



The electricity market: key principles

The energy transition is a major opportunity for the modernisation of our industrial society. We want to make it an ecological and economic success story.

Last year, our thorough overhaul of the Renewable Energy Sources Act interrupted the dynamic cost development seen in recent years and created a more reliable basis for planning by all the stakeholders.

This year, we want to put the policies in place for a reliable and low-cost electricity market which meets the future needs of the energy transition. This includes further integration into the single European market.

The issues of the electricity market, funding for CHP, the contribution by the electricity sector towards reduced carbon emissions, and the expansion of the power grid are all closely interrelated. For this reason, the fundamental decisions on these projects need to be taken in this overarching context.

1. Fundamental policy decision on the electricity market

On the basis of a broad debate, the Green Paper achieved a far-reaching consensus on what measures are required for a viable “Electricity Market 2.0” and found that an additional capacity reserve certainly makes sense. There is still a contentious discussion as to whether we also need a capacity market in order to ensure security of supply. This fundamental decision can and must be taken soon, following the wide-ranging consultations on the Green Paper, so that the White Paper containing the specific principles of the electricity market reform can be presented before the summer break.

The key question is which concept we will adopt in order to maintain the high level of energy security in Germany. The study of electricity market by the Economic Affairs Ministry and the wide-ranging consultations have shown that the Electricity Market 2.0 is capable of stimulating sufficient secure capacity and ensuring energy security if investors can rely on the principle that government will not intervene directly or indirectly in the price formation on the wholesale market. The vast majority of comments on the Green Paper, most of our neighbours and the European Commission are also in favour of an Electricity Market 2.0 and are opposed to a national capacity market. It makes sense to have a capacity reserve for unpredictable emergencies. However, in order to avoid distortions of competition, this capacity reserve must not participate in the market. As a result of the wide-ranging consultations, we are convinced that the Electricity Market 2.0 is capable of delivering a high level of energy security at a low cost.

It is certainly also true that capacity markets can make an important contribution towards boosting energy security. However, they also entail the risk that costs will get out of hand. And their complexity means that there is a danger of substantial misallocations. In particular, it would be up to the state to define the points of intervention for the capacity market; this can result in substantial disruption to the electricity market.

However, an evolved Electricity Market 2.0 will only be able to deliver a stable basis for future investments if investors can rely on rules that are politically and legally stable. This therefore necessitates a clear and long-lasting fundamental political decision. This would not be compatible with a policy which kept open the possibility of a later shift to a capacity market, e.g. via a review clause. No-one would invest on such an uncertain basis.

The following **key principles** are central to the Electricity Market 2.0:

- **Responsibilities must be assumed by the electricity providers.** The responsible electricity providers and traders (i.e. in this context the “balancing group managers”) will have to be rigorously required in future to purchase sufficient electricity for their clients. Any party which purchases less electricity than it actually requires will bear the appropriate costs of covering the resulting shortfall. These can be high in times of scarcity. Electricity providers and traders, as well as large-scale electricity consumers which cover their electricity demand themselves on the wholesale market, will hedge against this risk by concluding long-term supply contracts and engaging in load management, and this will effect the maintenance of corresponding capacities.
- **Stimulating competition and innovation.** We need flexibility on the electricity market in order to offset the weather-related fluctuations in renewables. Flexible power plants, CHP, European electricity trading, load management, storage, electric mobility and other flexibility options are to compete fairly to deliver the best solutions. For example, we are liberalising the balancing energy markets for flexible loads. And we are reforming the grid fees and other charges so that the price signals will reach the consumers and the lowest-cost flexibility options are used.
- **Guarantee free price formation.** In line with the supply of and demand for electricity, fluctuating prices send important information to major players on the electricity exchange (electricity providers, traders, large-scale industry). This price formation must remain free, because it is the only signal of how scarce electricity is at a given time. For this reason, we will make a statutory provision governing free price formation: in the legislation on the energy industry, we will stipulate very clearly the principle that government must not intervene in price formation on the market. This principle will be supplemented by an intention to conclude a joint declaration with our European neighbours which points in the same direction.
- **Strengthening data protection.** The electricity market will be the first fully digitised sector in our economy (Industry 4.0). Smart technologies are already being used in electricity-intensive processes and grid management. We welcome this boom in innovation because it spares resources and generates potential for growth. In order to press ahead with the future development, we are defining both the technical standards and the data protection standards in the “smart grids” package of ordinances.

By creating a capacity reserve, we are providing a further back-up for the Electricity Market 2.0 (a “belt and braces” approach). At the same time, the capacity reserve will foster structural change and help the electricity sector to cut its carbon emissions, since power stations in the capacity reserve can retain at least some of their jobs and will emit virtually no carbon. The capacity reserve will consist of power stations which will be used only if, despite free price formation, unforeseen events mean that supply does not cover demand on the short-term wholesale market. The capacity reserve ensures that all consumers can still obtain electricity in such a situation. Bids will be invited for the provision of these power stations, which will not participate in the electricity market. In southern Germany, the capacity and grid reserve will supplement each other until the transmission grids have been expanded.

