

Real-time Resilience Assessment Tool for SCADA Platforms

Real-time metrics for DC microgrids to enhance operational resilience

Request an introduction



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IP Status

Provisional patent

Seeking

Development partner, Commercial partner, Licensing

Background

Resilience, a measurement of the ability of equipment, networks, and systems to predict, absorb, and quickly recover from extreme events like hurricanes and cyber-attacks, is an evolving idea in power systems.

Several studies have focused on the development of resilience assessment tools for microgrids and power systems in general. However, the existing methodologies predominantly concentrate on high-impact, low-probability events for quantifying resilience and do not support real-time or “short-term” assessment.

Tech Overview

This technology presents a novel approach for enhancing the resilience of DC microgrids through the integration of real-time resilience metrics and Lyapunov-based stability assessment.

By utilizing available measurements from smart meters (i.e., voltage and current readings in electric grids), a supervisory control and data acquisition (SCADA) platform can visualize the resilience of major nodes in the infrastructure - a capability existing platforms do not have.

This would enable operators to optimize energy production and prevent outages, thereby improving the overall resilience of the energy supply and minimizing the downtime for users.

Benefits

- Real-time resilience evaluation
- Integration of Lyapunov-based stability analysis
- Quantitative resilience metrics tailored for DC microgrids
- Enhanced understanding of system stability and resilience interplay
- Effective for naval and critical infrastructure applications

Applications

- Naval microgrid systems
- Energy management for critical infrastructures
- Real-time monitoring and control systems for microgrids
- Design and optimization tools for resilient microgrid infrastructures

Learn more about this opportunity

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