CMS Expert Guide to electricity law and regulation

Electricity law and regulation in Germany
Table of contents

1 Overview
   1.1 Introduction
   1.2 Structure of electricity market
   1.3 Key players
   1.4 Current issues and drivers

2 Sector analysis
   2.1 Generation
   2.2 Transmission
   2.3 Distribution
   2.4 Supply
   2.5 Energy exchange / trading

3 Regulation
   3.1 Authorities
   3.2 Key legislation
   3.3 Regulatory framework
   3.4 Support schemes
   3.5 Upcoming regulatory changes

4 Country statistics

5 Relevant links

6 Footnotes
1. Overview

1.1 Introduction

1.1.1 The basic principle for energy policy is laid down in the German Energy Industry Act (Energiewirtschaftsgesetz (EnWG)). The purpose of the EnWG is to bring about a reliable, fairly-priced, consumer-friendly, efficient and environmentally compatible supply of electricity and natural gas, increasingly based on renewable energies. The regulation of electricity and gas networks aims to safeguard effective competition in energy supply as well as sustain efficient and reliable operation of electricity and gas networks.

1.1.2 The German electricity market began to open up as early as 1998. In order to implement the First Energy Package, the EnWG was amended in 1998, providing for full market opening and the introduction of competition in the electricity sector in one step. Key elements of the German implementation were:

- the introduction of negotiated third party access to the grid (the implementing EU Directive gave Member States the option to choose between regulated and negotiated third party access); and
- the enactment of unbundling provisions obliging vertically integrated undertakings to separate their transmission and distribution businesses from the other activities in the electricity business in terms of accounting (unbundling of accounts).

1.1.3 Furthermore the so called “demarcation agreements” between electricity suppliers – reserving the right for each party to exclusively supply electricity in a demarcated area – were no longer allowed under German competition law.

1.1.4 The second step of liberalisation, as provided for in the Second Energy Package, was implemented by means of an amendment of the EnWG in 2005. Cornerstones of this amendment were:

- the introduction of regulated third party access based on approved and published tariffs applicable to all customers and applied objectively and without discrimination between network users;
- the creation of the Federal Network Agency (Bundesnetzagentur (BNetzA)), as the regulatory body that falls under the authority of the Federal Ministry of Economics and Technology; and
- the introduction of legal, functional and account unbundling of those transmission system operators (TSOs) and distribution system operators (DSOs) serving more than 100,000 customers.

1.1.5 The implementation of the Third Energy Package, by way of amendment of the EnWG in 2011, has tightened the unbundling regime for TSOs. In keeping with the option provided for in the Third Energy Package, the German legislation has not implemented the legal unbundling obligation on integrated electricity undertakings in the distribution sector serving fewer than 100,000 connected customers. The sector has organised itself accordingly. To avoid advantages from vertical integration, DSOs above this threshold are not allowed, in their communications and branding, to create confusion in respect of the separate identity of the supply branch of the vertically integrated undertaking.

1.2 Structure of electricity market

1.2.1 The German electricity market is characterised by a large number of companies acting in different sectors of the market, i.e. generation, transmission, distribution and supply. The net electricity consumption in Germany totalled around 540TWh in 2011 with a share of the industry of 250TWh and the residential sector of 140TWh.
1.2.2 As a consequence of liberalisation, the market has undergone substantial changes resulting in numerous mergers, acquisitions, joint ventures and other alliances to achieve and maintain competitiveness. The number of suppliers has increased considerably, along with rising trading volumes. The European Energy Exchange (EEX), based in Leipzig, is the leading energy exchange in continental Europe. The opening of the market for metering services further increases competitive choices for customers.

1.3 Key players

1.3.1 Key players are the big four utility companies (E.ON AG, RWE AG, Vattenfall GmbH and EnBW AG (Big Four)). They are active in the generation, distribution and supply of electricity. However, the distribution and the supply sectors are characterised by a large number of companies and - in supply - strong competition. In the transmission sector, key players (i.e. the TSOs) are TenneT TSO GmbH, Amprion GmbH, 50 Hertz Transmission GmbH and TransnetBW GmbH.

1.3.2 Most generation companies are privately owned, while all TSOs, with the exception of TenneT, are privately owned. DSOs and supply companies are, on the other hand, mostly owned by municipalities, some in private-public ownership. Often, the local electricity companies supply gas and water, waste disposal services and public transport services as well.

1.3.3 The vertical integration in the German electricity sector remains strong. The strict unbundling rules applying to the transmission and - less strictly - to the distribution sector have separated them from the integrated sectors. The ongoing trend is re-municipalisation (Rekommunalisierung), underpinned by the expiry of many of the so-called “concession agreements” with municipalities granting the exclusive right to build and maintain distribution lines in the municipal area, which has led to a shift in vertical integration as well (see paragraph 3.3.23 below for further details on authorisations and concession agreements). Concession agreements formerly held by the Big Four have usually not been renewed, allowing municipal undertakings to successfully bid for and take over the concession and the operation of the distribution grid.

1.4 Current issues and drivers

1.4.1 The change in energy policy (Energiewende), as decided by the German government in 2011, will change the overall market structure even more fundamentally. The level of detail available today only gives an initial indication of its final impact on the market. The phasing out of nuclear energy generation by 2022 and the planned increase in renewable energy (up to 40-45% by 2025, 55-60% by 2035 and 80% by 2050) constitute the main elements of this revised policy.

1.4.2 Due to the prominent role of renewable energy and their increasing share in the production portfolio, conventional gas fired generating stations are no longer economically viable. This has prompted calls for the introduction of so called capacity markets in power production.

2. Sector analysis

2.1 Generation

Structure of generation sector
2.1.1 Historically the Big Four have played a strong role in the German electricity sector with a high market share in power generation. Nevertheless the structure of the generation sector will change fundamentally in the course of the implementation of the revised energy policy, which promotes renewable energy and decentralised energy supply.

