Stylized facts and fluctuations in future power markets —

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In terms of an enlarged integration of so-called renewable energy resources the structure of the corresponding power market as well as the grid design are expected to undergo fundamental changes. Load fluctuations caused by power generation replace the former base load. In order to dampen these fluctuations, new pricing schemes are discussed to adapt consumers consumption to varying supply levels.

We investigate a model based on the minority game [1] to simulate effects of a dynamic pricing structure while incorporating the main characteristics of power markets: the limited storability of power [2] and a constant requirement for energy consumption. In this regard large load fluctuations occur and the corresponding market shows aspects of stylized facts known from financial markets [3], jeopardizing the security of power supply.