



Picture: Fraunhofer IBP

Workshop

Grid-Supportive Buildings: Opportunities and Challenges

As part of CISBAT 2015
10 September 2015, Lausanne, Switzerland



VENUE AND CONTACT

CISBAT 2015

9 - 11 September 2015
École polytechnique fédérale de Lausanne EPFL
<http://cisbat.epfl.ch/index.php>

Workshop

10 September 2015, 1:00 pm - 3:30 pm

Venue

CISBAT 2015
EPFL-ENAC-LESO-PB
LE-Building - Station 18
CH-1015 Lausanne/Switzerland
<http://cisbat.epfl.ch/venue.php>

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Online-registration and costs

<http://cisbat.epfl.ch/registration.php>
Costs for the workshop are included in costs for the conference.
No separate registration for the workshop required.

Travel to conference venue

<http://cisbat.epfl.ch/travel.php>

Partner



Project partner



Supported by

German Federal Ministry for Economic Affairs and Energy
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JOINT RESEARCH PROJECT „GRID-SUPPORTIVE BUILDINGS“

The focus of the energy transition in Germany is on decreasing CO₂ emissions (i.e. fossil fuels) via increasing efficiency and the use of renewable energy systems (i.e. RE systems).

The large-scale introduction of non-adjustable and fluctuating energy from solar and wind presents special challenges to the energy system. Local differences between electricity production and demand may lead to problems in voltage stability or resource utilization.

Therefore, the time-dependent profile of energy consumption will play an important role, in addition to the absolute electricity consumption. By shifting the electricity consumption for heating and cooling power to more favourable times and storing the energy as heat, buildings can make a major contribution to relieving the stress on the electricity systems and transmission grids.

Using electric heat pumps, co-generation and compression chillers in combination with thermal storage units, it is possible to convert and store a large amount of surplus electricity with high efficiency. The achieved flattening of the residual load profile has a positive influence on the remaining part of the system infrastructure.

The objective of the joint research project "Grid-supportive buildings" is a holistic view of buildings as part of the energy system. Here, it will be investigated how buildings behave in a future electricity grid and how they can contribute to the stability of the grid.

More information: www.netzreaktivegebaeude.de



Solar community in Freiburg
(© Rolf Disch SolarArchitektur,
Freiburg)

Energy management system PoMS interacting with the electricity grid of MVV energy (© ONLINEARCHIV on masterpress)



HiL test bench for analyzing components (© RWTH Aachen, E.ON Energy Research Centre)

1:00 pm - 1:20 pm Registration

1:20 pm - 1:30 pm Welcome

Dr. Rita Streblov, RWTH Aachen

1:30 pm - 1:50 pm

Keynote speech: Grid-Supportive Building

Prof. Per Heiselberg, Aalborg University

1:50 pm - 2:20 pm

Grid-supportive buildings: performance criteria, status quo and optimization approaches

M.Sc. Konstantin Klein, Fraunhofer ISE

2:20 pm - 2:50 pm

Model-based simulation of heat pumps to assess potential of thermal storage in single-family houses for Demand-Side Management using low-voltage grid in Germany

M.Sc. Young Jae Yu, Fraunhofer IBP

2:50 pm - 3:20 pm

Potential of thermal storages in buildings to offer flexibility to the electric grid

Dipl.-Ing. Dipl.-Wirt.-Ing. Sebastian Stinner, RWTH Aachen

3:20 pm - 3:30 pm

Conclusion

Dr. Rita Streblov, RWTH Aachen

End of the workshop

The workshop presents the work of the joint research project, summarizing its perspective on the energy transition and the role of the buildings as thermal storage.

It illustrates the technical approaches, that building energy systems offer to act as thermal storage for fluctuating energy generation. In addition, challenges for the electricity grid resulting from increasing decentralization are emphasized.

Experts from science, politics and business are invited to discuss the different approaches intensively during the workshop. The aim is to develop technically feasible and economically viable concepts for the energy supply of the future.