



Energy

Our focus is on renewable energies, efficiency technologies, smart grids and the digitization of the energy industry. Small and medium-sized enterprises, as well as industry and the energy sector, have access to a wide range of research and development services. The focus is always on secure, sustainable, economical and socially equitable supply.



Smart Software for Managing Fluctuating Energy Production

In the “High Performance Computing” department, sustainability and the smart use of energy have had a high priority from the very beginning – as can be seen in the “Green by IT” group formed back in 2009. The commitment has resulted in a corporate spin-off, Wendeware AG, in 2019. Matthias Klein-Schlöbl, head of the “Green by IT” group, outlines some of the highlights:

We have been researching software and hardware solutions for the energy transition for many years. This has resulted in the energy manager Amperix and the platform myPower-Grid, which coordinates many decentralized energy managers as a combined virtual unit. Wendeware AG is now marketing our products and further develops these technologies. Since mid-2020, Wendeware has been partnering with an anchor customer: a leading German battery system manufacturer. They use our energy management system to record and monitor energy flows in plants and to intelligently control the storage system and other generators and consumers in a property.

Good winter for Schoonschip

“Green by IT” has been accompanying Schoonschip, a floating residential quarter in Amsterdam North, for quite some time. The energy community did really well over its first winter. To understand what we have achieved, you first need to know that 30 houses (47 residential units) share a very small electricity grid connection with a maximum output rating of around 150 kilowatts while being heated with heat pumps. This means that in winter, a high power consumption is to be expected, and at peak times this consumption would actually be too high for the grid connection.



For more information, visit www.itwm.fraunhofer.de/greenbyit_en



Our cooperations at www.wendeware.com/ueber-uns

All houses are equipped with battery storage. Our energy community control system uses these storage units for coordinated support of the grid connection, a process we call “peak shaving”. At peak times, the storage systems supplied a total of up to 63 kilowatts of electricity. The shared grid connection was held close to its maximum due to the power consumption of the heat pumps, while the battery storage systems protected it from overload. During sunny periods, the storage systems are used for day-night buffering.

The technology is being used in another residential project: “Wohnen mit Freu[n]den” in Oggersheim. In addition to the main meters, we have equipped an apartment building (which also forms an energy community) with all kinds of technology for measuring electricity, water and heat, a practice known as sub-metering. This provides energy transparency for the residents and serves as a basis for billing. An evaluation of the key figures shows that “Wohnen mit Freu[n]den” already covers about 60 percent of its electrical energy requirement from its own combined heat and power plant (CHP) and, on balance, generates more than twice as much electricity as the residents consume. For this reason, it may make sense to couple the CHP with a battery storage system to further increase self-sufficiency.



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Floating residential and energy community with ITWM technology: Amperix controls the energy flows in Schoonschip.

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