Bundesnetzagentur

Annual Report 2014

Expanding networks. Securing the future.
Infrastructure development in Germany.

The magazine focuses on infrastructure development. Read all about the progress in expanding Europe's electricity networks, the campaign to improve broadband access, and innovative solutions in parcel logistics.

Modern infrastructures are the lifeblood of our industrial society. They are a fundamental requirement for our country's economic development and for the well-being of the people living here. The Bundesnetzagentur is responsible like no other institution in Germany for the expansion of infrastructure. It promotes competition and ensures through its decisions that companies are able to make the investments needed to sustain the grid long-term. To make the *Energiewende* a success it also speeds up the planning of new power lines. The Bundesnetzagentur produced successful results in the electricity, gas, telecommunications, postal and rail sectors in 2014, working to advance modern and efficient core infrastructures in Germany. We will continue our work, keeping our focus on expanding the networks and securing the future of our country.

Federal Ministry
for Economic Affairs
and Energy

A message from Sigmar Gabriel, Federal Minister for Economic Affairs and Energy

"Securing the future" means that Germany has to be at the forefront of creating and using modern infrastructure – and must remain at the forefront, too! Economic growth, prosperity and a high standard of living need the foundation of an advanced, highly-efficient infrastructure to be secure long-term. The federal government is working hard at improving framework conditions for the investment necessary to speed up infrastructure expansion.

We have set out a 10-item energy agenda work programme on the *Energiewende* for this legislative period. Our network infrastructure aim is to speed up expansion and improvements to the electricity networks and to align the network infrastructure better with the spread of renewable energies. For this purpose, we have set up a coordinated system throughout the country for development in the transmission network. At the same time we have introduced wide-ranging opportunities for participation and consultation as without the acceptance of the citizens and enterprises in Germany, the *Energiewende* cannot succeed.

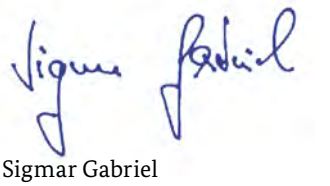
While initial progress has been made in the federal sectoral planning and approval of network expansion projects that cross national or federal borders, for which the Bundesnetzagentur is responsible, the pace has to quicken if we want to achieve fast network expansion. The Bundesnetzagentur cannot do this alone – all those involved must play their part. In the distribution networks we intend to update the framework conditions for intelligent networks and meters in line with the *Energiewende* requirements. We published the key elements for an "Intelligent networks ordinance package" to this effect on 9 February 2015. In addition, we will make the regulatory framework for distribution networks more investment-friendly. Both of these projects will directly inform the work of the Bundesnetzagentur in the next few years.

Highly efficient telecommunications markets are a fundamental requirement of a successful national and European digitalisation policy; not only that, they are also a determining factor in the competitive strength of Germany and of the European Union as a whole. The federal government will align the framework even more strongly with growth and investment in future.

The expansion of high-speed broadband networks is being driven forward quickly. The Bundesnetzagentur is playing a crucial role in the development of both fixed line and mobile communications networks, for example through spectrum auctions and LTE expansion.

The German postal market essentially underpins the dynamic development of e-commerce and plays a leading role in Europe. We intend to strengthen this excellent standing with the support of the Bundesnetzagentur.

The *Energiewende* and broadband expansion are societal responsibilities that all political levels have to address. The Bundesnetzagentur plays a key role in this infrastructure expansion. Having enterprises make the investments necessary for the future sustainability of the networks must continue to be our goal as this will enable us to push ahead with expanding the infrastructure. To achieve this aim, it is vital that all those involved work closely together and remain in constant dialogue. I am convinced that we will see these infrastructure projects through to a successful conclusion and would like to wish you all an interesting read.



Sigmar Gabriel
Federal Minister for Economic Affairs and Energy

Federal Ministry
of Transport and
Digital Infrastructure

A message from Alexander Dobrindt, member of the Bundestag (MdB) Federal Minister of Transport and Digital Infrastructure

Our infrastructure is the foundation of our future prosperity. This is clearly demonstrated in the prosperity pyramid of developed economies: without an infrastructure there is no mobility, no education, no work, no innovations, no added value and therefore no prosperity. The Bundesnetzagentur is responsible for regulating electricity, gas, telecommunications, postal services and the railways – thus a significant part of our infrastructure. As such it is indispensable for properly functioning networks and lays the foundations for the prosperity of our country.

This will be especially true for digitalisation. Germany has to decide whether to remain a country of innovation or become a country of stagnation. The requirement for remaining at the forefront of innovations and for digital value added is having high-speed internet access throughout the whole country. This is not only so that each and every citizen can participate but also forms the bedrock for Germany being a digital centre of excellence.

