

## E-world 2020: EEBUS presents flexible power limitation for grid connection points

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- Power limitations sent by DSO via smart meter gateway with EEBUS interface
  - Manufacturers from automotive, heat pump and smart meter industries rely on EEBUS
  - Peak shaving and overload protection through local load management and use of flexibilities
  - Successfully tested in projects and test events
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At this year's E-World energy & water from 11.-13.02.2020 in Essen, EEBUS presents the solution for the grid compatible integration of electric vehicles and heat pumps. With increasing electrification in buildings, energy bottlenecks will be more and more likely: Tests show that properties may interact with the grid in a beneficial way using a standardized exchange of information. As flexible energy storage and consumers, electric vehicles may reduce load and generation peaks by adjusting the charging power.

### Seamless communication from grid to device level

The holistic solution provides bi-directional communication from the grid level via smart meter gateways (SMGW) at the grid connection point to the corresponding energy management systems (EMS) and connected devices. In this way, devices will be operated energy-optimized and practically without loss of comfort in the event of energy bottlenecks.

Standardized EEBUS communication is used between the SMGW, the EMS and devices such as charging stations and heat pumps. The EMS knows the flexible consumers and manages them within the boundaries received from the grid or uses market incentives such as price tables for cost optimized operation.

At an EU/US test event, the communication between the grid and the electric vehicle (EV) was tested successfully: EVs and prototypes from leading manufacturers were curtailed in charging power by openADR and IEC 61850 set points. For EEBUS, this is a step further towards the globally used language for energy.

The SMGW of one of the leading German SMGW manufacturers - Theben AG - was also integrated into the communication. Theben has developed a communication module that converts target values from the grid to the EEBUS standard and vice versa and reports consumption forecasts and flexibility to the network via SMGW.

"The integration of the charging infrastructure by EEBUS via the smart meter gateway shows where the journey is headed", says Ruwen Konzelmann, head of the smart energy business unit at Theben AG. Konzelmann adds: "We are thus pursuing the cross-sectoral standardization strategy published by BMWi and BSI in accordance with the German legislation on the digitalization of the energy transition (GDEW).

## Comprehensive pilot projects show practical applicability in the grid

The German SINTEG projects show the practical applicability of the approaches. Andreas Weigand, C/sells project manager at Stadtwerke München: "We as metropolitan grid operators are dependent on such instruments. We will not be able to reinforce and replace all cables in order to expand electric mobility. Therefore, we are testing with the concept of "digital grid connection" how to include properties into dynamic load management and send power limitation set points in case of an overload scenario. It's like on a motorway where the speed is reduced in case of an impending traffic jam. We also use EEBUS as a standard for energy networking".

## Why flexible connections are becoming a standard for buildings

The principle of "peak shaving" is currently being introduced into legislation for the grid-compatible control of flexible consumers such as the EV. The study commissioned by the BMWi and carried out by the Aachen Office of Energy Economics and Technical Planning (BET) recommends that the grid connection capacity of each building should be divided into two parts: The unconditional and the conditional connected capacity. "One part should be available to the consumer at all times unconditionally and without restriction. It covers the usual classical consumptions. Normal, inflexible customers would therefore not be worse off", explains BET chief representative Dr. Wolfgang Zander and adds: "In the second part, however, the grid operator should be able to restrict the withdrawal power available for flexible facilities to a very limited extent and for a limited period of time if the grid reaches its capacity limits".

The recommendations of the BET are the basis for the revision of §14a of the German legislation on the digitization of the energy transition (GDEW), which is to go into law in summer 2020. The participating manufacturers are already preparing for this: "With our EEBUS-based solution, we are already enabling the necessary, cross-sectoral exchange of information between the distribution network, smart meter gateway and EMS with flexible consumers in the house," summarizes Ruwen Konzelmann from Theben AG. The SMGW offers a highly secure, anonymous communication channel for this purpose.

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About EEBUS: The EEBus Initiative e.V. is an independent association. Its members are mainly leading European manufacturers in the fields of e-mobility, energy management, renewable energy, metering as well as heating, smart home and networked home technology. On behalf of its members, the association develops the open EEBUS standard - the global language for energy in the Internet of Things. It enables devices and systems with storage capability, from e-mobility and heating systems to household appliances, to communicate with each other, regardless of manufacturer, about the efficient, grid-compatible use of energy. All developed specifications are internationally standardized and freely accessible. Further information can be found at [www.eebus.org](http://www.eebus.org).

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