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### Power System Control Under Cascading Failures: Understanding, Mitigation, and System Restoration

**Kai Sun, Yunhe Hou, Wei Sun, Junjian Qi**

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**DESCRIPTION**

Offers a comprehensive introduction to the issues of control of power systems during cascading outages and restoration process

*Power System Control Under Cascading Failures* offers comprehensive coverage of three major topics related to prevention of cascading power outages in a power transmission grid: modelling and analysis, system separation and power system restoration. The book examines modelling and analysis of cascading failures for reliable and efficient simulation and better understanding of important mechanisms, root causes and propagation patterns of failures and power outages. Second, it covers controlled system separation to mitigate cascading failures addressing key questions such as where, when and how to separate. Third, the text explores optimal system restoration from cascading power outages and blackouts by well-designed milestones, optimised procedures and emerging techniques.

The authors — noted experts in the field — include state-of-the-art methods that are illustrated in detail as well as practical examples that show how to use them to address realistic problems and improve current practices. This important resource:

- Contains comprehensive coverage of a focused area of cascading power system outages, addressing modelling and analysis, system separation and power system restoration
- Offers a description of theoretical models to analyse outages, methods to identify control actions to prevent propagation of outages and restore the system
• Suggests state-of-the-art methods that are illustrated in detail with hands-on examples that address realistic problems to help improve current practices

• Includes companion website with samples, codes and examples to support the text

Written for postgraduate students, researchers, specialists, planners and operation engineers from industry, *Power System Control Under Cascading Failures* contains a review of a focused area of cascading power system outages, addresses modelling and analysis, system separation, and power system restoration.

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