Fact sheet

Berlin, 17.07.2013

GRID DEVELOPMENT PLAN 2013
LEGAL BASIS, CONTENT, CONSULTATION AND WAY FORWARD

Background
In 2011, the German parliament and the Federal Council agreed on a rapid withdrawal from atomic power and an accelerated entry into the field of renewable energy. As a result, the grid needs to be optimised, enhanced and supplemented by new routes.

Grid Development Plan – legal basis
The four transmission system operators (TSOs), 50Hertz, Amprion, TenneT and TransnetBW, have the common task governed by the Energy Industry Act of producing a grid development plan (GDP) for the expansion of the transmission networks for the next ten years. This must be produced annually and submitted to the Federal Network Agency (BNetzA) as the responsible regulating authority. Before producing the GDP, the so-called scenario framework is produced. This presents the bandwidth of probable developments in energy consumption and generation and their regional distribution in three scenarios and forms the basis of the GDP and also embodies the objectives of the Federal Government.

Grid Development Plan – content
The grid development plan identifies all measures for the lead scenario B2023 which are necessary for optimising, enhancing and expanding the grid to meet the requirements.
This enables safe and reliable operation of the grid to be ensured even in 10 years (or, for one scenario, in 20 years). At the same time, the GDP does not describe specific transmission line routes, but documents the necessary transmission requirements between grid nodes and contains specific recommendations for the expansion and building of new onshore transmission networks in Germany. In order to determine the required measures, the TSOs follow the so-called NOVA principle (measures with priority of grid optimization and enhancement prior to new construction).
Analyses have been carried out for further scenarios of the 2013 scenario framework (A 2023, B 2033 and C 2023) based on representative grid situations. They show that the resulting grid B 2023 is not sufficient by itself to cope with the respective transmission tasks.

The analyses of the 2013 GDP substantially confirm the results of the 2012 GDP. Additional measures are necessary compared with the 2012 GDP in order to ensure the required expansion for the calculated transmission requirements in accordance with applicable law. The three main factors which affect the transmission requirements compared with the 2012 GDP and therefore the grid development requirement in the 2013 GDP are:

- Increase in the generation capacity of the offshore wind energy system by 1.1 GW
- Increase in the generation capacity of the onshore wind energy system in the north of Germany by 1.8 GW
- Reduction of unwanted power flows via Poland, the Czech Republic and Austria by 2 GW

As a result of these shifts, a total additional power of around 5 GW needs to be transmitted in the north-south direction. The focus continues to be on high-power north-south connections. Grid enhancements and optimisation on existing routes over a length of 4,900 km are required, of which 3,400 km are new developments on existing routes. The grid expansion requirements include 1,500 km of AC power line routes and 2,100 km of corridors for high-voltage DC lines. The four high-voltage DC corridors in the north-south direction have a total transmission capacity of 12 GW. Changeover from AC to DC operation is planned over a distance of around 300 km. The total investment for the expansion of the transport grid in the next ten years is approx. 22 billion euros.

The grid enhancement and expansion measures determined as a result of the network analyses for the lead scenario B 2023 will provide a suitable grid which satisfies the requirements for system reliability and gives the network operator the necessary basic freedom. All the grid-related measures identified for the scenario B 2023 are necessary in order to provide a network which is suitable for the requirements.
Based on the calculations and experience of the transmission system operators, it has been possible to identify a key raft of measures as early as 2013 which in any event are to be implemented by 2023, even if the conversion of the generation structure should take longer. These measures are described in the 2013 GDP.

Grid Development Plan – consultation
The first draft of the 2013 GDP together with the first draft of the offshore electrical grid development plan (O-GDP) was made available for consultation between 02.03 and 14.04.2013. In total, 502 comments were received, of which 466 related to the GDP and 36 to the O-GDP. Of the 466 comments relating to the GDP, 383 were submitted by private individuals and 83 by institutions.

Contributions from the consultation were categorised and checked by the TSOs. Based on the comments, the TSOs then revised the first draft of the GDP and added more detailed explanations and illustrations. The second draft of the 2013 GDP was submitted to the Federal Network Agency and simultaneously published by the transmission system operators on 17.07.2013. The revised draft includes additional explanations relating to subjects addressed in the comments. Among other things, explanations relating to the determination of the grid connection points, the prospects for improving the methodology of regionalising renewable energies, and planning options in accordance with the NOVA principle have been added.

Next steps - the way forward to grid expansion
The Federal Network Agency is to check the revised draft of the GDP and resubmit it together with an environmental report for consultation. The Federal Network

Agency will take into account the result of this involvement by the public and the authorities when confirming the grid development plan. The confirmed GDP will form the basis for the draft of the Federal Requirement Plan at least every three years. The Federal Requirement Plan Act (BBPlG) was agreed by the German parliament on 25.04.2013 and was approved by the Federal Council on 07.06.2013. The first Federal Requirement Plan includes a total of 36 projects based on the results of the approved 2012 GDP. These also include pilot projects for high-voltage DC transmission lines for transmission over large distances and a total of 21 cross-state or cross-border lines. The approval (Federal plan and plan approval) for cross-state and cross-border lines is the responsibility of the Federal Network Agency[1].

Factors influencing the grid development – 2013 sensitivity report
The BNetzA has requested the transmission system operators to investigate by way of example the effects of three sensitive areas on the measures included in scenario B 2023. The consideration of sensitive areas enables knowledge to be obtained relating to the effect of some central input variables on the general development requirement in the transmission network. This may help to obtain new information for the social and political debate on the future energy policy regulation framework.

These sensitive areas are:

- Net electricity requirement and annual peak load (sensitive area 1),
- Capping of generation peaks (sensitive area 2),
- Regionalisation (sensitive area 3).

The transmission system operators published the 2013 sensitivity report on 01.07.2013 at www.netzentwicklungsplan.de.

1 Exceptions are cross-border line-construction projects which are designated in the BBPIG as "Pilot projects for the low-loss transmission of high powers over large distances".