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Base station power supply solution after the earthquake

Overview

Electrical substation systems require significant manpower and material resources for repair after an earthquake; thus, repair efficiency directly affects economic loss. To quantify the functional recover.

Do communication base stations perform post-earthquake functionality using Bayesian network?

A method to evaluate the post-earthquake functionality of communication base stations using Bayesian network is developed. The dependence between the equipment and its hosting building structure, and the impact of power outages are considered. The method is validated using seismic damage data from the Ludian Earthquake.

What is a post-earthquake recovery analysis framework for substation systems?

Section 3.2 presents a post-earthquake recovery analysis framework for substation systems based on four repair strategies. The fragility-based recovery strategy (S2) and power user-based recovery strategy (S4) are determined when the equipment category and power supply users in the substation system are determined.

Can a backup battery survive an earthquake?

Even in an earthquake, only a part of the system may be damaged, rather than a complete loss of functionality. For instance, following a power outage, the backup battery can still provide temporary power supply to ensure the continued operation of subordinate components and the base station system.

Do earthquakes affect communication base stations?

Analyzing and summarizing these observed seismic damages can enhance our understanding of the impairment of communication base stations during earthquakes, providing valuable information for establishing a Bayesian network model for functionality loss.

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Seismic Resilience in Critical Infrastructures: A ...

The role of critical infrastructures in maintaining the functioning of the economy and society and ensuring national security, ...

Resilience-based post-earthquake recovery strategies for ...

When the equipment loses its power-load capacity after an earthquake, the substation system enters an imbalanced state of power transmission supply and demand. It is ...

Reliability prediction and evaluation of communication base stations ...

Abstract One of the primary tasks for effective disaster relief after a catastrophic earthquake is robust communication. In this paper, we propose a simple logistic method based ...

Reliability prediction and evaluation of communication base stations ...

In this paper, we propose a simple logistic method based on two-parameter sets of geology and building structure for the failure prediction of the base stations in post-earthquake.

Study on seismic resilience of urban power supply network ...

Taking urban power supply network as the research object, this paper proposes a framework and method to evaluate the seismic resilience of power supply network considering ...

Seismic Resilience in Critical Infrastructures: A Power Station

The role of critical infrastructures in maintaining the functioning of the economy and society and ensuring national security, particularly their durability in delivering essential ...

A risk-based framework to enhance post-earthquake ...

Simulation results demonstrate the framework's effectiveness, showing its

potential as a decision-support tool for Distribution System Operators to enhance resilience and ensure ...

Post-earthquake functional state assessment of communication base

There is a lack of models that can fully evaluate the post-earthquake functional states of base stations with the consideration of the dependencies between different ...

Resilience-based post-earthquake recovery strategies for ...

Recent earthquakes have shown that Electrical Power Substations' equipment are seismically vulnerable, resulting in disruption of power supply in many cases, and therefore ...

Backup Power Supply System Using Fuel Cells as ...

Backup Power Supply System Using Fuel Cells as Disaster Countermeasure for

Radio Base Stations The Great East Japan Earthquake of 2011 underscored the need for ...

Earthquake preparedness based on reliability and relief of ...

And the design of emergency power supply networks during the earthquake preparedness phase directly impacts the efficiency of post-disaster rescue efforts. This study ...

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