2.1.2 In response to the Fukushima nuclear incident, in July 2011 the German Parliament decided to stop the extension of the operating permits for nuclear generating stations (which had been planned in autumn 2010), to shut down eight nuclear generating stations immediately and to phase out the remaining nine nuclear generating stations by 2022. The reduction in nuclear power left a gap in the market and this is having a substantial effect on the generation sector. Local utilities and independent generators are becoming increasingly active in power generation, local utilities have increased their share in the generation market to 12.6% in 2011 (with the target to reach a 20% share in 2020). This is partly due to the increased importance of decentralised generation and from renewable energy sources. Due to the considerable increase in renewable energy, the conventional generation capacities have come under increased economic pressure. Accordingly, the Big Four’s market share in supply to household customers decreased from 50% in 2008 to 45% in 2011. Finally, the constantly rising share of electricity generated from renewable energy and the competitive price advantage of coal over natural gas makes gas-fuelled power generation increasingly uneconomic.

Energy mix

2.1.3 The German gross electricity production in 2012 consisted of 25.7% lignite (158TWh), 16% nuclear energy (99TWh), 19.1% hard coal (118TWh), 11.3% natural gas (70TWh), 1.6% mineral oil products (10TWh), 21.9% renewable energy sources (135TWh) and 4.4% other energy sources (27TWh).

2.1.4 As a result of the changes in the German energy policy, additional crisis measures have been incorporated in the EnWG with effect from 1 January 2013, which categorise certain facilities as “system relevant” (systemrelevant). Operators of generation facilities with a capacity of 10MW or more have to notify the decommissioning of electricity generation facilities to the responsible TSO and to BNetzA at least twelve months prior to decommissioning of such facilities. Decommissioning of generation facilities with a capacity of 50MW or more is prohibited as long as:

1. the facility is declared “system relevant” by the responsible TSO;
2. the declaration is approved by BNetzA; and
3. the continued operation is legally and technically possible.

2.2 Transmission

Structure of transmission sector

2.2.1 The German grid, about 1.7m kilometres in length, comprises four voltage levels: the extra high voltage level (380 and 220kV), the high voltage level (110kV), the medium voltage level (60 to 6kV) and the low voltage level (230 and 400V). Large power generation sites are connected to the extra high voltage grid which connects key electricity hubs across the country, while the high voltage grid has a more regional character. Both the extra high voltage level and the high voltage level form part of the German transmission system. The medium and low voltage levels form part of the distribution system and are operated by the local DSOs.

2.2.2 Following implementation of the Third Energy Package, the principle of ownership unbundling applies to TSOs. Alternatively, the options of setting up an Independent System Operator (ISO) or an Independent

5 | Electricity law and regulation in Germany
Transmission Operator (ITO) are available. The ISO and ITO models are both designed to ensure the independence of the TSO from the vertically integrated business of the energy utility as far as possible without forcing companies to sell their transmission assets as would be the case of ownership unbundling. The operator of a transmission system has to be certified by BNetzA.

2.2.3 The amendment of the EnWG in 2011 also introduced an obligation on TSOs to submit to BNetzA a ten-year Network Development Plan (NDP). The plan should set out all efficiency measures that will be adopted in order to guarantee the adequacy of the system and security of supply. The plan identifies to market participants the main transmission infrastructure that needs to be built or upgraded over the next ten years, summarises all the investments required over the following three years and provides a timeframe for all projects. The TSOs publish the draft NDP for public consultation, as well as submitting it for review by BNetzA. Subsequently it is included in the Federal Demand Plan (Bundesbedarfsplan) and the Federal Administrative Court is then responsible for taking the legal action required to implement the network expansion projects.

2.2.4 There are about 900 electricity network operators in total. The four TSOs, TenneT, Amprion, 50 Hertz Transmission and TransnetBW, operate the extra high voltage grids (Verbundnetz), which is over 35,000 kilometres long. TenneT and 50 Hertz Transmission were set up as ownership unbundled companies. Amprion and TransnetBW are organised as ITOs. The high, medium and low voltage level grids have a length of about 77,000, 480,000 and 1.7m kilometres respectively.

2.2.5 BNetzA ruled in 2010 that the four TSOs had to connect their four control areas to an interconnected control area. Instead of balancing power imbalances in their respective control area, imbalances are now balanced in the interconnected area, thereby reducing the amount of required balancing of energy. Meanwhile, the nationwide control area has been extended to include TSOs from neighbouring countries.

Grid expansion plans

2.2.6 The German government is supporting the expansion of the electricity grid in order to meet its climate change objectives. To accelerate the planning and authorisation procedures for power lines, the High-Voltage Power Lines Expansion Act (2009 Act) was enacted in 2009. This 2009 Act comprises a demand plan that identifies 24 grid expansion projects, four of which may be constructed and operated as underground cables. These projects are to contribute to the integration of renewable energy, the interoperability of power grids in the European Union, the connection of new generating stations and the avoidance of grid congestion. The inclusion of the 24 projects within the plan has fixed by law the need and urgency for such grid expansion measures.

2.2.7 In 2011, the Network Expansion Acceleration Act (2011 Act) entered into force. The 2011 Act applies to high-voltage grids (110kV or more) with the exception of the projects listed in the 2009 Act. The objective of the 2011 Act is to reduce the duration of planning and authorisation procedures for high-voltage lines.

2.2.8 Investments into grid expansion and upgrading by the four TSOs amounted to around EUR 850m in 2011 and, due to the changes in the energy policy, the required expansion of the network infrastructure is expected to increase considerably in the coming years.

2.2.9 In 2012, the TSOs submitted the first nationwide NDP, which proposed the development of 2,800km of new lines (i.e. new interconnectors) and 2,900km of line expansion (upgrading of lines in existing grids). BNetzA submitted the final NDP to the Federal Ministry of Economics and Technology in December 2012 and it has since become the basis of the Federal Demand Plan, comprising 36 projects including pilot projects for high-voltage direct current transmission lines.
2.2.10 In 2013 the NDP included for the first time an Offshore NDP. The NDP 2014 is still in the consultation phase. It will probably be confirmed by BNetzA at the beginning of 2015.

