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Turbo for the energy transition: Connecting millions of new systems to the grid

- **Millions of new consumption and generation systems are to be connected to the grid safely and reliably. The effort for coordination and calculations is increasing**
- **To this end, VDE FNN is currently revising its Technical Connection Rules (TAR) to ensure flexibility and security in the energy supply**
- **In future, applications for grid connections should be processed more quickly and digitally on the basis of standardized information**

(Frankfurt a.M./Berlin, 17.06.2024) The pressure to rapidly advance the energy transition is great and at the same time the question of how exactly it can be implemented remains unanswered in many places. VDE FNN is responding to this need and is currently revising the Technical Connection Rules (TAR) for generation and consumption systems as well as storage systems with a focus on low voltage. Practical implementation aids supplement the rules so that new requirements for the grid connection can be implemented more easily and, above all, more quickly in practice.

Dr. Joachim Kabs, CEO of VDE FNN and member of the management board of Bayernwerk Netz GmbH, states: "The energy transition is leading to major changes at all grid levels. Particularly in the distribution grids, where millions of decentralized generators, storage systems and new consumers are to be integrated at end customers as a result of electrification in the heating and mobility transition, we need more clarity - on grid connection as well as on the future role and controllable capabilities of customer systems in order to maintain system stability. This is why VDE FNN's TARs are so crucial to the success of the energy transition and security of supply. We are already in the midst of change. To ensure that we reach our goal safely and quickly, we need to tackle this at all levels." The revised VDE application rules will soon go out for consultation and are due to come into force in 2025.

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Solution 1: Connect faster - even if there is insufficient network capacity

Until now, a PV system to be connected had to be able to feed the majority of its generation capacity into the grid. With the amendment to the VDE application rule for generation systems on the low-voltage grid, VDE FNN is increasing the scope for customers: In future - thanks to feed-in monitoring - systems can also be connected if they temporarily or permanently feed only a small amount or none at all into the grid due to a lack of capacity. If a PV system generates more power, it will be used for the customer's own needs or dimmed accordingly. "End customers can thus reduce the cost of their energy requirements and play a greater role in the energy transition, even if there is insufficient grid capacity," explains Dr. Joachim Kabs.

Solution 2: Less bureaucracy - connect systems up to 500 kW to the grid without a certificate

Generation systems and storage systems with an installed capacity of between 135 kW and 500 kW are connected to both the low-voltage and the medium-voltage grid. With the amendment of the NELEV (Electrotechnical Properties Verification Ordinance) as part of Solar Package I, these systems can be connected to the grid since mid-May using a simplified verification procedure. It is based on the current verification procedure for small low-voltage systems. This means that the system certificate and proof of conformity are no longer required. The verification procedure will specify the new VDE application rule for generation systems on the low-voltage grid. Until now, the electrotechnical properties of these generation systems - regardless of the voltage level at which they were connected - had to be verified in accordance with the TAR Medium Voltage.

In addition to the application rule, VDE FNN published an implementation guide on the amended NELEV and EAAV (Energy System Requirements Ordinance) back in March, thereby setting out the basic framework conditions. The implementation guide clearly sets out the requirements and verifications, describes the certification procedure and provides information on how to proceed during the transition period as well as practical examples.

Solution 3: Standardize processes for grid connection requests

There are around 900 distribution system operators nationwide who organize grid connection requests and grid connections in their area. From 1 January 2025, connection requests are to be standardized and digitized nationwide. VDE FNN provides a standardized data set for this purpose, which describes the data required for the application, for example on consumption and generation plants. This set is the basis for all distribution system operators to set up their web portals. Based on standardized information, applications can be processed more quickly and digitally in the future.

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 https://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

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