

Title: Commercial agents portfolio optimization in electricity markets

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Abstract: As it is well known, competitive electricity markets require new computing tools for power companies that operate in retail markets in order to enhance the management of its energy resources. During the last years there has been an increase of the renewable penetration into the micro-generation which begins to co-exist with the other existing power generation, giving rise to a new type of consumers. This paper develops a methodology to be applied to the management of the all the aggregators. The aggregator establishes bilateral contracts with its clients where the energy purchased and selling conditions are negotiated not only in terms of prices but also for other conditions that allow more flexibility in the way generation and consumption is addressed. The aggregator agent needs a tool to support the decision making in order to compose and select its customers' portfolio in an optimal way, for a given level of profitability and risk.

Author Keywords: Retail electricity market; Aggregator; Commercial agents; Portfolio selection; Business model; Load profiles; Bilateral contracts

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