Cross border issues

2.2.11 The German transmission grid is at the heart of the European grid. In 2011 the available import and export capacity at all cross border interconnection points amounted to about 21,000MW on average. Historically the German TSOs were members of the Union for the Co-ordination of Transmission of Electricity (UCTE) together with other European TSOs, responsible for the coordinated operation and expansion of the grids. In 2009 the administrative tasks of UCTE were transferred to the European Network of Transmission System Operators for Electricity (ENTSO-E). The German TSOs are members of ENTSO-E.

2.2.12 Germany's net electricity exports amounted to 22.8TWh in 2012. The main export destinations were the Netherlands (22.6TWh), Austria (15.9TWh) and Switzerland (12.7TWh). The largest import amounts came from France (13.2TWh), Denmark (8.5TWh) and the Czech Republic (8.4TWh). Germany is situated in the centre of the western European electricity grid and is thus connected to all neighbouring countries.

2.3 Distribution

Structure of distribution sector

2.3.1 As referred to in paragraph 2.2.1 above, the medium and low voltage levels form part of the distribution system and are operated by the local DSOs. Household and small commercial customers are connected to the low voltage grid.

2.3.2 The distribution sector comprises around 900 network operators which are partly privately owned and operated on the basis of concession agreements with the municipalities but in many cases in public ownership of and operated by the municipalities. The re-municipalisation trend in the course of the declining market position of the Big Four will further increase the number of municipal DSOs.

2.3.3 Due to the fact that there is no obligation for legal unbundling on integrated electricity undertakings in the distribution sector serving fewer than 100,000 customers, distribution and supply of electricity to customers is often in the hands of the same local utility.

2.4 Supply

Structure of supply sector

2.4.1 At the retail level, the market is characterised by a large number of suppliers competing for final consumers in the commercial as well as the household sector. Suppliers comprise local utilities, energy traders and the supply branches of the big utility companies. Even local suppliers offer electricity often on a regional or supra-regional level. In the household sector customers can chose on average between 102 suppliers (minimum 28 and maximum 132 suppliers).

2.4.2 Final consumer prices are no longer regulated in Germany since effective competition has evolved. In 2011, more than 3.8m end consumers have changed their electricity supplier, which represents an increase of 27% as
compared to 2010. In total, 47% of consumers chose a different tariff than the basic supply tariff of their existing supplier, while 17% changed their supplier altogether. Around 40% of all household customers, however, remain in the basic supply tariff of their existing supplier. With rising electricity prices this percentage will probably decrease further.

**Competition in the supply sector – recent issues**

2.4.3 In 2009/2010, several electricity distribution companies, primarily municipal utilities, were accused by the Federal Cartel Office (FCO) of having charged inflated prices for heating current (electrical energy used for heating, which is a separate product). Since they were deemed dominant in their respective regional markets for the supply of heating current, this constituted an abuse of a dominant position in the view of the FCO. The FCO closed all but one case by commitment decision. In one case the FCO found that there was an infringement of competition law and ordered the repayment of excessive tariffs. The defendant appealed the ruling of the FCO. The case is pending before the court.

2.4.4 In 2011, the FCO cleared a merger between RWE and a municipal utility. RWE intended to make permanent its temporary minority stake in the municipal utility. In contrast to earlier practice, the FCO cleared the merger since the municipal utility had demonstrated its independence from RWE in the past. The FCO questioned whether RWE and E.ON were still collectively dominant in the electricity wholesale and some retail markets but ultimately left this question open, since it did not consider the concentration to strengthen a potential dominant position. In another comparable merger decision, the FCO did not oppose RWE in making permanent its, until then, temporary stake in a municipal utility. It found that in contrast to previous years, there was no longer a danger that the Big Four utilities would foreclose the energy market by holding minority stakes in a multitude of municipal utilities. Moreover, it considered the wholesale markets for electricity to exert enough competitive pressure such as not to cause competitive concerns if a Big Four utility holds a minority stake in a municipal utility.

2.4.5 In 2011 the FCO published a sector inquiry of the electricity wholesale and generation markets of 2007 and 2008. It examined the functioning of the markets and whether generators hoarded generation capacities in order to inflate prices despite marginal costs being lower than electricity prices. Even though some instances of capacity retention were detected, it was unclear whether this was due to the aim of inflating prices or due to other, justifiable reasons. Therefore, the FCO did not take immediate action. However, in cooperation between the FCO and BNetzA an entity for the observation of the wholesale markets of electricity and gas (Markttransparenzstelle für den Großhandel im Bereich Strom und Gas) is in the process of being set up, as the FCO recommended in the sector inquiry. Moreover, the FCO came to the conclusion that possibly all four of the big German electricity generators (E.ON, RWE, Vattenfall, EnBW) were each individually dominant on the market for the generation and the original supply of electricity.

2.4.6 Furthermore, during this sector enquiry the FCO became aware of the fact that several electricity suppliers had stipulated take-or-pay clauses in conjunction with a prohibition to sell any electricity amounts supplied under the take-or-pay scheme to third parties in some of their contracts with electricity resellers (municipal utilities) and some large customers. In a preliminary opinion, the FCO considered this combination of clauses to restrain competition on the national markets for the supply of electricity to large commercial customers and to special-rate customers and on the regional markets for basic supply customers. This was because the electricity resellers and large customers were considered to be actual or potential competitors of the electricity suppliers. The cases were settled and the electricity suppliers committed to abandoning the combination of both clauses.

**2.5 Energy exchange / trading**

*Structure of trading market*
2.5.1 A large number of players are active in the wholesale sector. They comprise the Big Four, local utilities, energy traders, power generators, brokers, banks and industrial companies.

2.5.2 Trading on the liberalised wholesale market is either carried out over the counter (OTC) or via the European energy exchange (EEX). Even if OTC-traded volumes are higher, the prices on the energy exchange serve as reference prices.