The Bundesnetzagentur and my ministry have together set a clear goal: by 2018 we want to have achieved a minimum broadband connection nationwide of at least 50 Mbit per second. Last year we were able to meet important milestones on our way to achieving this goal. Of particular note was the decision by the President's Chamber of the Bundesnetzagentur to auction spectrum usage rights for the 700 MHz, 900 MHz, 1,800 MHz and 1.5 GHz bands, and consequently enabling mobile broadband through national consensus between the federal government and the states. I expect the spectrum auction to generate a billion euros, which we will invest directly in digital infrastructure. The federal government will put this funding programme to work by helping to close any economic gaps in broadband expansion.

The latest figures for broadband expansion show that we are making excellent progress towards achieving our broadband goals. In fact, the LTE mobile communication standard now has 92% household penetration in Germany, which reflects growth of 13% in one year. Two-thirds of all households now have a high-speed internet connection with bandwidth of more than 50 MBit/s, which is 11% more than in the previous year.

The Bundesnetzagentur plays an essential role in driving digitalisation in Germany and thus employment, growth and prosperity. I would like to thank the Bundesnetzagentur for the very fruitful cooperation.

Alexander Dobrindt MdB
Federal Minister of Transport and
Digital Infrastructure

The President and Vice Presidents of the Bundesnetzagentur (from left to right): Dr Wilhelm Eschweiler, Jochen Homann and Peter Franke.

»The goal of blanket broadband coverage is best achieved by the pressure of innovation that arises out of competition between suppliers.«

Modern infrastructures are the lifeblood of our industrial society. They are a fundamental requirement for our country's economic development and for the well-being of the people living here. Given the fast pace of technological development, the one-time installation of telecommunications networks is no longer sufficient for information and communication technology, these networks need to be constantly updated and enhanced so that they can continue to grow alongside the growth in data volume. The changes in electricity generation under the *Energiewende* have created an enormous need in the energy sector to reorganise the grid infrastructure, which has grown over the past decades.

The Bundesnetzagentur is responsible like no other institution in Germany for the expansion of infrastructure. Through its decisions it ensures that companies are able to make the investments needed to sustain the grid long-term and speeds up the planning of new power lines. These issues informed the work of the Bundesnetzagentur throughout 2014 and will continue to do so in the current year. In the telecommunications sector a high-speed broadband infrastructure has become a significant factor for location. Not only does this affect property values, it also determines whether businesses set up in the area and thus affects the distribution of value added and employment. In view of this, there is consensus that we need to achieve blanket coverage of the population with high-speed internet connections. At the same time it is clear that it is extremely ambitious to try and achieve this target by 2018 and this will demand every effort from all those involved.

The Bundesnetzagentur is of the opinion that the goal of blanket broadband coverage is best achieved by the pressure of innovation, which arises out of competition between suppliers. In general, we should continue along the path of broadly diverse competitive development with a large variety of business models and a clever mix of different technologies. To this end we should exhaust the potential of the various technologies, ideas and business models. Starting with easy access to information. This is where the Bundesnetzagentur's infrastructure atlas plays an essential role in exploiting any possible synergies. This comprehensive information system is intended to help use every possible means of reducing costs during grid expansion through the joint use of infrastructure.

Through our decisions on access and price regulation we aim to create the right incentives for investment. We are therefore pleased that our vectoring decision was received positively overall by the industry. Our work in this area is far from over. In 2015 a decision is pending on Telekom's application for changes to the regulatory framework conditions to allow the company to introduce vectoring near, that is to say within 550 metres of, a main distribution frame at a local exchange. The Ruling Chamber will make a decision on Telekom's proposals in proceedings that will be both transparent and open as to the outcome.

»The power grid expansion will only be achieved if it continues to have the support of the broadest possible social consensus.«

Ultimately, the forward-thinking allocation of spectrum plays an important role for the whole of mobile internet. In 2010 the 800 MHz spectrum crucial to LTE was awarded in Germany and subsequently network operators invested heavily in those networks. By this means it becomes possible to provide fast internet connections to those regions where it is not economically viable to roll out fibre optics. To further support mobile broadband expansion, we intend to hold another spectrum auction in early summer 2015. All the spectrum available for mobile broadband is to be allocated and we even plan to be the first country in Europe to auction spectrum in the 700 MHz band. This spectrum will enable operators to roll out networks using relatively few base stations, especially in rural areas. Our aim is to markedly improve mobile broadband services through supplier competition. The 700 MHz spectrum will be auctioned together with the spectrum in the 900 MHz and 1800 MHz bands whose usage rights expire at the end of 2016. To achieve the federal government's broadband targets, the decision on the spectrum auction imposes strict coverage obligations on existing network operators.

