

Artificial Intelligence Enabled Computational Methods for Smart Grid Forecast and Dispatch

With the increasing penetration of renewable energy and distributed energy resources, smart grid is facing great challenges, which could be divided into two categories. On the one hand, the endogenous uncertainties of renewable energy and electricity load lead to great difficulties in smart grid forecast. On the other hand, massive electric devices as well as their complex constraint relationships bring about significant difficulties in smart grid dispatch.

Owe to the rapid development of artificial intelligence in recent years, several artificial intelligence enabled computational methods have been successfully applied in the smart grid and achieved good performances. Therefore, this book is concerned with the research on the key issues of artificial intelligence enabled computational methods for smart grid forecast and dispatch, which consist of three main parts.

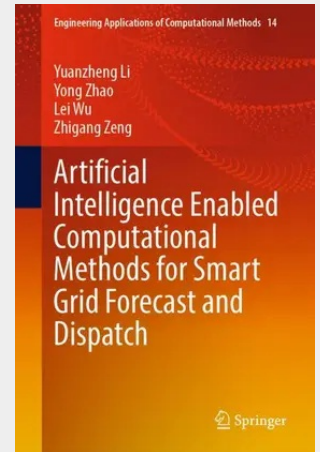
(1) Introduction for smart grid forecast and dispatch, in inclusion of reviewing previous contribution of various research methods as well as their drawbacks to analyze characteristics of smart grid forecast and dispatch.

(2) Artificial intelligence enabled computational methods for smart grid forecast problems, which are devoted to present the recent approaches of deep learning and machine learning as well as their successful applications in smart grid forecast.

(3) Artificial intelligence enabled computational methods for smart grid dispatch problems, consisting of edge-cutting intelligent decision-making approaches, which help determine the optimal solution of smart grid dispatch.

The book is useful for university researchers, engineers, and graduate students in electrical engineering and computer science who wish to learn the core principles, methods, algorithms, and applications of artificial intelligence enabled computational methods.

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