



Renewable sources in electricity markets

By Franck Bourry

LAP Lambert Acad. Publ. Mrz 2011, 2011. Taschenbuch. Book Condition: Neu. 220x150x17 mm. Neuware - The operation of Renewable Energy Sources (RES) units, such as wind or solar plants, is intrinsically dependent on the variability of the wind or solar resource. This makes large scale integration of RES into power systems particularly challenging. The research work in the frame of this Ph.D. thesis proposes a generic model and an evaluation of different methods for the management of imbalance penalties related to the participation of balance responsible renewable power producers in short-term electricity markets. First, the thesis gives a classification of the existing solutions for the management of these imbalance penalties. A distinction is made between the physical solutions, related to the generation portfolio, and the financial solutions, based on market products. The physical solutions are considered in the frame of a Virtual Power Plant. Then, the decision-making problem relative to both physical and financial solutions is formulated as an optimization problem under uncertainty. Finally, the uncertainty related to the RES production is considered in a risk-based decision making process. The methods are illustrated using case studies based on real world data. 280 pp. Englisch.



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