Following the auction these operators must ensure blanket broadband coverage of at least 97% of households in each federal state and 98% of households nationwide, while achieving transmission rates of at least 50 Mbit/s per sector. Households must be offered competitive services with an average transmission rate of 10 Mbit/s.

In the area of energy, the *Energiewende* has defined the work of the Bundesnetzagentur. The development of energy from renewable sources has led to a shift away from a focus on power generation at the regional level and, at the same time, nuclear energy will have been completely phased out by 2022. This change in power generation makes it necessary to reorganise the network so that electricity can continue to be transported to the consumer because the current grid system has already reached the limits of its capacity.

The expansion required in the transmission system will be based on long-term forecasts for power generation and consumption in Germany. The backbone of the grid expansion will be provided by the major "electricity highways" for the long-distance transport of wind power produced in northern Germany to the main consumption areas in southern and south-western Germany. Power line planning depends primarily on whether the Bundesnetzagentur concurs with the power line requirement determined by the transmission system operators. In this respect we tend to be very restrictive. In the draft network development plan for 2024 we currently find only 63 of the 92 initiatives proposed to be essential. Of these, however, the major north-south direct current transmission lines from Emden to Philippsburg, from Wilster to Grafenrheinfeld and from Wolmirstedt to Gundremmingen have once again proven to be necessary. We have pointed to this many times in our assessment findings.

The *Energiewende* and grid expansion will only be achieved if they have the support of the broadest possible social consensus. For this reason the Bundesnetzagentur regularly seeks a public dialogue about the need to expand the grid and gives clear information on the progress of individual expansion projects. In addition, the Bundesnetzagentur is in regular contact with numerous public initiatives that are following the grid expansion locally with a very critical eye. This applies, in particular, to the planned "SuedLink" line from Wilster to Grafenrheinfeld. A federal sectoral planning application for this power line was received by the Bundesnetzagentur in December 2014. The Bundesnetzagentur has set corridors 500m to 1,000m wide in the federal sectoral planning to allow future electricity power lines to run through. We examined the SuedLink application very carefully with respect to the origin of the proposed route corridor and the designated alternatives that could be seriously considered, and came to the conclusion that there was a need for revision before any further procedural steps could be taken.

The Bundesnetzagentur's work in the energy sector in 2014 was ultimately determined by an evaluation of the incentive regulation. The incentive regulation ensures that network operators have a fixed annual budget that allows them to meet the maintenance, expansion and operation demands of the network infrastructure and to make a reasonable profit. The more efficient the undertaking, the greater the profit. Our surveys on the effect of the incentive regulation have shown that the scheme has so far facilitated the necessary investment in the grid system to ensure security of supply. Nevertheless, due to the changes and expansion measures required, the Bundesnetzagentur is recommending that the incentive regulation be taken a step further to include the adaptations needed for the system to remain compatible with the *Energiewende*. Extending the incentive regulation in this way is crucial to the success of the *Energiewende*.

»Extending the incentive regulation is crucial to the success of the Energiewende.«

The postal market is going through considerable changes and here, too, the Bundesnetzagentur is involved in ensuring an efficient infrastructure. Although growing digitalisation primarily offers space for innovation and new concepts, it also puts traditional business models under pressure. This poses the question anew as to the scope of an adequate, basic postal service in the current times. In preparation for the statutory required recommendation in this respect, the Bundesnetzagentur engaged in a constructive dialogue with the market and in 2014 put forward a paper for discussion on the challenges facing the postal universal service.

The Bundesnetzagentur's activities in rail regulation in 2014 involved numerous measures to improve non-discriminatory access to the rail infrastructure and to promote competition on the tracks. Of particular importance were the introduction of improved capacity planning and management, procedures for staff allocation to signal boxes, general agreements or rules on late or lapsed times of use at freight terminals, an examination of DB Netz AG's level of charges and extending the temporary solution for the transport service factor. We will continue along the same lines throughout 2015, too.

Supporting the expansion of broadband infrastructure, speeding up the grid expansion, promoting competition in electricity, gas, telecommunications, postal services and the railways – in 2014 the Bundesnetzagentur produced successful results in all the sectors it regulates and has worked to advance modern, efficient core infrastructures in Germany. We will continue our work in 2015 and will keep our focus on expanding the networks and securing the future of our country.

Jochen Homann
President, Bundesnetzagentur

MAGAZINE

Germany's changing networks.

