

## Masterarbeit

**Forschungsgebiet:** Transportnetzplanung und Energiemärkte

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### Short-term supply model in an oligopolistic power market

The behavior of power market characterized by oligopolistic competition is much more complex to describe than a perfect competition market. Participants can implement several strategies both in the short-term and long-term to exercise market power, in order to increase their profits above competitive levels while raising entry barriers to limit or prevent new players entering the market.

The focus of this thesis is to develop a methodology to **maximize the short-term profit** of an electric power generation company considering the effect of its **strategic behavior** and of the other companies.

The development of this project will be interrelated to a long-term problem, which goal is to maximize the long-term profit of a company taking into account its interaction with the long-term behavior of the system and the competitors companies that are inside the system.

Also, this proposal aims to describe the short-term electricity market as a strategic game (competition Cournot or competition Bertrand) by modifying the costs curves of all participants to represent thus **exercise of power market**.

The performance of those costs curves will be evaluated in function of the characteristics (expected value, deviation, etc.) of their probabilistic curves.

Proposed work breakdown:

- Introduction and literature research to the main focus
- Description of the System's behavior
- Development of the strategies evaluation tools
- Formulation of the optimization problem
- Validation through a numerical example

Die Arbeit ist ab sofort an Studentinnen und Studenten der Elektro-/Informationstechnik als Masterarbeit zu vergeben.

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