2.5.3 Users of the EEX have to register with EEX and be accepted as a user by EEX. EEX has published general terms of contract for the use of the platform.

2.5.4 Based in Leipzig, the EEX, on which power, natural gas, CO2 emission allowances and coal are traded, plays a leading role in trading markets for energy and related products. Its clearing activities have been transferred into the subsidiary European Commodity Clearing (ECC). Since 2008, EEX cooperates with Powernext (EPEX). Both partners have integrated their power spot and derivatives market. EPEX Spot operates the power spot markets in Germany, France, Austria and Switzerland. These markets cover 36% of the total European electricity consumption. The power derivatives market for Germany and France is operated by EEX Power Derivatives.

2.5.5 As of 2010, 267 trading participants from 22 countries were admitted on EEX and EPEX Spot. These include big energy utility companies and municipal utility companies, energy traders, brokers, banks and industrial companies.

2.5.6 The Physical Electricity Index (Phelix) is the benchmark for power trading in Germany and Austria on the EEX Power Derivatives Market and the underlying for futures comprising day (intra-day and day-ahead), weekend, week, month, quarter and year (Phelix Futures). In addition to Phelix, EEX and EPEX Spot publish the European Electricity Index (ELIX). ELIX is calculated on the data of the EPEX Spot market areas (Germany, France, Austria and Switzerland) on a daily basis for the following day.

Data on traded volumes

2.5.7 The trade volume on the EEX Power Derivatives Market declined by 13% from 1.075TWh in 2011 to 931TWh in 2012. A significant factor in this development has been a continuous trend towards short-term trading. In 2012, 18% more power was traded on the EEX Power Derivatives Market, than was traded in the day, weekend, week, month and quarter contracts in 2011. In the sector of year contracts, on the other hand, volumes were 22% lower than in 2011. Accordingly, the trade volume in the Power Spot Markets of EPEX Spot increased by 8% to 339TWh in 2012 compared to 314TWh in 2011. The volume in trading in emission allowances increased by 139% from 106.7m tonnes CO2 in 2011 to 254.6m tonnes CO2 in 2012.

3. Regulation

3.1 Authorities

3.1.1 In terms of policy setting and regulation in particular, a distinction has to be made between the federal and the state level. On the federal level, the primary responsibility for regulation of the electricity industry lies with the Federal Ministry of Economics and Technology (Bundesministerium für Wirtschaft und Technologie). The Federal
Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit) is responsible for regulation in terms of environmental policy. In practice, the activities of both federal ministries have a huge impact on the electricity sector. Suggestions to combine the energy related responsibilities of both federal ministries in a newly created Ministry of Energy have not progressed.

3.1.2 As its main responsibility in the electricity sector the Federal Ministry of Economics and Technology may, with the consent of the Federal Counsel (Bundesrat), determine the conditions for network access and for rendering balancing services. It may also prescribe methods for determining network tariffs, including implementing an incentive regulation system and metering point operation.

3.1.3 BNetzA is responsible for regulating electricity pursuant to the EnWG, but also for gas (including unbundling), telecommunication, post and railway. On the electricity front BNetzA regulates connections and access to the networks (including associated tariffs), the system responsibility of network operators and the implementation of European laws. The electricity undertakings subject to BNetzA are those with 100,000 or more customers connected to the grid or those undertakings with fewer than 100,000 customers whose electricity grid covers more than one federal state (Bundesland).

3.1.4 In order to attain equal economic conditions, BNetzA oversees any decision with nationwide impact (such as determining price indices with regard to network tariffs, the allowed return on equity and the benchmark parameters applicable under the incentive regulation scheme). In all other cases the State Regulatory Authorities of each Bundesland (Landesregulierungsbehörden) are responsible for regulatory issues at state level.

3.1.5 BNetzA is also responsible for monitoring and evaluating the developments on the markets for electricity and gas. This includes monitoring capacity and congestion issues, prices for household customers and existing and planned decommissioning of generation capacities. With respect to market monitoring, BNetzA cooperates with the FCO. Equally under the EnWG, BNetzA is empowered to take action to remedy breaches of the EnWG or failures to implement an investment which is foreseen in the NDP.

3.1.6 The EnWG prohibits the abuse of a dominant market position by system operators (both TSOs and DSOs) and enables BNetzA to take action against system operators including claw back of economic advantages gained as a result of such abusive behaviour.

3.1.7 While there are no authorities specifically mandated to regulate renewable energy in Germany, the so-called “clearing house” (Clearingstelle) was established by the Ministry for the Environment. Its function is to clarify questions and disputes between installation operators and system operators relating to the interpretation and application of the Renewable Energy Sources Act (Erneuerbare-Energien-Gesetz (EEG)) by providing recommendations in answer to specific questions. Generally, these decisions are non-binding. However, in practice the opinion of the clearing house is of high importance for the interpretation of the EEG by authorities and courts.

3.2 Key legislation
3.2.1 The basic provisions relating to the electricity sector are laid down in the EnWG, which encompasses provisions on unbundling, operation of the network (including connection to the network and network access), supply of energy to end consumers, general planning law, and security and liability in energy supply. The EnWG also allocates responsibilities among the different authorities and sets procedures and applicable legal protections.

3.2.2 On the basis of the EnWG, the Federal government has enacted several ordinances, including the:

- Network Access Ordinance of 25 July 2005;
- Network Access Fee Ordinance of 25 July 2005;
- Incentive Regulation Ordinance (IRO) of 29 October 2007;
- Basic Supply Ordinance of 26 October 2006;
- Metering Access Ordinance of 17 October 2008; and

3.2.3 Other important statutes impacting on the electricity sector are the:

- Nuclear Energy Act of 23 December 1959;
- EEG of 21 July 2014;
- Combined Heat and Power Act 19 March 2002;
- Act Against Restraints of Competition of 15 July 2005; 
- Transmission Network Expansion Acceleration Act of 28 July 2011; 
- Greenhouse Gas Permission Trading Act of 21 July 2011; and

3.2.4 Detailed rules governing the electricity sector are set by BNetzA in numerous determinations and decisions. Basic business processes are laid down in the following decisions:

- market rules on Balancing Group Invoicing of 10 June 2009 (BK6-07-002);
- Supply of Customers with Electricity of 11 July 2006 (BK6-06-009);
- Delivery Point Processes of 29 October 2012 (BK6-12-153); and
- Change Processes in Measurement of 9 September 2010 (BK6-09-034).