Future-proof, fast and secure.

CONTENTS

Building a 500-km power line to transport wind electricity to the consumers. Converting gas equipment. Talking to the people. Improving broadband internet. No matter how or where, the Bundesnetzagentur's staff of more than 2,700 are constantly working to push ahead infrastructure expansion in Germany and Europe. And the progress is clear: consumers across the country can benefit from faster parcel deliveries, fewer delays on the tracks, better broadband access and improved energy networks.

Jochen Homann, born in Rotenburg an der Wümme in 1953, has been President of the Bundesnetzagentur since 2012. Prior to this Mr Homann, an economics expert, held the post of State Secretary at what is now the Federal Ministry for Economic Affairs and Energy, following positions as head of division and director general.

Promoting *infra-structure expansion*

Broadband, electricity and rail networks are constantly faced with new challenges. Jochen Homann, Bundesnetzagentur President, explains how infrastructural development in these sectors can be encouraged and driven forward.

Mr Homann, one of the Bundesnetzagentur's tasks – in addition to promoting competition – is to support infrastructure expansion. What does this mean for consumers?

Infrastructure expansion has enormous significance for consumers: the drive for broadband internet across the country ultimately has as direct an impact on consumers as the action to upgrade and expand our electricity and gas networks that is key to the *Energiewende*.

That all sounds pretty ambitious. What exactly does it entail as far as the Bundesnetzagentur is concerned? And what is being done to push forward high-speed internet for everyone?

The federal government's target is for everyone in Germany to have access to broadband services with speeds of 50 Mbit/s by 2018. To meet this target we need to use every available technology – new mobile connections as well as traditional fixed lines. The Bundesnetzagentur has been working hard over the past few months in preparing a spectrum auction designed to boost mobile broadband. The auction will be held this year and will make a major contribution towards achieving the broadband targets.

Some of the spectrum earmarked for high-speed internet is currently being used by television broadcasters. And theatres are worried that soon they will not have enough frequencies to operate their wireless microphones. Is there enough alternative spectrum?

These concerns are unfounded. The Bundesnetzagentur has developed a concept which takes account of the interests of all user groups – in particular wireless microphone and broadcasting users.

»The target is for everyone in Germany to have access to high-speed broadband services by 2018. We need to use every available technology – including new mobile connections.«

What changes will there be for consumers when television broadcasting switches to a new standard?

Consumers will need new receivers. If broadcasters can begin the switchover in 2016 as planned, the UEFA European Championship could be broadcast using the new standard. The switch will be a gradual process, though, with broadcasters transmitting both DVB-T and DVB-T2 in parallel. The timetable will vary from region to region, with the completion date some time between 2017 and 2019. This will give everyone enough time to buy new equipment.

So the forthcoming spectrum auction is designed to boost network expansion. But this is a term used much more often when talking about our electricity grid. Why is network expansion so crucial for the success of the* Energiewende*?

In brief, the *Energiewende* will bring about a long-term change in that the electricity we use to power our appliances will not come from nuclear or coal power plants but mainly from the wind and the sun. Its success depends on today's electricity grid changing too. You might well be able to argue about where power lines should run but you can't argue about the basic principle. We need to find a way to transport the renewable electricity from the north – where far much more is being generated than is needed – to the south, where more is needed. At the moment, bottlenecks mean that electricity has to be transported to Bavaria via Poland or the Czech Republic, and the only way to avoid critical situations – at considerable cost – is to stall production in the north and pay high prices for electricity from expensive power plants in the south, or even Austria and Italy. What we need are new power lines.

»The success of the Energiewende *depends on us all facing up to our responsibility for this unique project as a whole.«*

But still, nobody wants to have a power line right over their house …

People naturally become less enthusiastic about the *Energiewende* as soon as there is mention of new lines being built near their homes. That is why we talk to these people and ask them to get together with neighbouring towns or villages if possible to say where they think the lines should run. The success of the *Energiewende* depends on us all facing up to our responsibility for this unique project as a whole.

Many consumers believe a successful* Energiewende *also involves doing without fossil fuels such as coal and gas. How do you see it?

If you want to phase out coal power you need to think about where your electricity is going to come from. Gas power plants offer a cleaner but much more expensive alternative which would push up electricity prices even further. And there's an open market in Europe too, which means it would be highly likely that our coal electricity would be replaced by coal-generated electricity from Poland or nuclear-generated electricity from the Czech Republic. This shows we always need to look ahead and consider the consequences each individual measure would have on the entire system and so, for instance, whether a hasty exit from coal can really have the desired effect.

