

### **Around 900 grid operators, one common basis: grid-oriented control can start in 2025**

- **VDE FNN published recommendations for flexible, grid-oriented control of consumer units at the beginning of 2025**
- **Grid users and grid operators now have clear guidelines on how the guaranteed minimum output for wallboxes or heat pumps is calculated in practice and how the grid state is determined**
- **Controllable consumer units are becoming an active part of the energy system: consumer units are integrated into the overall system in a tamper-proof manner and flexibility potential for the market and grid operation is tapped**

(Frankfurt a. M., 11.02.2025) Thanks to the controllability of consumer units, end customers can be sure in the future that their new wallbox or heat pump can be connected promptly. However, when it comes to grid-oriented control, there are often three concerns: Is the connection to the system secure? Will consumers be too restricted by the grid-oriented control or suffer economic disadvantages? Network Technology and Operation Forum within VDE (VDE FNN), in coordination with the Federal Network Agency and the Federal Office for Information Security, has developed the basics in 2024 to refute these concerns and create clear guidelines for grid operators. At the beginning of 2025, [VDE FNN published recommendations](#) that, among other things, provide a practical classification of the guaranteed minimum power for end customers and specify how the grid status is determined. Heike Kerber, Managing Director of VDE FNN, explains: "Where grid congestion is foreseeable, the grid operator must intervene to control it. Every grid customer has a right to a minimum power supply from their controllable consumer units. We now have a standardized and practical nationwide basis for this."

## **Supply guaranteed: minimum power supply for heat pumps, wall boxes and other devices**

The grid-oriented control only affects controllable consumer units, such as heat pumps, wall boxes, air conditioning systems and storage units. The power consumption of daily needs in private households remains unaffected. The grid-oriented control is intended to avoid foreseeable local grid bottlenecks. To this end, grid operators can reduce the power of heat pumps, wall boxes, air conditioners and storage units to up to 4.2 kW in the event of bottlenecks and for a limited time. Charging, heating or cooling will always remain possible to a minimum extent. In addition, controllability offers end customers the opportunity to market their flexibility and reduce their electricity costs. In its recommendations, VDE FNN has defined how grid congestion is identified and how the minimum power of one or more consumer units at a location can be calculated reliably and uniformly throughout Germany.

## **Focus on measurement: the basis for grid-oriented control**

Grid-oriented control is only applied where congestion occurs. To do this, the grid state is determined in real time. How much measurement data is required for this is described by VDE FNN in one of its recommendations. The basis for this was a study by the University of Wuppertal and consentec.

Kerber comments: "With this recommendation, we are creating a transparent and objective basis for grid-oriented control. The aim is to avoid both critical grid situations and unnecessary control interventions. Critical local grid situations can be averted by temporarily reducing individual plants locally and in time." Grid-oriented control is not intended as a permanent solution: if demand occurs frequently or regularly, the operator is obliged to expand the grid in the near future.

## **Thinking ahead: IT security, dynamic tariffs and generation facilities**

Grid-oriented control is only possible with a secure communication infrastructure: the IT security requirements for intelligent measuring systems with smart meter gateways are on a par with those of the secret service. This is expensive, but has proven to be a forward-looking decision for the critical infrastructure of energy supply. The current threat of hacker attacks means that the system developed in Germany can become a reference for countries that have not yet thought about market and grid integration in an integrated way and have not implemented it with the necessary cyber security.

With a view to better integration of low-voltage generation plants, further applications are being considered. For the inclusion of generation facilities – for example, PV systems – in the concept

of grid-oriented control, VDE FNN recommends using the already developed principles for consumer facilities in the same way. This also provides a secure and standardized solution for customers to optimize consumption and generation and thus maximize the benefits of the dynamic tariffs introduced this year.

These and other topics will be discussed at the VDE FNN ZMP congress in Leipzig on June 25 and 26 ([www.z-m-p.de](http://www.z-m-p.de)).

### **About VDE FNN**

The Network Technology and Operation Forum within VDE (VDE FNN) develops the electricity grids with foresight. The aim is to ensure reliable system operation at all times with 100 percent renewable energies. VDE FNN makes innovative technologies practicable and provides answers to the grid technology challenges of tomorrow. Here, various specialist groups with different interests work together on solutions. Its members are over 480 manufacturers, grid operators, suppliers, system operators, authorities, and scientific institutions.

For more information, visit [www.vde.com/fnn](http://www.vde.com/fnn)

### **About VDE:**

VDE, one of the largest technology organizations in Europe, has been regarded as a synonym for innovation and technological progress for more than 130 years. VDE is the only organization in the world that combines science, standardization, testing, certification, and application consulting under one umbrella. The VDE mark has been synonymous with the highest safety standards and consumer protection for more than 100 years.

Our passion is the advancement of technology, the next generation of engineers and technologists, and lifelong learning and career development “on the job”. Within the VDE network more than 2,000 employees at over 60 locations worldwide, more than 100,000 honorary experts, and around 1,500 companies are dedicated to ensuring a future worth living: networked, digital, electrical. Shaping the e-dialistic future.

The VDE (VDE Association for Electrical, Electronic & Information Technologies) is headquartered in Frankfurt am Main. For more information, visit [www.vde.com](http://www.vde.com)

**Press contact:** Jennifer Bounoua, Phone +49 151 14600477, [presse@vde.com](mailto:presse@vde.com)