Competition law

3.2.5 EU antitrust law applies in all German electricity sector cases, as long as trade between Member States is actually or potentially affected. Thus, on the transmission market, for example, trade between Member States will usually be affected. Only on entirely regional electricity markets without any cross-border aspects is it conceivable that trade between Member States could not be affected. EU merger control law is also applicable in cases involving the electricity sector, if the turnover thresholds of the EC Merger Control Regulation are met.

3.2.6 Section 1 of the German Act against Restraints of Competition(Gesetz gegen Wettbewerbsbeschränkungen (ARC)) replicates the prohibition of cartels in line with article 101 of the Treaty on the Functioning of the European Union (TFEU). The EU block exemption regulations also apply. Sections 19, 20, and 29 of the ARC prohibit the abuse of a dominant position and other forms of discrimination and unfair practice. However, special provisions of the EnWG ensure non-discriminatory access, as well as non-discriminatory and appropriate tariffs and conditions for electricity transmission and distribution systems. Where applicable, these provisions take precedence over the general rules of German competition law regarding the abuse of a dominant position. The merger control provisions are laid down in sections 35 to 43. The ARC applies to concentrations in the electricity
3.3 Regulatory framework

Generation

3.3.1 The construction and operation of generating stations is not subject to specific licensing requirements under German energy law. The general provisions of planning and building law are applicable as are the requirements of environmental law.

3.3.2 Additional crisis measures relating to decommissioning of generation facilities came into effect on 1 January 2013 as detailed at paragraph 2.1.4 above.

Transmission and Distribution (T&D)

3.3.3 The German Law differentiates between the market roles of TSOs and DSOs. Whilst a number of provisions apply to both market roles, additional rules are laid down that address the specific market roles of transmission and distribution.

T&D – System operation

3.3.4 Electricity system operators are obliged to operate a secure, reliable and efficient network. They are obliged to optimise and extend their network as far as this is economically reasonable.

3.3.5 In order to commence network operations TSOs and DSOs require an authorization pursuant to the EnWG. The authorization is granted by the responsible authority at state level. The authority may only refuse to grant such authorization if the applicant does not possess the personal, technical and economic capability and reliability in order to sustainably ensure network operations in accordance with the legal requirements. Furthermore, in order to operate a transmission system, TSOs require a certification by BNetzA. The certification is granted if the operator fulfils the legal requirements of unbundling. Apart from these specific provisions under the EnWG, general requirements under planning and environmental laws have to be observed.

3.3.6 In case the security or reliability of the electricity supply system is endangered, a two-step process is put into practice in cooperation between the system operators:

1. As a first step TSOs are entitled and obliged to remedy the danger by applying grid related measures (e.g. network switching) or market related measures (e.g. procurement of balancing energy, utilisation of contracted interruptible load, provision of information about congestions and congestion management) as well as mobilization of additional reserves. TSOs are entitled to require operators of generation facilities with a capacity of 10MW or more to adapt the feed-in of electricity to a defined degree at a reasonable remuneration. The TSO may also oblige the generator to maintain the availability of the facility where they may otherwise have planned its decommissioning.

2. In case the measures as described in step one are not sufficient to remedy the risk for the security of the system the TSOs are entitled and obliged to adapt the feed-in of electricity transits as well as off-takes to the requirements of a secure system operation. In that case all performance obligations affected by the aforementioned measures are suspended for the duration of the remediing actions. The liability for financial losses is excluded as well. TSOs have to procure additional or interruptible loads in a tendering procedure.
T&D – Metering point operation

3.3.7 In principle the system operator is responsible for the operation of metering points. The metering point operation may, however, be carried out by a third party upon request by the connection user and subject to the incoming operator securing a metering operation according to the calibration regulations, as a precondition for safeguarding timely and complete billing. The network operator is entitled to reject the metering point operation by a third party if these requirements are not met.

T&D – Network Access

3.3.8 Equal and fair access to the networks is a fundamental element of effective competition in the electricity market. System operators are obliged pursuant to the EnWG to grant everyone non-discriminatory access to their networks on objective terms. Conditions for access including model contracts, concession fees and the applicable network fees have to be published a year in advance. This includes having to provide shippers with the necessary information required for efficient network access. Conditions for network access shall be standardised on the basis of common business practices to be compatible with mass-market processes.

3.3.9 According to the EnWG access to the electricity network is granted via the Network Access Agreement (NAA) or the Supplier Framework Agreement (SFA). The NAA provides for grid access of a specific consumer site whereas typically the SFA does not refer to specific points. NAA and SFA grant access to the entire electricity grid (i.e. shippers need just one contract). BNetzA is currently in the process of setting a determination on a standard NAA in order to harmonise the market rules.

System operators may deny access to their grids if they prove that access is not possible or unreasonable due to operational or other reasons. The denial has to be reasoned and submitted to the competent regulatory authority. More detailed provisions regarding network access are laid down in the Electricity Network Access Ordinance.

T&D – Connection to the grid

3.3.10 As a general rule, system operators are obliged to connect end consumers, other electricity grids, generation facilities and facilities for the storage of electric energy to their grids. The terms and conditions for network connection have to be reasonable, non-discriminatory, transparent and equally favourable as in comparable cases. Connection to the grid may be denied if the network operator proves that the connection is not possible or unreasonable due to operational or economic reasons.