2. Funding of cogeneration of heat and power

Highly efficient and climate-friendly CHP will continue to play an important role in the energy transition in future. However, the future funding of CHP must be designed to be compatible with the other goals of the energy transition. For example, since the proportion of electricity generated from renewables keeps rising, there is no point in basing the expansion target of 25 per cent by 2020 on overall power generation.

In view of the lower electricity prices, the broad promotion of new installations would be very expensive and would result in a massive rise in the CHP levy. At the same time, the low electricity prices pose a risk to the viability of even highly efficient municipal CHP installations. Against this background, the future funding should be concentrated on retaining highly efficient and climate-friendly gas-fired CHP installations supplying the public. The funding for the existing CHP installations thus forms a bridge so that existing power stations can finance themselves until the reduction in overcapacities and the Electricity Market 2.0 result in commercial conditions in which the operators can also cover their capital costs.

New installations should continue to be funded in future, with a moderate increase in funding. Here, our main aim is to ensure that finance is available for well-advanced projects. On the basis of the existing CHP Act, the current projects already exhaust the statutory cost ceiling of 750 million euros. In view of the impact on the CHP levy, the funding should be set in a way that keeps the overall costs below a billion euros. The CHP rules will be revised in line with the following principles:

- The expansion target will be set at a 25 percent share of thermal electricity generation from CHP.
- The electricity generation from CHP is to become more responsive to the price signal, and thus more flexible.
- The funding rate is to be kept constant, whilst the eligible volume of investment in heating networks and storage is to be increased.
- Where the viability of highly efficient gas-fired CHP installations supplying the public is at risk, funding will be provided for a limited period in order to safeguard them.
- In case groups which achieve highly profitable electricity generation, the funding under the CHP Act is to be cut correspondingly. The status quo will continue to apply to energy-intensive industry.
- The cost ceiling on the funding of CHP will be restricted to a total of one billion euros per calendar year.

3. Contribution by the electricity sector to cutting carbon emissions

On 3 December 2014, the Federal Government confirmed in the Progress Report on the energy transition and the Climate Mitigation Action Plan that Germany stands by its voluntary commitment and will reduce its greenhouse gas emissions by 40 percent by 2020 (from 1990). All the sectors must contribute to the additional cuts required, including the electricity sector, which is responsible for around 40 percent of greenhouse gas emissions. The Federal Minister for Economic Affairs and Energy has been asked by the cabinet to propose corresponding legislation in 2015.

We assume that European emissions trading must be reformed, but that the measures currently being discussed will not have any significant impact on the greenhouse gas emissions of the German power plant fleet by 2020. For this reason, we will need an additional, transitional, national instrument to cut emissions. By expanding renewables and improving energy efficiency, the electricity sector will already be making a contribution of 37 million less tonnes of CO₂ in 2020 compared with 2014. On top of this, a further 22 million tonnes of emissions needs to be cut, particularly by the electricity sector. This means that emissions by the electricity sector are to fall by a total of 59 million tonnes from the 2014 level.

The instrument, which is yet to be stipulated, is to permit flexible implementation by the companies and to be compatible with European emissions trading. Several potential instruments have been reviewed in terms of achieving the target, the amount of administration, the potential impact on the power plant sector and electricity prices, and other economic effects. As a result, the following proposal is made:

- Power plants receive a free allowance of tonnes of CO₂ per gigawatt. If power plants emit less than the free allowance, no additional cost will be imposed.
- The free allowance is set at such a high level that approx. 90 percent of fossil-fuel power generation will not have to pay any additional cost.
- Power plants will be fully exempt in their first 20 years of operation.
- The obligation will be imposed on those power generation facilities which are included in European emissions trading.
- Power plants must relinquish additional ETS certificates for carbon emissions above the free allowance, and these will subsequently be cancelled.

- The amount of the ETS certificates to be additionally relinquished will be set at a level resulting in an economic steering effect which achieves the reduction target.

The measure is compatible with European emissions trading and permits flexible implementation. Electricity production and emissions above the free allowance are permitted, but the plant operators will receive an economic incentive to cut carbon emissions. This flexible approach will also limit the impact on electricity prices.

4. Grid expansion

We have used scenarios to ascertain the likely future development in the renewable and conventional power plant fleet and its geographical distribution. Grid development plans serve to ascertain the need for transportation. Both the scenarios and the grid development plans are regularly updated. In both cases – following wide-ranging public consultation – the Federal Network Agency will take the ultimate decision. The most important grid expansion projects, where the need is indisputable, were stipulated by the legislature in the Federal Requirement Plan Act in 2013.

The purpose of the planning is to overcome current and future bottlenecks in the grid. Customers throughout Germany are to continue to enjoy access to the lowest-cost offers of electricity on the wholesale market. A market area with a uniform price zone can only be maintained if the auctioned renewable and conventional electricity can subsequently be transported to the customers who bought it. We regard regional grid bottlenecks as a transitional problem.

We wish to retain the single price zone in Germany. We will therefore tackle the grid bottlenecks that we have found. To this end, we particularly need the three direct current links between north and south Germany. The Federal Network Agency will ensure that, in the ensuing choice of routes, the variants are weighed up against one another in a fair and understandable way. This includes the use of existing routes where this is technically viable and economically reasonable. In the case of especially sensitive sections of routes, there will be the possibility of underground cabling – with pilot projects in the case of the AC grid, and generally in the case of the DC grid.