

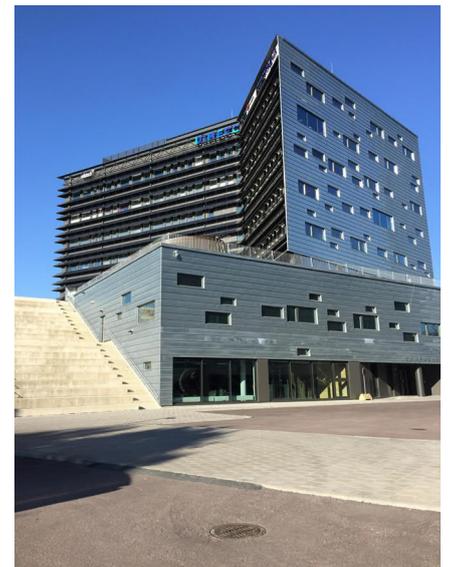
Social Energy - Prosumer Centric Energy Ecosystem (ProCem) -project

The ProCem project is studying integration of various kind of distributed energy resources to the electrical energy system. Large-scale digitalization of end-customers (e.g. households, bigger buildings, industrial areas) enable real-time and comprehensive demand response and management of distributed energy resources. In the research project, business models, real time data management and services offered to customers are being developed and tested. Internet-of-Things (IoT) based technology platforms are carried out taking into account both the electricity market and power system management perspectives

By concrete pilots, we will get experience on the technology platform but also on business opportunities of new functionalities. There are two main pilots: University Campus Building (Kampus Areena) and a new industrial area under development: Marjamäki, Lempäälä.

Kampusareena (<http://www.tut.fi/en/kampusareena/>) is a relatively new building complex combining university library, university services, restaurants and company suites. The building is powered partly by using solar PV and the site offers electric vehicle charging stations to university staff and visitors. Daily energy consumption of the buildings, including its elevators are monitored.

Marjamäki microgrid combines solar PV, energy storage, CHP-plants, gas and district heating network, and industrial processes in a way that has not been trialed before in northern Europe. Therefore, it acts as an important demonstration project for microgrid regulation in the area.



The Research project has an interdisciplinary approach and it is carried out in collaboration of research groups of four departments at Tampere University of Technology (TUT) (i.e. departments of Electrical Engineering, Pervasive Computing, Automation Science and Engineering, and Industrial Management). The project is funded by TEKES, Finnish funding agency for technology and innovation and by participating energy and IT industry companies.

