Launch of first operating system for smart grid home automation

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Fraunhofer IWES (Germany) presents the OGEMA Alliance, which will offer an open software platform for energy management.

More than 40% of the final energy consumption in Germany is related to buildings. Heating, cooling, domestic hot water supply and the operation of electrical appliances are the areas with the highest demand - electric vehicles are expected to become increasingly important in this context. The Open Gateway Energy Management Alliance (OGEMA) provides an open software platform for energy management which links the customer's loads and generators to the control stations of the power supply system and includes a cus-tomer display for user-interaction. In this way end customers will be able to automatically observe the future variable price of electricity and shift energy consumption to times when the price is low. All developers and involved parties can turn their ideas for more efficient energy usage by automation into software for the gateway platform.

Many people talk about saving energy, but when it actually comes down to it most peo-ple are not prepared to adjust the heating up and down according to room usage or to search for energy guzzlers within the house as this is all too cumbersome. As well as sav-ing energy, shifting energy consumption according to supply is also becoming more and more important. With an increasing share of wind power and photovoltaics as well as de-centralized generators such as combined-heat-and-power units, the large conventional power plants are decreasingly capable of controlling the electrical supply system. "Already today

electricity is for free on the German Energy Exchange at times when large power plants have to be derated due to high feed-in from wind power. Using automated load-shifting, private households and small business should also benefit from such favorable electricity prices", explains Dr. Philipp Strauß, head of the Division of System Engineering und Grid Integration at the Fraunhofer Institute for Wind Energy and Energy System Technology (IWES) in Kassel, Germany.

Together with partners from the Model City Mannheim project (i.a. MVV Energie and IBM Deutschland) and SmartHouse/SmartGrid (i.a. ECN, The Netherlands), Fraunhofer IWES is developing technology to assist the user in smarter energy consumption through taking over as much work for him or her as possible. In order to further develop and promote this concept the Open Gateway Energy Management Alliance (OGEMA) is being founded by Fraunhofer IWES and all interested parties are invited to participate. Similar to success-ful open source projects such as Linux or the web browser Firefox, anyone will be able to turn ideas into software for the gateway platform - also those not participating in the OGEMA Alliance. Similar to novel mobile phones, a multitude of applications („apps") are to be developed within a short period of time. These apps will cover the differing re-quirements of private households, super markets, small businesses as well as public insti-tutions such as schools and hospitals and help to tap potential for energy efficiency which is not accessed today.

The developers of driver software for connecting the gateway to devices and energy sys-tems within the building as well as to the control stations of the energy suppliers can also use the open interfaces provided by OGEMA. Similar to the operating system on a PC, the gateway brings together applications and hardware. It also acts as a firewall between the private area of the customer on the one hand and the public internet and public energy supply networks on the other hand. It thus takes into account the need for data privacy and for security against external

manipulation.

"Shifting energy into times of high generation and saving energy should not only save money, but should also be fun", stresses Dr. David Nestle, head of the Decentralized En-ergy Management group at Fraunhofer IWES. For this reason OGEMA will open up a vari-ety of new opportunities for the user - e.g. controlling single heating radiators precisely over time following to the requirements of the users or adapting the operation of electri-cal appliances according to the generation of the customer's photovoltaic plant. The floor is again open to the ideas of developers and providers of applications.

Fraunhofer IWES is currently developing a first version of the OGEMA software, which is to be made public and available for download on the OGEMA home page at the begin-ning of 2010 (http://www.ogema-alliance.org). Further information on the technical con-cept can already be found under this link. In the framework of the E-Energy research pro-gram, which is funded jointly by the German Ministry of Economics (BMWi) and the Ger-man Ministry of Environment (BMU), with a total budget of approx. 140 million euros, OGEMA was presented at the yearly E-Energy congress on November 26-27, 2009 in Ber-lin. OGEMA technology is also developed and used in the project SmartHouse/SmartGrid funded by the European Commission.

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