All this shows that infrastructure expansion is a complex issue. So how can a modern authority equip itself for the challenges?

The Bundesnetzagentur has experts from a wide range of fields – from economics and law to engineering and landscape management – who together take due account of the economic, technical, legal and political aspects in developing and promoting a modern and sustainable infrastructure. ■

Numbers from the networks

600

... postal operators ran their own service for letters up to 1,000g in 2014.

288 MB

... of data were used on average each month in 2014 per mobile SIM card, four times more than in 2011.

20

... electricity projects of common interest (PCIs) directly related to Germany have been included in the EU's first list of PCIs.

over 2.6 bn

... passengers travelled by train in 2014.

81

... outgoing call minutes were used on average each month in 2014 per mobile SIM card.

over 36,000

... parcel shops are run in Germany by the major parcel carriers.

Lightning fast internet

Fast internet for rural areas too is a priority goal. To help achieve it as quickly as possible the federal government is encouraging investment in broadband rollout with its Digital Agenda. And the Bundesnetzagentur is doing a lot to help reach the goal too.

The telecoms companies are raring to go to bring fast broadband internet to smaller towns and the country. Because demand here is still especially high. But – as with any expansion project – the operators need to know what infrastructure already exists: Where do fibre optic cables run? Which ducts can be used? Where are the street cabinets connecting the homes and businesses? And are there any masts nearby that can be used for fast mobile internet?

The Bundesnetzagentur started work on its infrastructure atlas in 2009 to provide the answers to all these – and other – questions. The online atlas contains digital maps presenting the information on a scale of up to 1:30,000 and can be accessed on request by anyone involved in the broadband rollout process. "The lawmakers tasked us with setting up a comprehensive database using the infrastructure atlas. So, starting in 2012, we have been feeding hundreds of datasets into the database. This data is readily available to all interested project developers. We link up all those involved, enabling them to coordinate with each other for instance to arrange sharing cables and ducts", says Steffen Schmitt, head of the Bundesnetzagentur's section responsible for the infrastructure atlas. This helps speed up the planning process and save costs by avoiding duplicate infrastructure.

Keen interest in data

Up until the end of 2014 the Bundesnetzagentur had received requests to access data for planning purposes for 2,215 broadband projects. The Bundesnetzagentur expects to see the majority of expansion projects in those regions for which interest in data was particularly keen. A survey of atlas users in 2013 and 2014 pointed to possible improvements which the Bundesnetzagentur will consider together with the market players. Among the proposals are the use of larger scale maps and an export function allowing project developers to import data directly into their planning software. The infrastructure atlas is set to play a key role in implementing the European Union's Directive designed to reduce costs in rolling out high-speed networks.

Turbocharged telephone lines

As well as linking up those involved in expansion projects, the Bundesnetzagentur promotes the broadband rollout process with its growth- and innovations-focused regulatory policy which sets incentives for investment in modern network technology and gives all market players reliable conditions

for their investment. One particularly good example of this are the rules for rolling out the new vectoring technology. Vectoring can be used to "turbocharge" standard telephone lines and offer customers higher bandwidths. However, vectoring can only be implemented properly if all the lines from a cabinet are managed by one provider. "Following our policy decision in August 2013, giving the green light for Telekom and its competitors to introduce vectoring, and extensive discussions with the companies, we set out the conditions for implementing vectoring in the networks. It was our job to create a fair balance between the interests of the various market players and the goal of accelerating broadband rollout", says Ernst Ferdinand Wilmsmann, Chair of the Bundesnetzagentur's Ruling Chamber 3.

A special register was established in July 2014 enabling Telekom and it competitors to list their broadband projects involving vectoring. Mr Wilmsmann goes on to explain: "The list shows which operator first implemented vectoring at a cabinet or plans to introduce vectoring within the next twelve months. By registering their plans in the list, operators can be sure they can roll out vectoring and make the necessary investments without any problems.

This gives all market players – both Telekom and its competitors – legal certainty and fair conditions in deploying vectoring." This has proved effective: since the list was set up on 30 July 2014 numerous operators have registered their plans to implement vectoring at tens of thousands of cabinets.

The Bundesnetzagentur is therefore doing a lot to promote broadband rollout: it guarantees the easy availability of information on existing infrastructure and the use of new technologies.

And it takes account of the federal government's broadband targets in all its relevant measures and decisions. "The key question is always: does it secure competition and support broadband rollout?", says Dr Wilhelm Eschweiler, the Bundesnetzagentur's Vice President responsible for telecommunications. ■

Germany setting an example

The Directive on measures to reduce the cost of deploying high-speed electronic communications networks was adopted at European Union level in May 2014 and is to be transposed into German law by 2016. It is designed to enable existing infrastructures in Europe to be used more efficiently on the basis of simplified and transparent procedures and to help speed up broadband rollout by encouraging synergies. Germany has already implemented many of the provisions and is seen to have set an example in particular with its model infrastructure atlas.

