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Nota di contenuto	Development and Utilization of a Quasi-Dynamic Model for Power System Analysis -- On Effective Use’s Ensuring of High-Voltage Electrical Networks under Non-Full Phase Operational Conditions -- Constrained Multi-Criteria Optimization of the Hydroelectric Power Plant Schedule for Participation in the Day-Ahead Market of Ukraine -- Analysis of Global Trends in the Development of Energy Storage Systems and Prospects for Their Implementation in Ukraine -- Short-Term Forecasting of Imbalances in the IPS of Ukraine -- Air-Gap Sensors for Hydro Generators and Techniques for Air-Gap Eccentricity Fault Detection and Estimation -- Voltage Control in Electrical Grids with Virtual Power Plants with Variable Load on PV Generation.
Sommario/riassunto	This book covers new technologies and methods related to models for

short-term forecasting of electricity imbalances in the IPS of Ukraine, taking into account the impact of forecasts of energy production from renewable sources on the accuracy of the imbalance forecast. The book proposed architecture and mathematical model of an artificial neural network for deep learning forecasting of short-term electricity imbalances using hourly data. Using a model to aggregate data with an hourly resolution followed by forecasting to reduce forecast error, the quasi-dynamic modeling method was used to analyze the impact of periodic generation on the network. The application of quasi-dynamic modeling also allows taking into account the system load curve, generation profile, storage system, as well as renewable energy sources (RES) operation in this area. The use of models makes it possible to achieve realistic estimates of generation for the required period. The book considers a local hybrid renewable energy system (HRES) based on different types of RES, which is more efficient than a system with one type of source.