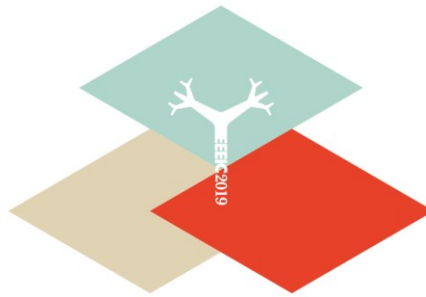




INDUSTRIAL AND COMMERCIAL
POWER SYSTEM
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INTERNATIONAL CONFERENCE
ON ENVIRONMENT
AND ELECTRICAL ENGINEERING

SPECIAL SESSION

SMART WAYS TO ENERGY MANAGEMENT OF RENEWABLE ENERGY RESOURCES

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OBJECTIVE AND TOPICS

Intelligent control of power generation from renewable power generation can be done in following ways: Firstly, Operating solar/wind energy plants similarly like pump storage plants. The local renewable energy power plant should sign contract with either DSO (Distribution System Operator) or TSO (Transmission System Operator) that at any point of time minimum power should always be injected in the grid to maintain its stability and excess power from the renewable energy resources should be used for some purposes like pumping water from downstream to upstream, charging of batteries which will lead to the concept of building natural battery charging stations. However, in case of peak demand, upstream water can be used to produce power in the form of hydro power generation. Further, stringent punishment should be awarded to the defaulter in case of violation of the contract. However, incentives should also be given if the plant operator generates within the prescribed limits. Secondly, Integration of solar/wind/small hydro renewable energy resources. This will lead to continuous and uninterrupted power generation as these resources are complimentary to each other. Well planned hybrid systems occupy provides stability and in addition to this they occupy much less space than conventional wind only or solar only installation. Thirdly, Effective distribution management system which can predict the impact of outages, transmission, generation, voltage/frequency variation should be developed. Proper planning and forecasting for systems required for integration of renewable energy based generation. Fourth, Energy management systems at customer/consumer premises can control consumption, onsite renewable power generation and energy storage, and potentially electric vehicle charging. There should be proper exchange of real time generation & load demand data between DSO and TSO in order to maintain the stability of the grid. Further, creating small islands using effective islanding detection technique will ensure better stability and controllability of smart grid and as well as renewable power generation. The system operators must go for a prior plan in case of sudden loss of generation.

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