

How to Create Value through Aggregation: A Business Model Review for multiple Regulatory Environments in Europe

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In a changing electricity market landscape, where the share of variable renewable generation is increasing, system flexibility is crucial. As part of the solution, the aggregation of distributed generation and demand can yield higher market value for the aggregated portfolios as compared to their individual elements. Aggregators are new in the European energy market and their role is expected to become increasingly important in the coming years. Today we see a variety of business models for aggregation, which are largely driven by the national regulatory framework and the distributed resources available, for which aggregation can create value (e.g. commercial PV, distributed wind, local storage, controllable demand).

This paper reviews several aggregator business models that are being commercially applied in different regulatory environments in Europe. We have reviewed the theoretical elements of the business models and are now monitoring the practical implementation of their businesses. The objective is to identify and document how the business models can create value for the aggregators, their customers and for society in the different regulatory environments. The paper will summarize lessons learned and identify context-specific regulatory barriers to a successful aggregation business.

The following business models and aggregators have been reviewed:

- trading of aggregated renewable electricity on the spot market by Next Kraftwerke in Italy and Belgium,
- participation in ancillary service markets (primary and tertiary reserves) by Next Kraftwerke in Italy and Belgium,
- supplying mid-scale customers with time variable tariffs including grid charges optimization by Next Kraftwerke in Germany,
- marketing of end user's flexibility including imbalance reduction by EDP in Portugal,
- enabling residential flexibility through automation and control by Good Energy in the UK,
- time-of-use tariffs for residential consumers by oekostrom AG in Austria.

The paper will include at least three business models along with the overall conclusions.

We have classified the business models according to their role in the energy market. The abstraction from the particular use cases allows to extrapolate the findings to

other scenarios. On the theoretical side, we have simulated the economic performance of the business models. As a first main conclusion, acquiring a portfolio size that can adequately provide flexibility is decisive for the success of all business models. On the practical side, we are currently monitoring the business models according to economic, ecological and technical KPIs such as portfolio size, turnover, CO₂ emissions and shifted load. Additionally, the aggregators' qualitative feedback is collected through interviews. This process of monitoring started in September 2017 and will run for 18 months. At the Integration Workshop we will present the results of the intermediate review scheduled for this summer.

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