3.3.11 As regards renewable energy, system operators are obliged under the EEG to immediately and as a priority connect installations generating electricity from renewable energy sources (wind, hydro, solar, biomass and sewage gas combustion, as well as geothermic energy) to their grid system. The plant operator generally bears the costs related to the connection whereas the system operator has to bear the cost for capacity expansion of the grid system.

T&D – Network Fees

3.3.12 The concept of cost based network fee calculation was introduced by the Grid Fee Ordinance in 2005. The option to move from cost-based fees to a system based on efficiency as laid down in the EnWG was implemented by the IRO, which was issued in 2007. The IRO sets out basic rules for implementation of the incentive regulation
system by the regulatory authorities. Pursuant to the IRO, the regulatory authority determines a revenue cap for each system operator for each five year regulatory period (starting 1 January). The differences between the revenue cap and the factual revenues are posted to a regulatory account. If the actual revenues exceed the revenue cap by more than 5%, the system operator has to amend his fees accordingly.

3.3.13 The revenue cap is determined by a regulatory formula that differentiates between costs which cannot be influenced on a permanent basis, costs which cannot be influenced temporarily and costs which can be influenced. The increase in efficiency and productivity as intended by the incentive regulation is achieved by implementing a general productivity factor for the sector as well as an individual efficiency factor into the formula. The individual efficiency factor is derived from benchmarking the system operators. The general productivity factor for the sector is determined against the development of the consumer price index. As operations are expected to achieve increases in productivity and efficiency, the formula provides for a decreasing revenue cap over the regulatory period. As in some other jurisdictions efficiency gains above those required by the revenue cap remain with the system operator.

Transmission specific (T) – System operation

3.3.14 TSOs have to carry out the transmission of electricity in coordination with other connected grids. They have to contribute to the provision of a secure and reliable electricity supply network within their control area. TSOs may delegate their responsibility to another operator. TSOs submit on a yearly basis a joint national Network Development Plan to BNetzA. The plan comprises all measures necessary for a secure and reliable network operation over the next ten years.

T – Connection to the grid of power stations

3.3.15 The connection of generating stations with a nominal capacity of 100MW or more to electricity supply grids with a voltage of 110kV or more is regulated by the Power Plant Grid Connection Ordinance. The relevant TSO evaluates the connection request by the applicant with regard to the available transmission capacity. If the TSO's evaluation is positive, that capacity is reserved for the applicant subject to payment of a reservation fee of EUR 1.000 per MW connection capacity. This reservation fee is then offset against the cost of the connection infrastructure or, if the connection is not built, repaid. The TSO may refuse the grid connection, if the requested connection point is technically not suitable for feeding in the generated electricity, but not on grounds of possible congestion in connected networks downstream of the connection point. The party requesting the connection has to bear the cost for the line between the generation facility and the connection point to the transmission grid.

T – Connection to the grid of offshore generating facilities

3.3.16 Since 2013 new rules apply for the connection to the grid of offshore generation facilities. Pursuant to the amended EnWG, the TSOs have to submit a yearly Offshore NDP that has to be approved by BNetzA. The TSOs are obliged to construct and operate the lines for the connection of offshore generation facilities according to the requirements set out in such plan. Connection of off-shore generation facilities anticipated in the plan can thus not be denied on the basis of technical or economic grounds.

3.3.17 Germany has recently made changes to facilitate investments into offshore grid connections. Accordingly, the amended EnWG contains a set of rules on the liability of TSOs vis-à-vis the operators of offshore generation facilities. If the grid connection has not been completed by the set date or if ability to feed-in the offshore generated power is disrupted by grid connection problems for more than ten days, the connecting TSO is liable for paying the financial loss suffered by the offshore generator. The compensation amounts to 90% of the
remuneration to be paid under the EEG. An apportionment system has been introduced to mutualise the risk between all TSOs. In case of damages caused by negligence (but not gross negligence) the contribution of the connecting TSO is limited to EUR 17.5m per case. The connecting TSO is not entitled to compensation from the apportionment system in case the damage has been caused by intent. The liability of the connecting TSO vis-à-vis the operator of offshore generation facilities for material damages that are not caused by intent is limited to EUR 100m.

_Distribution specific (D) – System operation_

3.3.18 DSOs are obliged to safeguard secure and reliable network operation including the application of the aforementioned two-step process in a crisis situation. DSOs have to apply a reduced network fee in case they are contractually enabled to interrupt a consumption site in the interest of system security.

_D – Connection to the grid of final consumers_

3.3.19 For consumers in local distribution systems the EnWG stipulates a general connection obligation on DSOs. They have to publish general terms and conditions for grid connection and usage and adhere to these. The obligation to connect does not apply where the connection or usage would be unreasonable for the system operator due to economic reasons (operational reasons do not apply).

3.3.20 The Federal government has enacted an ordinance detailing the terms and conditions for grid connection and connection usage in low voltage networks. These are then incorporated into the terms of a grid connection agreement between the DSO and the land owner. The Connection Usage Agreement becomes effective on the off-take of electricity from the system at the connection point by the connection user. The DSO is entitled to demand up to 50% of the construction costs from the party requesting the connection. The liability of the DSO for damages resulting from an interruption of the connection usage is limited (EUR 5,000 unless caused by intent or by gross negligence).

_D – Quality element in incentive regulation_

3.3.21 In 2012 a new quality element was added to the incentive regulation system. It applies to electricity distribution systems, not to the extra-high and the high voltage level which form the transmission system. The quality element gives an incentive to increase the reliability of the network whilst system operators are incentivised to increase their efficiency at the same time. Depending on the reliability or the performance of the network, the quality factor provides either a bonus or a penalty. In its first application in 2012/2013, 143 out of 202 DSOs were rewarded and 59 penalised. As the quality element amounts on average to 0.18% of the revenue cap, the maximum bonus was approximately EUR 4m and the maximal penalty was EUR 4m.

3.3.22 A simpler procedure applies for DSOs with fewer than 30,000 customers. Instead of benchmarking against other system operators, the efficiency factor is derived from the average efficiency factor over that DSO’s preceding regulatory period.