More spectrum, more broadband

Every possible opportunity has to be taken to boost the development of digital infrastructure. One way is to make more mobile spectrum available. Dr Wilhelm Eschweiler, Vice President at the Bundesnetzagentur, explains why.

Dr Eschweiler, what part can mobile technologies play in rolling out broadband?

Mobile technologies are a fast and inexpensive way of bringing broadband to areas with no or little coverage. This is why mobile connections, too, should be used to meet the broadband targets. Our objective is to make sure that the spectrum assigned up until the end of 2016 together with all the other spectrum suitable for rolling out broadband is made available for mobile connectivity. The 700 MHz band is especially important, as it can be used to improve performance indoors and in rural areas, in particular, at a much lower cost.

»Broadband rollout is the focus of all our regulatory decisions.«

Because the band is currently used for broadcasting, the federal states first needed to agree to a change of use.

Will it be possible to meet the federal government's target of rolling out high-speed networks with 50 Mbit/s and more across the whole country by 2018?

It's an ambitious goal, there's no doubt about it. But by making broadband rollout the focus of all our regulatory decisions, we are helping to achieve the goal. Releasing the 700 MHz band is, too, one step towards realising the government's broadband strategy. The spectrum auction is set for the second quarter of 2015. And I am convinced that by awarding more spectrum for mobile broadband we will provide a strong impetus for the rollout of broadband networks.

What shape will the auction take?

A total of 270 MHz from the bands at 700 MHz, 900 MHz, 1,800 MHz and 1.5 GHz will be up for auction. Companies interested in bidding for the spectrum – both current mobile operators and new entrants – can take part in the auction at our office in Mainz provided they meet certain criteria. We published the exact rules back in January. ■

Read more about the Bundesnetzagentur's ruling on awarding spectrum for mobile broadband at www.bundesnetzagentur.de/projekt2016.

Dr Wilhelm Eschweiler holds a doctorate in law and has been with the Bundesnetzagentur for one year as the Vice President responsible for telecoms, rail, IT and security; before joining the Bundesnetzagentur he held various senior posts at the Federal Ministry for Economic Affairs and Energy.

No chance for forgeries

Electronic seals are to be introduced in 2016 and will follow electronic signatures to form the second cornerstone of a pan-European strategy designed to standardise cross-border digital interactions and transactions with a high level of security.

Many a conflict over forged certificates and donations could have been avoided had Europe's medieval rulers had electronic seals. Nowadays electronic seals make checking a document's authenticity considerably easier. Providers of digital trust services are set to offer technical solutions in 2016 to enable businesses and public authorities to securely transmit information from commercial or land registers electronically.

The new electronic seals will, however, also be used for instance to authenticate software codes. A seal guarantees the integrity of the data transmitted and that the data has not been manipulated as well as the correctness of the data's origin.

"To ensure that the extremely high standard of security expected of the seals is actually guaranteed in the interests of the consumers the Bundesnetzagentur is tasked with monitoring the providers and maintaining a publicly available list of trusted providers. This means anyone can check the trustworthiness of a provider", explains Jürgen Schwemmer, head of the Bundesnetzagentur's section responsible for qualified electronic signatures. And the Bundesnetzagentur's task also involves striking off any providers found to be breaching the legislation from the list. ■

More security, more trust

Borderless single markets form one of the pillars of the European Union – and one naturally to stand in the virtual world too. The intention behind the trust services promoted by the European Union and the German federal government with the Digital Agenda is to create more security in electronic interactions and transactions. The two primary components are electronic seals and electronic signatures. Electronic signatures have been used since 2010 most notably for the new type of identity cards. An electronic signature equates to a hand-written signature in that it satisfies the legal requirements of a signature and can be used in contracts and other declarations of intent. Electronic seals, by contrast, are used by legal persons only – businesses and public authorities, for instance. The new eIDAS Regulation adopted by the European Parliament on 3 April 2014 provides the regulatory environment for both of these trust services. It establishes a legal framework across the European Union to be elaborated by mid-2016. The Trusted List available online on the Bundesnetzagentur's website constitutes one of the core elements in Germany's digital infrastructure.

Grid expansion
Europe-wide

Calmer waves on the Baltic Sea make for optimal conditions to continue work on laying the undersea cable.An AC undersea cable weighing 100 kg will be unloaded onto the seabed to con nect to the Baltic 2 wind farm after the sleeve has been fixed.

