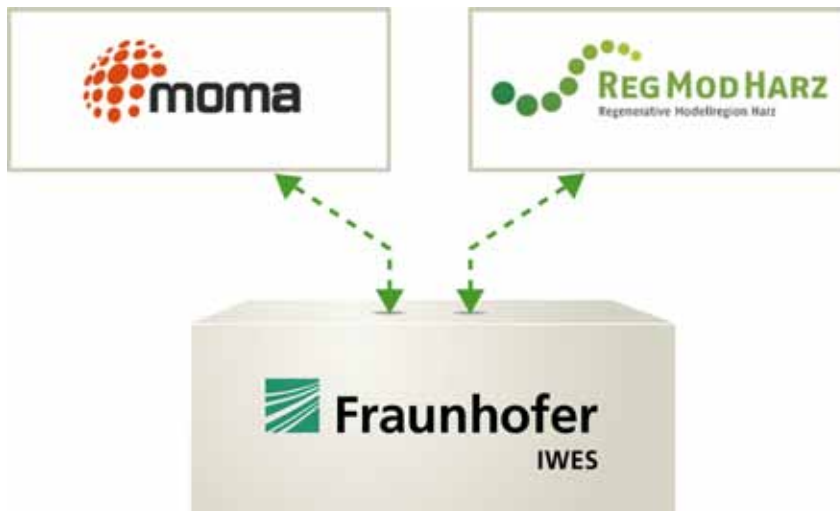


## software optimisation to tackle high-frequency data volumes

On behalf of Fraunhofer IWES, enercast GmbH has used its specialist knowledge to support the optimisation of software for smooth processing of high-frequency data volumes for two model projects with smart grids.



### Benefits

- Optimisation of software for the evaluation of energy management centres
- Analysis of the existing data and server structures
- Implementation of key tools



## Challenge

Fraunhofer IWES in Kassel works in the research areas of wind energy and energy systems technology. The Institute was a partner in the successful, pioneering projects E-Energy Project Model City of Mannheim (moma) and RegModHarz, the aim of which was to solve the challenges posed by the turnaround in energy policy, to improve energy efficiency and to increase the uptake of renewable energies. Using the latest technologies, the project partners developed and tested a concept for a cellular smart grid that optimally controls and manages the power supply, from generation and distribution to consumption.

For this purpose, Fraunhofer IWES provided energy management software which uses so-called 'energy butlers' to manage various devices for private users and small businesses by means of a variable energy price. Moreover, this system also collected data from the connected devices with a resolution time of a few seconds. Approximately 1000 electricity customers of MVV Energie (Model City Mannheim) and other electricity customers in the RegModHarz project were involved in this field test. The high-frequency energy data series required fast data paths. With their specialist knowledge, enercast GmbH supported Fraunhofer IWES in optimising the project's data systems and in expediting the import and processing of data.

## Solution

The challenges of the turnaround in energy policy place the key players on the cutting edge of technology and feasibility. Even well-known manufacturers are reaching their limits because this form of high-frequency data availability involves new demands. The systems of data collection and processing must function smoothly in real time but also absorb temporary losses in the intermediary communication infrastructure and ensure the

heterogeneous quality of the recording of initial measurements. enercast specializes in these high-frequency data streams and was able to implement new procedures in the pilot projects that solved key friction points and got the system working reliably. The specialists supported the work of Fraunhofer IWES through the analysis of existing data and server structures, and selective supplementation of essential tools. The enercast team also assisted with the optimisation of software in the energy management centre (energy butlers, or BEMI in the RegModHarz). "enercast has taken on the special complexity of the project in its entirety, resulting in the targeted optimisation of our infrastructure, which was of great benefit to us", said Dr David Nestle, Head of Energy Management at Fraunhofer IWES. Thanks to the targeted support of enercast, the project was a success.

## Benefits

enercast - as a specialist in the processing of high-frequency data - analyses the data systems of its clients and provides technology to ensure the smooth and accelerated flow of data. For the energy industry, intelligent systems are essential on the path towards energy transition. Through continuous online data acquisition and evaluation, these systems allow for the transparency needed for constant optimisation of processes. Efficient real-time communication and the smooth processing of high-frequency data sets are the basis for optimal synchronisation between the electricity generation, distribution and consumption sectors. If this grid control is not working, then people may, at worst, be left sitting in the dark.

Similarly to highly complex trading systems such as the stock market, the provision of a high-availability system is crucial. However, significantly more cost-effective solutions must be

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**Dr.-Ing. David Nestle**  
Head of Energy Management  
Fraunhofer IWES

developed for the energy industry, solutions which can be provided to even small communities as part of the energy transition. enercast has provided important support for this goal.

## Client | Fraunhofer IWES

The Fraunhofer Institute for Wind Energy and Energy System Technology IWES, with around 260 employees, is a facility of the Fraunhofer Society for the Advancement of Applied Research (FhG). The research includes the full wind energy spectrum and the integration of renewable energies in supply structures. The study of decentralized power grids and smart grids, as well as the development of efficient wind turbines are the focal points of the Institute.

[www.iwes.fraunhofer.de](http://www.iwes.fraunhofer.de)



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## convincing



With its forecasting services for the energy sector, enercast GmbH is one of the 365 „Selected Landmark 2012“.



The WRG (Wirtschaftsförderung Region Göttingen) conferred enercast GmbH with the Innovation Award 2011. enercast GmbH came in third in the services category.



The web service enercast placed third for the Innovation-IT Award 2011 in the category industry software which is awarded by the Initiative Mittelstand.

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