Interdisciplinary Project (IDP)

Development of a business game in the field of energy markets

Objective
The aim of the project is the development of a digital business game in the field of energy markets. The basic knowledge regarding energy markets can be learned in the context of an accompanying lecture.

The following aspects can be implemented as part of the practical part:
1. Object model that maps balancing groups and control areas and communicates via schedules.
2. Objects for generators (CAPEX, OPEX, efficiency, generation paths for RE)
3. Objects for consumers (load profiles and willingness to pay)
4. Simple spot market model

As part of a second IDP or for an IDP in group work, the following additional aspects can be implemented:
1. Model for balancing services
2. Futures market for commodities (gas, coal, CO₂ emission rights, etc.)
3. Simple power grid model for the representation of grid bottlenecks
4. Model for prosumers interacting on a local market

Requirements
For the implementation of the business game we recommend the following previous knowledge:
1. First experience in software/web development.
   a. First experience with web techniques (e.g. JavaScript, HTML, CSS, PHP)
   b. First experience with databases (e.g. MariaDB, MySQL).
   c. Bonus: First experience with web frameworks (e.g. React, Angular, Vue.js, Laravel, Ruby on Rails, Django).
2. Interest in energy economics / energy markets.

Accompanying lecture
One of the following courses is recommended as an accompanying lecture:
1. Energieversorgung im liberalisierten Markt (SS, WS)
2. Grundlagen der Energiewirtschaft (SS)
3. Energy systems & energy economy (WS)

Contact
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