_D – Concession agreements_

3.3.23 Municipalities are required to provide access to public roads for the construction and operation of electricity lines for the supply of end consumers on a non-discriminatory basis. Such concession contracts for the use of public roads to build and operate distribution lines may not exceed a term of 20 years. If a concession contract is not prolonged after expiry, the outgoing operator of the grid is entitled to transfer the grid to the
incoming undertaking against payment of a reasonable remuneration. The electricity supply undertaking using public roads for the construction and operation of grids have to pay a concession fee. The calculation of concession fees is regulated in the Concession Fee Ordinance.

**D – Competition issues**

3.3.24 The Federal Court of Justice underlined in three decisions in 2013 and 2014 that municipalities hold dominant positions for the awarding of the concession for the use of their public roads with regards to electricity grids. In order not to abuse their dominant positions, the municipalities must award the concessions as a result of a fair, transparent and non-discriminatory call for tenders. The award decision must exclusively be based on objective criteria that relate to the aims of the EnWG. The relevant criteria must be publicised beforehand. Conversely, the decision must not be based on political reasons such as a political wish for remunicipalisation or favouring local utilities. An award decision that does not comply with these criteria is legally void.

**D – Closed distribution systems**

3.3.25 Closed distribution systems are electricity grids that supply customers in a geographically restricted commercial or industrial area. The determination of what is a closed distribution area is made by the relevant regulatory authority. Operators of closed distribution systems are exempted from some, but not all, regulatory requirements applying to DSOs (such as the general grid connection obligation, the application of the incentive regulation and the procurement of balancing energy).

**Retail Supply**

3.3.26 To supply household customers with electricity, electricity suppliers must first notify commencement of supply to the relevant regulatory authority. The supplier has to demonstrate the personal, technical and economic capacity as well as the reliability (in terms of management). The regulatory authority may prohibit the commencement of electricity supply if those requirements are not met.

3.3.27 The terms and conditions of basic supply to household customers (Grundversorgung) must be published. The undertaking supplying the majority of household customers in a given network area is the designated “basic supplier” (Grundversorger).

3.3.28 If the electricity is supplied to the final customer directly from the distribution network without a corresponding supply agreement, such electricity is deemed to be supplied by the responsible basic supplier. While the basic supplier is entitled to publish prices for this substitutional supply service, for household customers these prices may not exceed the price for basic supply. The substitutional supply automatically terminates if the customer enters into a supply agreement within three months of the substitutional supply commencement.

3.3.29 In 2007 the FCO accepted commitments by RWE to remedy an alleged abuse of a dominant position due to inflated electricity prices in 2005. RWE had charged market prices for CO2-certificates as opportunity costs as part of its electricity prices. These CO2-certificates however had been allocated to RWE by the authorities at no cost. RWE committed to sell significant amounts of electricity to industry customers in the period from 2009 to 2012 without accounting for any opportunity costs for CO2-certificates.

**3.4 Support schemes**
3.4.1 The EEG sets out the main support schemes for electricity generation from wind, hydro, solar, biomass and sewage gas combustion, as well as geothermal energy. The latest amendment to the bill (EEG 2014) applies as of 1 August 2014.

3.4.2 In the first place, the EEG 2014 provides framework conditions with regard to the extent of the annual growth of new power generating capacities. The so-called expansion corridors targets entail detailed figures on the planned increase of installed power for different renewable energy sources. The current expansion corridor targets are:

- onshore wind power: net annual growth corridor target of 2.5GW,
- offshore wind power: growth corridor target of 6.5GW by 2020 and 15GW by 2030,
- solar power: gross annual growth corridor target of 2.5GW,
- biomass: gross annual growth corridor target of 100MW.

To ensure that these corridors are met, so-called “breathing caps” have been established for onshore wind, biomass and solar power. The concept of “breathing caps” provide for the adjustment of the financial support depending on the extent to which newly installed capacity is in line with these corridor targets. However, the expansion corridor for offshore wind is controlled directly through grid connection approvals.

3.4.3 Under the EEG 2014 operators of new renewable power plants are in principle obliged to sell the renewable energy directly in order to obtain financial support (Direktvermarktung). Instead of receiving fixed feed-in tariffs, they generally obtain support in the form of a market premium (Marktpämie). The market premium amount results from the difference between the “applicable value” for each form of renewable energy and the monthly calculated average exchange price for electricity. The “applicable value” (anzulegender Wert) is the amount in ct/kWh to be taken as a basis for determining the market premium or the feed-in tariff. The plant operator thus receives a higher fee for electricity in comparison to the feed-in tariffs as long as he obtains a higher price on the electricity exchange than the monthly mean market price for electricity. By this way, contrary to the system of feed-in tariffs, the direct marketing in form of the market premium is supposed to give plant operators an incentive to generate a large quantity of electricity whenever it is needed since the market price is correspondingly high.

3.4.4 However, in exceptional cases operators of new renewable power plants can still receive feed-in tariffs under the EEG 2014. One exception are small renewable power plants, particularly:

- plants commissioned before 1 January 2016 with an installed capacity of less than 500kW, and
- plants commissioned after 31 December 2015 with an installed capacity of less than 100kW.

The other exception refers to the so-called “fallback marketing“ (Ausfallvermarktung). New plant operators who are temporarily unable to market their electricity directly can offer their electricity to the electricity system operators, which in turn act as fallback marketers. However, this option is supposed to function only as an emergency solution for use in exceptional circumstances. Therefore plant operators will only receive 80% of what they would have obtained on aggregate with the market premium.

