

Press Release

Vienna, 7 May 2021

PROJECT LEAFS: USING LOCALLY GENERATED ELECTRICITY

Final report now available: The national research project investigated the potential of flexibilities and incentives for local consumption in the low-voltage grid in four field trials

The final report of the four-year research project leafs, which was led by the AIT Austrian Institute of Technology (AIT) with partners from research, industry and grid operators, investigated the use of flexibilities in the low-voltage grid in four field trials in Styria, Upper Austria and Salzburg, is now available for download. leafs stands for "Integration of Loads and Electric Storage Systems into advanced Flexibility Schemes for LV Networks" and investigated how flexibilities in the low-voltage grid can be better used on site to relieve the grids. In addition to technological solutions, the researchers also focused on households with their needs and possible incentive systems for the local use of electricity.

Johannes Kathan, Senior Research Engineer at the Center for Energy at AIT and leafs project manager: "The results from the four different field tests with the possible uses of storage and flexible loads in the electricity grid show the potential of the use of flexibilities, the temporal shifting of loads and generation very well and give a comprehensive picture of the possibilities of grid-friendly use. The optimised coverage of local own demand, ensuring the most grid-friendly operation possible and finally also the active participation of flexibilities in energy markets were investigated. Economic and regulatory analyses were carried out for all use cases to generate a comprehensive picture."

Optimal balance in the local power grid: new active participants in the power grid

The increasing number of photovoltaic systems as well as additional electrical consumers such as heat pumps, storage systems or electric vehicles pose new challenges for local distribution grids. In the leafs project, different possible applications of PV storage systems were investigated at the technological level in the towns of Eberstalzell and Littring (Upper Austria) and Köstendorf (Salzburg). In combination with simulations and tests in the AIT SmartEST laboratory, the field trials were able to comprehensively evaluate the practicality and demonstrate grid-friendly operation of such systems.

Making good use of community storage

In the municipality of Heimschuh in Styria, a community storage system was implemented and tested: This allows several customers to store their surplus energy from PV systems in a common storage system. This regulates the voltage in the local grid and thus helps to increase the absorption capacity of the grid. The project successfully demonstrated the technical feasibility of such systems and identified regulatory gaps.

Human factor important for the success of the energy transition

In addition to simulations and laboratory tests, control effects on customers were also tested in the field trials. For example, the project participants in Eberstalzell could be persuaded to use a solar bonus with a push message on their mobile phones and thus shift an average of 5% of their electricity consumption to times of high local generation.

Use of storage and flexibility from an economic perspective

In the leafs project, far-reaching economic feasibility studies were also carried out: It was shown that additional revenues can be generated through the use of flexibility, depending on the use case and the situation of the respective customers.

The partners in the leafs project

The leafs consortium, led by the AIT-Austrian Institute of Technology, brings together partners from research, grid operators and industry: Fronius International GmbH, Siemens AG Austria, Salzburg Netz GmbH, Netz Oberösterreich GmbH, Energienetze Steiermark GmbH TU Wien - Energy Economics Group, Energieinstitut an der Johannes Kepler Universität and MOOSMOAR Energies OG. The project was funded by the Climate and Energy Fund.

Project website and download final report: <https://www.energieforschung.at/leafs>

More information on the Center for Energy: <https://www.ait.ac.at/energy>

Graphic on the four field trials for download:

https://www.ait.ac.at/fileadmin/cmc/downloads/PAs/2020/AIT_Projekt_leafs_Feldversuche_Grafik.jpg

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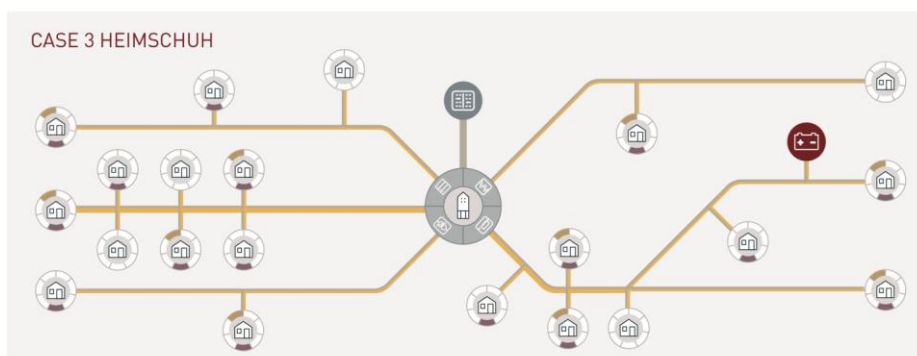
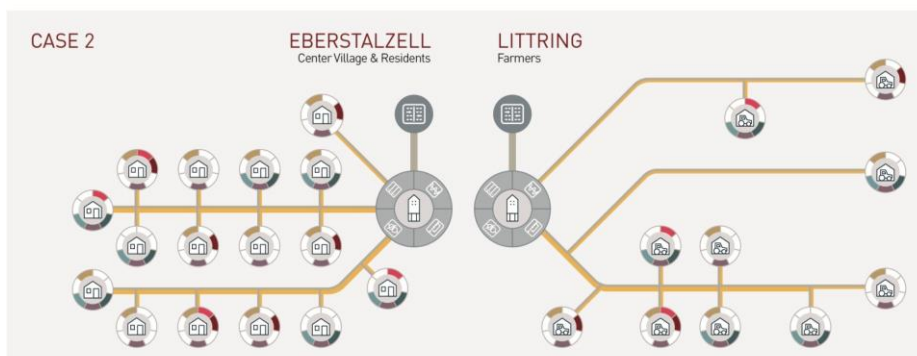
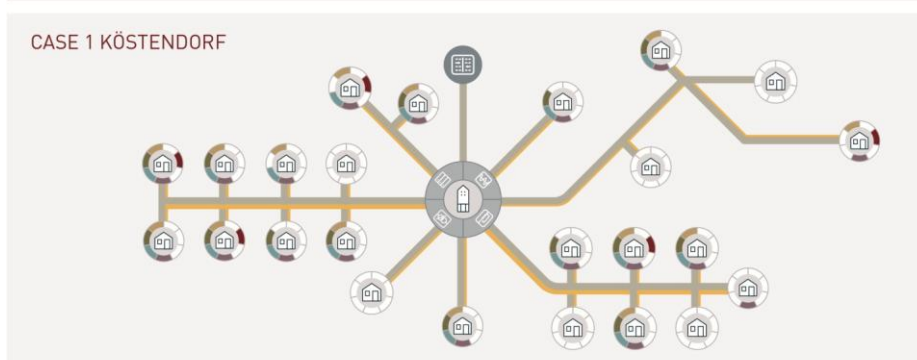
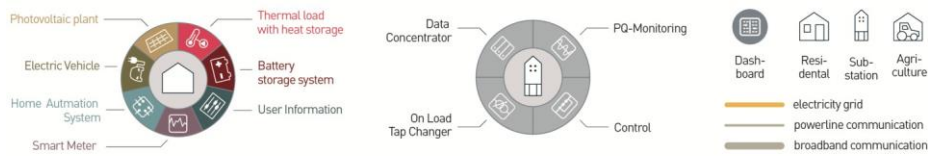
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DISTRIBUTION FIELD TRIAL SITES AND THEIR EQUIPMENT



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In the leaves project, the potential of flexibilities and incentives for local consumption in the low-voltage grid was investigated in four field trials. © AIT / APA Auftraggrafik