

## VDE ETG shows the way to a flexible energy system

- **New study on fluctuations in the electrical power supply network due to expansion of renewable energies**
- **Avoiding grid bottlenecks through clever use of flexibilities**
- **VDE ETG Task Force "Flexibilization of the Energy System (EnerFlex)" creates transparency on flexibility potential in the power grid**

(Frankfurt a. M., 30.10.2023) Power generation from renewable energies is leading to ever greater fluctuations. Today, imbalances between power generation and power demand can be balanced well with conventional power plants because they can be used flexibly. However, in order to achieve climate targets, all electricity generation must be decarbonized in the long term. According to the German government's plans, the last coal-fired power plant in Germany is to be taken off the grid by 2038 at the latest. With the elimination of this reserve, the probability of grid bottlenecks increases.

### **Promising solution: Making the energy system more flexible**

The task force "Flexibilization of the Energy System (EnerFlex)" of the Power Engineering Society within VDE (VDE ETG) has therefore investigated in a study of the same name how our power supply network can be better prepared for this scenario. "One promising solution for the electrical power supply system is to make consumption, but also generation, more flexible and to use storage systems," explains Prof. Dr.-Ing Martin Wolter of Otto von Guericke University Magdeburg and head of the task force. The VDE ETG experts conclude that more flexibility can efficiently address the numerous current challenges facing the energy system.

### **Estimation of the flexibility potential**

The VDE ETG Task Force first estimated how great the potential for more flexibility is. On the one hand, this results from the expansion of renewable energies on the generation side. It is expected that the flexible generation capacity will increase from 110 GW to 130 GW by 2030.

However, with the disadvantage that power generation can only be influenced more often than today if too much is produced. Because solar or wind power cannot be switched on and off like a conventional power plant. On the other hand, the potential for flexibility is also increasing among consumers. Here, an increase of just under 30 GW of flexibility is expected, mainly through the grid integration of electric cars, power-to-heat (for example, heat pumps) and power-to-gas facilities. In addition, a massive expansion of battery storage is expected by 2030, especially in the home sector.

### **Adapt regulatory framework – rapid rollout of smart metering system**

It should be noted that flexibility is a scarce resource that needs to be coordinated and costs money. The VDE ETG Task Force has created a heat map to determine the most economically sensible use of flexibility depending on its intended use. The task force has paid particular attention to the question of the extent to which the regulatory framework needs to be adapted. In particular, the creation of controllability and observability, the standardization of communication technology interfaces, and the rollout of smart metering systems are of central importance here. In addition, obstacles in the network charge and apportionment system can be removed, which result, for example, from excessively rigid or outdated requirements in Section 19 (2) StromNEV.

The complete study of the VDE ETG Taskforce "Flexibilization of the Energy System (EnerFlex)" can be found [here](#) (in German, summary in English included).

### **About the Power Engineering Society within VDE (VDE ETG)**

With more than 9,000 members, the Power Engineering Society within VDE (VDE ETG) bundles the expertise of power engineering from generation, transmission and distribution to the various fields of applications. The comprehensive expert knowledge of the approximately 300 volunteers from industry, research, utilities, universities and authorities, who participate in specialized areas, technical committees and working groups, forms the technical-scientific basis for events and publications of the Energy Technology Association in the VDE.

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

### **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)

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