

The Office of Technology Management

UNIVERSITY OF TEXAS  ARLINGTON

System and Method for Distributed Control of an Electrical Network

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TECHNOLOGY NEED

It is predicted that the cumulative operational capacity of Microgrids in the U.S is expected to more than double with 2,855 megawatts by 2020. Significant efforts have been done to improve the central control system of Microgrids for the efficient operation of the system. Scalability and reliability challenges of the architecture persisting in the current state of art can compromise the system functionality when there is a failure in the communication link. To address these concerns, a fully distributed control of Microgrids with decreased complexity of the network and plug and play capability is required.

INVENTION DESCRIPTION/SOLUTION

We have developed a novel solution that offers distributed control system by replacing the centralized secondary control for Microgrids. The technology offers a controller at each generation node and a sparse communication network that links the controllers and facilitates data exchange. The new system design provides stability against communication link failures thereby decreasing the network complexity and improving the scalability and reliability of the micro grid systems. The invention produces a strong controller performance, plug and play capability and resiliency to the failure in the communication link.

APPLICATIONS

- Power utility
- Data centers
- Electric Ships
- Military
- Remote “off” grid communities
- Power generation at Universities, hospitals, commercial and industrial places

KEY BENEFITS

- Strong controller performance
- Plug and Play capability
- Strong Resilience to communication failure
- Decreased complexity of communication
- Strong utilization and optimization
- Cheaper and faster method
- Improved reliability and scalability
- Easily adaptable to existing methods

STAGE OF DEVELOPMENT

Prototype
Extensive tests done

INTELLECTUAL PROPERTY STATUS

US Patent Pending



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