

Evolving bidding formats and pricing schemes in USA and Europe day-ahead electricity markets

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Abstract-

This paper compares the evolution of USA and European power markets and evaluates the suitability and future challenges of their designs in the context of the transition to a low-carbon power system. The analysis focuses on bidding formats (the way in which organized electricity markets allow participants to express their operational constraints) and pricing schemes (how agents recover their short-term costs from market prices). The radical evolution of the power mixes worldwide already experienced in the last decade and the larger one to come, with even greater shares of renewable energy and a more prominent role for storage resources, exposes limitations in current market designs. We develop an in-depth and comprehensive review of best practices from both sides of the Atlantic, and learning from them, we draw recommendations to evolve these market design elements.

Index Terms- wholesale electricity markets; market design; bidding formats; pricing rules; renewable energy sources

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