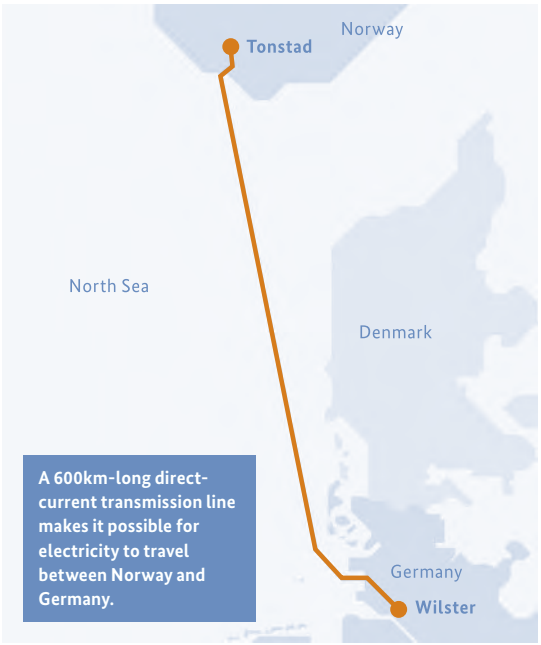
Grid expansion is crucial for the *Energiewende*'s success. New lines are a central element of Europe's energy policy and energy market. The extent to which German projects contribute to the security of supply Europe-wide becomes very clear when taking Projects of Common Interest into account.

Metre by metre the plow drives through the muddy foreshore, bringing up mud, rocks and plants, creating room in which a sea cable can be laid directly in the seabed. Nested securely in the wet sands of the North Sea, from the end of 2018, this cable is to transport very valuable cargo: clean energy. On days with strong winds surplus wind energy will be sent to Norway. Conversely, energy from Norwegian hydro power plants will supply Germany with electricity on days with weaker winds. NordLink, this undersea cable link, ensures that the German energy system, marked by fluctuating renewable energy generation, functions with the secured on-call power that can be called upon from Norwegian hydro power plants.

NordLink is a project that is part of the much-discussed *Energiewende* in Germany. Exiting nuclear power and expanding renewable energy sources caused a shift in the centres of power generation. Network expansion is more important than ever since electricity from the wind farms in Northern Germany has to come to the industrial production centres in Southern and Western Germany. New lines are needed for this to happen.

Electricity knows no borders

Electricity grid expansion is not just a national project; it's relevance expands to other European countries. After all, electricity knows no borders. "In the past, there were several tense sitations in Poland and the Czech Republic. As per the laws of physics German electricity would flow across borders and lead to undesired loads on neighbouring electricity grids," Marta Mituta, section responsible for participation in the Network Expansion department of the Bundesnetzagentur. Such undesired flows of electricity could lead to overloading and threaten system



stability. This is why National Network Development plans need to also take cross border flows into account. "Germany is not an island. Naturally, we are closely integrated in a pan-European network," adds Mituta. The goal of European grid expansion: to increase trading capacities and better balance inconsistent flows of electricity especially in renewables.

Due to Germany's geographic position in central Europe, it plays an especially relevant role in the European electricity market. It is therefore not surprising that a series of expansion projects have been designated the status of "Projects of Common Interest" (PCI) by the European Union. PCIs have especially high implications for national economies and the energy sector, since they have condsiderable influence on system stability in Europe.

150kV sea cables transport energy generated on high seas to land. This picture of a sample undersea cable cross section illustrates how the cable core is encased by galvanized steel armour preventing mechanical deterioration.

»Moreover, many of our national projects are ensuring that European supply security is maintained and climate targets are met.«

Dr. Deniz Erdem, section responsible for participation in the Network Expansion department of the Bundesnetzagentur.

500 kilometres across the North Sea

Moreover, the NordLink project, being carried out in cooperation between Germany and Norway, has also been identified as a PCI. For the first direct connection of these two electricity markets, the planning and approval procedures are already in full swing. Planning approval of the German 12 nautical mile zone and of the section on land in Schleswig-Holstein has already been issued. Corresponding approval for the section covering the sea was also issued in 2014. On top of this, the Bundesnetzagentur approved the investment measure for the project last May. The first obstacles for construction of the high voltage direct current transmission (HVDC) line, from the Wilster substation on the North Sea's coast to the converter station in Vollesfjord-Tonstad more than 600km away, are now being tackled.

