the grid Back-up power