

VDE impulse paper: How resilient are Germany's electricity and communication grids?

- **Interdisciplinary group of experts from VDE ETG and VDE ITG looks at the resilience of our electricity and communication grids**
- **Interdependencies between grids are increasing**
- **Being prepared for faults and threats such as extreme weather events and cyber attacks**

(Frankfurt a. M., 07.02.2024) In a networked world, power supply and communication technologies are becoming increasingly interdependent. The smart metering system is used to control electricity consumption in households, digital twins are helping to expand the electricity grids and most of the challenges of the energy transition can only be overcome with the help of digitalization. Almost permanently available electricity and communication grids are indispensable for Germany as a business location and will become even more important in the coming years. But how do we deal with the increasing interdependencies? Digitalization depends on stable communication connections, which in turn depend on a stable power supply.

Normal operation and disasters: Typical operating scenarios are examined

An interdisciplinary group of experts from VDE ETG and VDE ITG has therefore investigated the question of how resilient our electricity and communication grids are, especially as exceptional cases such as extreme weather events and cyber attacks have increased and must be taken into account. This VDE impulse paper is based on current and expected technical developments in electricity and communication networks and analyzes typical operating scenarios in normal operation and in the event of disasters. The experts assess the stability of the grids and outline initial solutions in the event of exceptional circumstances. In conclusion, the VDE recommends taking action in four dimensions:

1. Raising awareness of the importance of resilience for electricity and communication grids

Our electricity and communication grids and their reliable operation must become more of a social focus, as they are the basis for all other infrastructures. Although resilience is associated with additional costs, it pays off economically because outages and damage can be avoided.

2. Thinking and acting across sectors and industries

In a similar way to how different energy grids are already being considered in the context of sector coupling, electricity grids and public communication services must also be considered together systemically. Thinking and acting across sectors requires the relevant knowledge and skills of the experts involved at operators, manufacturers and authorities, as well as appropriate training and further education. This must be coordinated.

3. Considering the possibility of disasters

Against the backdrop of possible exceptional cases, for example as a result of climate change or other events, more measures must be taken to ensure the resilience of our electricity and communication networks in an appropriate and graduated manner with regard to technical developments and the risks to be expected in the future.

4. Overall systemic planning and consistent implementation of measures

As a result of a systemic approach, possible measures should be assessed in terms of their effectiveness, urgency and technical and economic feasibility, prioritized and then planned and implemented.

The results and recommendations of the experts are aimed at specialists in industry, authorities and politics in order to contribute to an understanding of the cross-sectoral interrelationships and thus to the resilience of our future electricity and communication grids in normal operation and in the event of disruptions.

The VDE impulse paper "More resilience for the electricity and communication grids in Germany" can be found [HERE](#).

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

About the Information Technology Society within VDE (VDE ITG)

The Information Technology Society within VDE (VDE ITG) is the national association of all people working in the field of information technology in business, administration, teaching and research and science. Its objectives are to promote the scientific and technical development and evaluation of information technology in theory and practice. Founded in 1954 as the Nachrichtentechnische Gesellschaft, it is the oldest professional association in the VDE. Its nine technical divisions, to which more than 80 technical committees are assigned, represent the entire spectrum of information technology. About 10,000 VDE members have assigned themselves to the ITG and more than 1,000 experts work voluntarily in the committees.

For more information, visit www.vde.com/itg

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

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