EM-Power Europe
Munich, June 19-21, 2024

POWER GRIDS – FROM BOTTLENECK TO NEUTRAL MARKETPLACE OF THE ENERGY TRANSITION

Munich/Pforzheim, May 2024 – All around the world, renewables are in the fast lane. More than one gigawatt (GW) of photovoltaics (PV) is deployed worldwide per day. In Germany, PV deployment is currently at over one GW per month – what a huge success! But the power grid is starting to become a limiting factor, because PV requires functioning grids. Whether PV electricity is generated by small or large systems, with or without storage systems, on rooftops or on the ground: These systems, along with millions of new PV power plants, depend on powerful, digitalized distribution grids. For local and regional consumption as well as for transport to other regions.

PV system operators that need to connect their PV system to the grid depend on powerful distribution grids and their needs-based expansion. However, these grids are ill-prepared for current and future growth. Fundamental problems include not only insufficient expansion, but also inefficient processes. What's more, the regulatory framework in form of incentive regulation has not yet been adapted to the modernization and expansion of the grid, but these aspects are essential for a decentralized energy system.

In addition, grid connection is still insufficiently standardized. When it comes to grid matters, PV operators in Germany are faced with a patchwork of different regulations from the nearly 900 distribution grid operators. These distribution grid operators all use different forms, metering concepts and technical connection requirements.

Digitalization is lagging behind

Serious backlogs in the digitalization of the power grid exacerbate the problems. Grid requests and registrations are currently done on paper or with various different PDF forms. The digitalization of processes is still rudimentary. There is little to no efficient detection of grid statuses and grid loads and there's usually no feedback with grid planning data. The lack of effective collaboration between the PV system project planner and the distribution grid operator leads to many unnecessary requests. All of these factors combined leaves distribution grid operators overwhelmed. An increasing number of requests for grid connections are being handled by a shrinking number of grid operators. As a result, deadlines for requests are typically exceeded and planning becomes uncertain. Legal actions concerning grid connections are also on the rise.

In the end, there is simply not enough grid available for PV. The result is an increase in curtailments and electricity costs, as grid interventions not only cause PV electricity losses, but also increase grid charges. Connecting all of these PV systems to the grid is becoming a key issue in the energy transition – worldwide and especially in Germany. That's why the energy industry, regulators and the government are working together to find solutions.

Reform offense: Turning grids into market enablers of the energy transition

The German Association of Energy Market Innovators (bne) advocates making distribution grids a key driver of the energy transition. Managing Director Robert Busch: "Expansion, digitalization and standardization – these are the key levers for preparing the power grid for the energy transition." What is needed now are regulatory reforms. The energy industry believes that the entire grid connection process should be standardized and digitalized. The use of countless different PDF forms is inefficient. The grid connection process requires platforms to better balance PV and grid expansion.

A fast rollout is required

Additionally, grid operation is in need of a fast rollout of widespread grid status data collection. The required control technology has been available for some time, it just needs to be installed at a faster pace. "By 2030, there can't be a single regulated transformer without grid status data collection – this is an urgent requirement," says Busch.

Countering the lack of standardization requires powerful regional grid clusters. Busch: "In Germany, the fragmentation of local grid operators has resulted in particularly inefficient structures. Combining distribution grids in terms of grid planning and operation into 25 powerful regional grid clusters would ease the burden on utilities and lower the costs for everyone."

The bne believes that the reform initiated by the German Federal Network Agency in January 2024 is a step in the right direction. In Future, grid operators that are particularly good at meeting the challenges of the energy transition should be rewarded by making energy transition competence a new quality criterion. This competency can be demonstrated by the number of grid connections, the grid connection speed, or the curtailment of controllable consumers.

Grid regulation will need to be able to make investment in power grids attractive while also minimizing the increase in grid charges. "The goal is clear: Smart grids make grid usage transparent, optimize system utilization and reduce curtailment losses. They monitor, analyze and react in real time to changing patterns on both sides. This allows grid operators to plan grid expansions based on data and prevent grid congestions in real time. Municipalities, energy service providers and project planners use the data to optimize the planning and grid-serving operation of energy transition technologies," says Busch.

EM-Power Europe: Preparing power grids for 100 percent renewables

From June 19–21, 2024, in Munich, EM-Power Europe, the international exhibition for energy management and integrated energy solutions will offer insights into tomorrow's digitalized and flexible power grids with 100 percent renewable energy. Every year, leading international players offering products, services and business models for integrated energy solutions and stable power grids meet here. The exhibition will be accompanied by the EM-Power Europe Conference that presents the perfect opportunity to discuss the smart integration of decentralized renewable energy installations, grid management, digitalization and flexibilities and much more with international experts. EM-Power Europe will take place from June 19–21 in Munich as part of The smarter E Europe, Europe's largest alliance of exhibitions for the energy industry, with the parallel events Intersolar Europe, ees Europe and Power2Drive Europe.

For more information, please visit:

EM-Power Europe Conference

Flexible Grid and Innovative Grid Management
Tuesday, June 18, 2024, 11:30am – 01:00pm
ICM München, Room 13A

Demand Side Flexibility – the Role of Grid Infrastructure, Market Players and Digitalization in Meeting Consumer Expectations
Wednesday, June 19, 2024, 11:00am – 12:30pm
ICM München, room 13A

Interoperable and Secure Energy Data Sharing in a Consumer-Dominated Marke
Wednesday, June 19, 2024, 02:00pm – 03:30pm
ICM München, Room 13A

The smarter E Forum
Navigating Tomorrow's Power Grid Challenges with Digitalization and Flexibility
Wednesday, June 19, 2024, 10:30am – 12:00pm
Messe München, Hall B5, Booth B5.550

EM-Power Europe Exhibitors; Product categories: Grid management technologies and services, grid system services, grid monitoring / Advanced Metering Infrastructur (AMI) / Software for analysing and simulating energy systems/ Digitalisation, data management & analytics, IoT

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