

## Pilot Project description

### Lakeside Science & Technology Park

Lakeside Science & Technology Park fulfilled its pilot project through several measures tangling the increase of cooperation between research and companies, the evaluation of energy efficiency and monitoring in technology parks and the development of support schemes for innovation.

#### **Collaboration in the Research Cluster “Energy management and technology” of the Alps-Adriatic University of Klagenfurt (AAU)**

The AAU research cluster has been started on the 1<sup>st</sup> of February 2013 with a Research Day and participants from Technical Faculty and Faculty of Economics. Lakeside Park was engaged from the beginning in the definition of research topics and possible cooperation with companies and research centres (like the Lakeside Labs). Also possible funding schemes were an input from Lakeside Park. The research cluster focuses on interdisciplinary aspects of research in energy technologies like:

- Business Models in Austrian Energy Firms
- Smart Microgrids
- Economic impacts of the energy transition
- Security risks of Smart Grids
- Actual challenges in energy laws
- Spatial energy potentials
- Smart User and Prosumer behaviour

The topics have been developed in several meetings of the expert groups with participation from Lakeside Park. The research group has a web appearance (<https://energy.aau.at/wordpress/>) and internal wiki (<https://energy.aau.at/wiki/>) and a mailing list.

An important step in the development of the Cluster was the one-week international Workshop described below.

#### **Overview on main results of the cluster:**

- 15 group meetings
- 1 international Workshop
- Study branch “sustainable energy management”
- Endowed professorship “sustainable energy management” at Faculty of Economics
- 33 paper articles, 34 articles in collected editions, 3 reference books
- Several conference speeches
- 6 research projects

## **One-week international Workshop on “Human Centred Energy Management” in cooperation with AAU, 07. – 11.07.2014 at Lakeside Park.**

The event was organized in cooperation of Lakeside Park and the Alpen Adria Universität of Klagenfurt and focused on interdisciplinary aspects of energy technologies. Lakeside Park made use of the Smart Energy Network to invite Researchers and Companies from Austria, Italy and Slovenia to the Workshop. Due to the partnership with Kelag (project Efficient Effective Smart) it was possible to do the Social Event of the Workshop at the “Schaukraftwerk Feldsee”. The Workshop included Key-note speeches, group work, company presentations and a company speed dating.

### **Program in short:**

- Monday “Opening Day”
  - Martin Krch (Lakeside Park, Austria): Introduction and project presentation
  - Wilfried Elmenreich (University Klagenfurt, Austria): Bringing the smart grid into your home
  - Oliver Parson (University Southampton, England): Machine Learning for Home Energy Feedback
  - Marko Grobelnik and Maja Skrjanc (Jozef Stefan Institute, Slovenia): Modern Analytics Methods for Energy Saving
- Tuesday “Industry Day”
  - Andreas Reinhardt (University of New South Wales, Australia): Appliance-level Power Consumption Monitoring - Opportunity for Novel Services or Threat to User Privacy?
  - Andreas Kercek (Lakeside Labs GmbH, Austria): Research collaboration and funding opportunities
  - Company Presentations
    - CTR, Kelag, St.a.r. Systems, INEA, Eudt, Kärnten Solar, InfoFactory, Verbund Umwelttechnik
- Wednesday “Social event”
  - Hermann DeMeer (University Passau, Germany): Hybrid Risk Management for Utility Networks
  - Peter Palensky (AIT, Austria): Buildings, people and the grid
- Thursday “Interdisciplinary Research Day”
  - Norbert Wohlgemuth (University Klagenfurt, Austria): The energy efficiency rebound effect and renewable energy
  - Markus Biberacher (ispace, Austria): Spatio-temporal aspects in energy systems with high renewable energy shares on local, regional and global scale
- Friday “Planning future collaborations”

The Workshop presentations and group work are available on a Wiki-Page (<https://energy.aau.at/wiki/>).

Beside networking and new contacts the concrete Workshop results are a project between a german researcher and a company in Lakeside Park; project cooperation between the company EUDT and the University Klagenfurt (Smart Grids group) on energy monitoring and a researcher’s stay in the UK.

(see also <http://smartenergyproject.eu/cooperation-platform/news-and-events-1/press-release-1st-interdisciplinary-workshop-on-human-centered-energy-management/>)

**Overview on participants:**

- Overall 44 participants
  - 11 University Klagenfurt
  - 3 invited Universities
  - 19 Research Institutions
  - 11 Companies
- Countries
  - 23 Austria
  - 15 Slovenia
  - 3 Italy
  - 3 Other (GB, AUS, DE)

**Energy Efficiency and Renewable Energy Sources in Technology Parks**

Lakeside Park developed a project proposal for the assessment of energy efficiency in technology parks together with project partner CETA. This proposal was adopted in a project together with company Messfeld to analyse the energy flows at the technology park. The project included an assessment of the past and current energy and media consumption, a real time monitoring of selected areas, a thermography of the buildings and a survey within the employees in the park. The project resulted in a report giving an overview on the energy flows and energy consumption and concrete suggestions for energy efficiency measures and future management of energy flows within the park. Also an information campaign for the employees in the park and two bachelor theses of students of the Carinthian University of applied sciences will be based on this study.

Based on the first results of the energy efficiency project Lakeside Park made a feasibility study on the deployment of a photovoltaic plant at the technology park together with company Kärnten Solar. Based on the nearly optimal overlap of the energy consumption profile in the park (office times, main consumption of cooling devices in summer) with the energy generation profile of a photovoltaic power plant, it was possible to define the size, orientation and electrical setup for this renewable energy source in technology parks. The study also included a study on different financing schemes.

**Concept development for a FabLab at Lakeside Park**

Based on the importance of young companies to adopt young technologies like renewable energy technologies Lakeside Park, together with company 3D-Markt developed a concept for a FabLab, which could provide important prototyping capabilities for the development of start-ups and ideas.

The concept has been developed in several alignment and networking meetings with foreseen customers and stakeholders.

Although the FabLab itself has not become reality during the project runtime, the idea has been adopted by the Carinthian University of Applied Sciences and the University of Klagenfurt, resulting in the SmartLab Carinthia which has been officially opened in February 2015. Further development of the SmartLab facilities is ongoing.