

# Towards a Self-Organization Mechanism for Agent Associations in Electricity Spot Markets

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**Abstract:** In the course of the last years, the liberalization of electricity markets induced the creation of power exchanges which allow participants to trade electricity-related products in a competitive manner. Yet, in today's market structures small-scale entities like photovoltaic plants or households are prevented from direct participation because of capacity-related barriers to entry. To address this problem, the following paper introduces a mechanism for self-organizing agents which allows actors to join forces by aggregating their generation and consumption capacities. More specifically, we consider a market setting where participants trade active power products by forming product-related associations in a decentralized, temporally flexible fashion. Taking topology-related aspects of the grid into account, the approach accounts for the current trend towards more location-aware, regional-oriented market structures and thus provides the potential for a more efficient power provision.