Category

Data & AI

AI for Energy & Utilities Grid Optimization Playbook

Optimizing grid operations with AI where a bad decision can mean a regional outage

- Practitioner
- Advanced
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- Administrator
- 26 November 2024
- 3 minute(s)

Overview

A framework for AI-driven energy and utilities grid optimization — load balancing, renewable integration forecasting, and predictive grid maintenance — that applies deployment rigor proportional to the grid's continuous-operation requirement, starting from augmentation of existing grid operator decisions before progressing toward more autonomous grid control applications.

How does AI deployment in grid operations differ from typical

industrial AI applications? The grid's continuous-operation requirement and the regional consequences of a grid operational failure justify substantially more conservative deployment rigor than typical industrial AI applications — a grid optimization error can have immediate, wide-reaching consequences that most other industrial AI failure modes don't carry.

Where does AI deliver genuine value in grid operations without

requiring full autonomous control? Renewable integration forecasting and predictive maintenance — both augment grid operator decision-making with better information, without requiring AI to directly and autonomously control grid operations, making them safer starting points than autonomous load balancing.

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