Notice of dissertation defense

Electricity market participation of demand response with optimization

Title

Content

The increasing amount of unpredictable renewable generation leads to a need for flexibility also on the consumption side of electricity. Residential consumers, especially with energy storages such as water heaters and batteries, could shift and curtail their energy consumption. However, in order to provide suitable changes to the consumption profiles of the consumers, appropriate methods for planning, control and incentives are being developed.

This thesis presents several developed optimization methods for the purposes of for example an aggregating retailer to aggregate multiple mostly independently acting consumers for diverse market participation. It was simulated how the flexibility of direct heating and energy storages could be used for day-ahead electricity market participation and then be controlled.

Field of research

Information technologies in automation

Doctoral candidate

Olli Kilkki, MSc
Born in Espoo 1988

Date and time

12.10.2018 at 12:00

Place

Aalto University School of Electrical Engineering, hall AS2, Maarintie 8, Espoo

Opponent

Professor Alex Huang, University of Texas

Supervisor

Professor Valeriy Vyatkin, Aalto University School of Electrical Engineering, Department of Electrical Engineering

Dissertation website

https://aaltodoc.aalto.fi/handle/123456789/53

Contact information

Olli Kilkki, p. +358 41 5385877, olli.kilkki@gmail.com

The dissertation is publicly available on the notice board of the Aalto University Learning Hub Atrium, Maarintie 8.