Intelligent Core Micro-APEC Power Grid

What are smart grids & microgrids?
Hence,smart grids,broken-down to microgrids,are a solution that combines power grid with a communication network for data exchange and feedback. With the time-variant microgrid topology,MAS is the best control strategy to handle all optimization issues in power grids.

How can multi-agent power systems improve microgrid operation?
Decomposed further into microgrids,these small-scaled power systems increase control and management efficiency. With scattered renewable energy resources and loads,multi-agent systems are a viable tool for controlling and improving the operation of microgrids.

Can artificial intelligence improve microgrid control?
Classical control techniques are not enough to support dynamic microgrid environments. Implementation of Artificial Intelligence (AI) techniques seems to be a promising solutionto enhance the control and operation of microgrids in future smart grid networks.

What is a microgrid power system?
Microgrids are small-scaled power systems,equipped with local RES,diesel generators (DG),batteries and a control unit that balances demand with supply to increase self-sufficiency,correct local faults and improve power quality.

Are microgrids a good choice for power systems?
Even though microgrids bring many benefitsto power systems,there are still many unresolved design issues (Kantamneni et al. 2015).

How to manage power in a microgrid?
The optimal power management for the entire microgrid is managed by linear programmingwhich tracks the reference power from all the neural controllers. However,different variable conditions like wind speed,SoC etc. are not analysed in the paper.

micro-grid, which can be switched off-grid or on-grid state to ensure continuous power supply to the load and reduce the scope of the power grid failures and provide power to support the grid ...

The main objective of this work is to design a novel power quality conditioning device Complete Intelligent Power Quality Preserver which automatically senses, diagnose ...

Microgrids offer an attractive solution for greener energy supply by integrating renewable energy sources and intelligent control systems. This work focuses on the development of a smart ...

A microgrid (MG) is an independent energy system catering to a specific area, such as a college campus, hospital complex, business center, or neighbourhood (Alsharif, 2017a, Venkatesan et ...

The new power system is faced with 5 challenges, namely the green energy structure, flexible power grid regulation, interactive power consumption mode, energy-storage collaborative interaction with extensive distribution on the ...

Internet technology will be utilized to transform the power grid into an energy-sharing inter-grid. To prepare for the future, a smart grid with intelligent periphery, or smart ...

Solid-state transformers (SSTs) have emerged as a superior alternative to conventional transformers and are regarded as the building block of the future smart grid. They incorporate power electronics circuitry and high ...

renewable sources (which produce efficient yet variable power), the grid and battery energy storage systems. Adding to the complexity, on-grid or off-grid applications present different ...

loads into a future smart grid. Hybrid microgrids combine power from both traditional and re-newable sources and can be a part of the larger centralised networks or operate in the ...

This paper presents a probabilistic approach for integrating the load-shedding scenario in the intelligent Power Management Systems (PMS). PMS plays a crucial role in Shipboard Power ...

The project, a boon to sustained benefits for all APEC economies, tackled issues in bridging the digital divide and fostered the adoption of digitalisation among micro, small and medium ...