According to the EEG 2014, the “applicable value” for renewable energy sources is planned to be determined by an auctioning (or tender) system by 2017 at the latest. Thus, the current principle of administrative fixing of the “applicable value” will be replaced by a competitive system through a bidding process. In the short term, a pilot auctioning process will be applied for free-standing photovoltaic plants in order to gain initial experience with the bidding system. The procedure and all other details of the auctioning system are to be set out in greater detail in
a legally binding ordinance still to be enacted by the Federal Government by the end of 2014 at the latest. The first auctioning process shall take place in the course of 2015. It will be organised by the BNetzA. In a second stage at the latest by 2017, the “applicable value” for the other renewable energy technologies shall be established by an auctioning system as well. Therefore, the EEG 2014 will be reformed again throughout the year 2016 to create a corresponding legal framework.

3.5 Upcoming regulatory changes

3.5.1 The changes in energy supply resulting from the changes in energy policy have stimulated an ongoing re-evaluation of the legal and regulatory framework for the electricity sector. In March 2013, the Ministry of Economics and Technology submitted a draft legislative package amending, inter alia, the Network Access Fee Ordinance and the IRO. These amendments affect the grid fee calculation principles, such as the provision of uniform index series, and redefine the return on equity. Moreover, it has been proposed that the full exemption of energy-intensive customers from network fees will be replaced by a reduced fee, taking into consideration the positive effect of their consumption pattern on system stability. The introduction of variable electricity tariffs is to be facilitated by the implementation of a simplified balancing mechanism.

4. Country statistics

Figure 1: primary energy consumption in Germany by energy source (2011 and 2012)  

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>2012</th>
<th>2013</th>
<th>2014*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billion kWh</td>
<td>%</td>
<td>Billion kWh</td>
<td>%</td>
</tr>
<tr>
<td>Gross electricity production, total</td>
<td>631.0</td>
<td>100.0</td>
<td>633.2</td>
</tr>
<tr>
<td></td>
<td>614.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>2012</td>
<td>2013</td>
<td>2014</td>
</tr>
<tr>
<td>----------------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Lignite</td>
<td>160.7</td>
<td>25.5</td>
<td>160.9</td>
</tr>
<tr>
<td>Nuclear energy</td>
<td>99.5</td>
<td>15.8</td>
<td>97.3</td>
</tr>
<tr>
<td>Hard coal</td>
<td>116.4</td>
<td>18.5</td>
<td>121.7</td>
</tr>
<tr>
<td>Natural gas</td>
<td>76.4</td>
<td>12.1</td>
<td>67.5</td>
</tr>
<tr>
<td>Mineral oil products</td>
<td>7.6</td>
<td>1.2</td>
<td>7.2</td>
</tr>
<tr>
<td>Renewable energy sources</td>
<td>143.8</td>
<td>22.8</td>
<td>152.4</td>
</tr>
<tr>
<td>Wind power</td>
<td>50.7</td>
<td>8.0</td>
<td>51.7</td>
</tr>
<tr>
<td>Water power**</td>
<td>22.1</td>
<td>3.5</td>
<td>23.0</td>
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<tr>
<td>Biomass energy</td>
<td>39.</td>
<td>6.3</td>
<td>41.2</td>
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<tr>
<td>Photovoltaic energy</td>
<td>26.4</td>
<td>4.2</td>
<td>31.0</td>
</tr>
<tr>
<td>Household waste***</td>
<td>5.0</td>
<td>0.8</td>
<td>5.4</td>
</tr>
<tr>
<td>Other energy sources</td>
<td>25.7</td>
<td>4.1</td>
<td>26.2</td>
</tr>
</tbody>
</table>

* Provisional data.
** Production in run-of-river power plants and storage power plants as well as production from natural inflow in pumped storage power plants.
*** Only production from biogenic share of household waste (about 50%).

Figure 3: electricity generation from renewable sources in Germany between 1990 and 2014 (in GWh)

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5. Relevant links

- Federal Network Agency (BNetzA): [www.bundesnetzagentur.de](http://www.bundesnetzagentur.de)
- Federal Ministry of Economics and Technology (BMWi): [www.bmwi.de](http://www.bmwi.de)
- Federal Cartel Office Bundeskartellamt (B KartA): [www.bundeskartellamt.de](http://www.bundeskartellamt.de)
- German Association of Energy and Water Industries (BDEW): [www.bdew.de](http://www.bdew.de)
- German Association of Local Utilities (VKU): [www.vku.de](http://www.vku.de)
- Clearingstelle EEG: [www.clearingstelle-eeg.de](http://www.clearingstelle-eeg.de)
- European Energy Exchange: [www.eex.com](http://www.eex.com)
- Federal Statistical Office: [www.destatis.de](http://www.destatis.de)
- [www.volker-quaschning.de](http://www.volker-quaschning.de)
Footnotes

1 Bundeskartellamt, 19 March 2012, B10 - 16/09.  
Back to the text occurrence

2 Bundeskartellamt, 24 June 2013, B8 - 92/13 (case report).  
Back to the text occurrence

3 Bundeskartellamt, 24 June 2013, B8 - 92/13 (case report).  
Back to the text occurrence

4 Back to the text occurrence

5 Bundeskartellamt, 5 July 2010, B10 - 48/09; Bundeskartellamt, 5 July 2010, B10 - 44/09; Bundeskartellamt, 19 July 2010, B10 - 18/10; Bundeskartellamt, 19 July 2010, B10 - 13/10; Bundeskartellamt, 19 August 2010, B10 - 12/10; Bundeskartellamt, 29 October 2010, B10 - 21/10.  
Back to the text occurrence

6 Bundesgerichtshof, 3 June 2014, EnVR 10/13 – „Stromnetz Homberg”.
Back to the text occurrence

7 Bundesgerichtshof, 3 June 2014, EnVR 10/13 – „Stromnetz Homberg”.
Back to the text occurrence

8 Bundeskartellamt, 26 September 2007, B8 - 88/05 – 2  
Back to the text occurrence

9 Statista GmbH, AG Energiebilanzen, January 2013. The statistics are published by Statista GmbH, based on surveys carried out by AG Energiebilanzen, ; Bundesverband der Energie- und Wasserwirtschaft.  
Back to the text occurrence

10 Source  
Back to the text occurrence

11 Source  
Back to the text occurrence

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