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Press release

TRANSMISSION SYSTEM OPERATORS PUBLISH FIRST DRAFT OF GRID DEVELOPMENT PLAN FOR 2037/2045

- **Public consultation to start immediately**
- **First net-zero grid modelled**
- **Key role for sector coupling and hydrogen**
- **Further grid expansion and acceleration mainly needed as of 2037**

Today, transmission system operators (TSOs) 50Hertz, Amprion, TenneT and TransnetBW published the first draft of the grid development plan (GDP) for 2037/2045 (2023) on the website www.netzentwicklungsplan.de. This is also the start of the **consultation** in which the general public can participate online or via email until 25 April 2023. The positions will be integrated into the second draft of the GDP, which the TSOs will then submit to the Federal Network Agency (BNetzA) for review.

For the first time, the GDP describes a power grid that can achieve climate neutrality by 2045. In this context, electricity plays a key role, as the decarbonisation of the industrial, traffic and building sectors will mainly result from direct or indirect electrification. The major significance of **sector coupling** for decarbonisation is clearer in this GDP than in any of its predecessors.

Compared to earlier GDPs, the estimates regarding the extent of **hydrogen** use have also increased significantly. By 2037, an extensive hydrogen infrastructure is already assumed to be in place, the design of which will influence the need for development of the electricity transmission grid. The new GDP assumes that electrolyzers will be constructed where they can support the grid. This could help minimise congestion in the transmission grid and reduce curtailment of renewable energy sources in times of high feed-in. Overall, the

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infrastructure for electricity, gas and hydrogen must be planned in a more coordinated manner.

In addition, key to a successful energy transition is the further **acceleration of grid development**. As part of the Federal Government's 2022 Easter Package ('Osterpaket'), a massive increase in renewable energy was decided. This will only be effective if the green electricity can be transported to the consumers. At the same time, the political objective is to completely decarbonise the power sector by 2035. Most of the measures specified for 2045 are therefore already needed in 2037.

The increase in renewable generation from 2037 onwards will essentially be integrated by the hydrogen infrastructure that should be in place by then. Hydrogen, storage technology and load-side flexibility will then ensure the necessary **stability** in an energy system that is primarily supplied from volatile renewable energy sources.

This results in increased requirements for reliable grid operation, which the TSOs will meet with innovative operating equipment such as grid boosters and modern system management concepts.

Another **innovation** consists in additional measures for meshed onshore DC structures as well as offshore measures. This will secure the necessary flexibility in terms of grid operation and will support the integration of renewable energy.

To cover the **electricity consumption** that is expected to **double** compared to today and will exceed 1,000 TWh, the GDP assumes a **five-fold increase in installed capacity** from renewable energy sources up to around 700 GW by 2045. Integrating these renewables and enabling secure grid operations requires more grid development:

The newly identified projects for 2045 comprise a total route length of 14,197 km, of which 5,742 km will be onshore and 8,455 km offshore. In addition to five new direct current connections on shore, these also comprise 20 offshore grid connections. For the additional, newly identified projects in the GDP, investments of €128.3 billion are

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needed, of which €41.6 billion for the onshore grid and €86.7 billion for the offshore grid.

More information is available at www.netzentwicklungsplan.de.

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