After taking a short look at the map things quickly become clear: this project also entails technical challenges, as the line will run under the seabed for over 500km. The cable can transport power totalling 1,400 MW with a very high level of efficiency and therefore move power between countries with less losses as opposed to using another type of technology. Cables are generally laid by special ships known as cable ships. Cable ships use a plow to create a furrow in the seabed in which the cable is laid. Undersea cables must be built to be robust enough to withstand waves, sea creatures and fishing nets.

For example, in this project on the beaches of Norderney the cable ships also have to carry our preparatory work for the NordLink connection. The cables pulled in the empty tubing are connected on land with the cables from the high seas.

The technical challenges are contrasted by the immense advantages of the successful construction of a power line linking Germany and Norway: improved supply security, increased market efficiency and positive effects on the price of electricity through the import of electricity generated by hydro power plants.

A look at the European goals

The projects in Germany that are defined as PCIs are not just limited to those that cross national borders such as NordLink. Those planned lines that also affect the interests of other European Member States are also identified as PCIs. Among them is the SuedLink project. Designating a project as a PCI does not only mean that a project's importance is recognized on a European level. Above all, it means that procedures can be accelerated. At the start of April in 2014, the first EU- wide list of PCIs included a total of 20 projects in the electricity sector, five in the gas sector and 2 in the crude oil sector as projects of common interest for Germany. "This is a very good signal", said Dr. Deniz Erdem, also in the section responsible for participation in the network expansion department. "Because this means that many of our national projects also work to reach climate targets and ensure supply security across Europe."

To make this happen for all network expansion projects, the Bundesnetzagentur functions like a "one-stop-shop governmental agency" that facilitates and coordinates the PCI approval procedure. The team, to which Mituta and Erdem also belong, therefore always keeps an eye on the European requirements for approval procedures and works very closely with the regulatory authorities of the neighbouring countries and negotiates with the European Commission.

Their section will have their hands full for a while. Work on the second round of evaluations of potential PCIs is in full swing. After all, the European Commission initiated another EU-wide consultation for proposals for projects of common interest in the electricity and gas infrastructure sectors last December. ■

More information on all projects that have been presently designated as PCIs can also be found at www.bundesnetzagentur.de/PCI or at www.netzausbau.de/europa.

Together for the *Energiewende*

The Bundesnetzagentur is reviewing and monitoring the plans that are designated as cross-border or border-crossing network expansion plans in the Federal Requirements Plan and works to involve the public early on. The first of a series of scoping conferences took place in 2014.

Things started to take shape in September 2014, after the Transmission System Operator (TSO) 50Hertz published their plans for the rough path of the extra-high voltage line from Bertikow to Pasewalk: the first public scoping conference took place in Torgelow in the Vorpommern region. Experts, representatives of local government and interested citizens were invited to the local town hall to assess the project proposal critically.

The participants made a large number of valuable comments. After the Bundesnetzagentur's review of them, these comments were transfered into the investigative framework – which is a kind of written up task assigned to the TSOs. This, for example, means that 50Hertz will have to review other alternative routes that may be up for serious consideration. Moreover, information on several protected species of bird has lead to expanded legal reviews of the protected species situation being taken into consideration.

Even further on in the procedures, citizens will have the opportunity to integrate their technical knowledge and knowledge of local circumstances at public consultations and hearings.

More information on federal sectoral planning can be found at www.netzausbau.de/bfp.

On the topic of ladle heaters and curling tong warmers

German natural gas reserves are running out. In the Netherlands, too, gas production is being cut back. Since gas produced locally has a lower calorific value compared to gas from say Norway or Russia, gas devices and distribution networks in northern and north-western Germany gradually have to be converted.

Summer 2015: The proper instruments are ready, the configuration data for the oven is on hand and the new burner nozzles are now on the ground next to the central gas heating unit waiting to be inserted. The service technician needs less than 15 minutes to wrap work up. Afterwards everything runs seamlessly. Starting 2015, 6,000 households in Schneverdingen will be visited by technicians to thoroughly prepare for the work that goes into the device conversions. Schneverdingen, a small town in the Lüneburg Heath region known for its heath blossom festival that crowns a heath queen, is a pioneering municipality for a mammoth project being implemented across Germany.

Over the next 15 years, an estimated five to six million gas devices in use by 4.3 million private and business customers located between Aachen and Lübeck will have to be converted. This is because customer supply must be converted to supply higher energy H-gas instead of L-gas, which has a low calorific value and is produced in the gas production regions of Germany and the Netherlands. Why is conversion necessary? First of all, natural gas reserves will slowly start running out in Germany over the coming years. Today, gas from domestic sources makes up eleven percent of Germany's gas consumption. Second of all, natural gas production

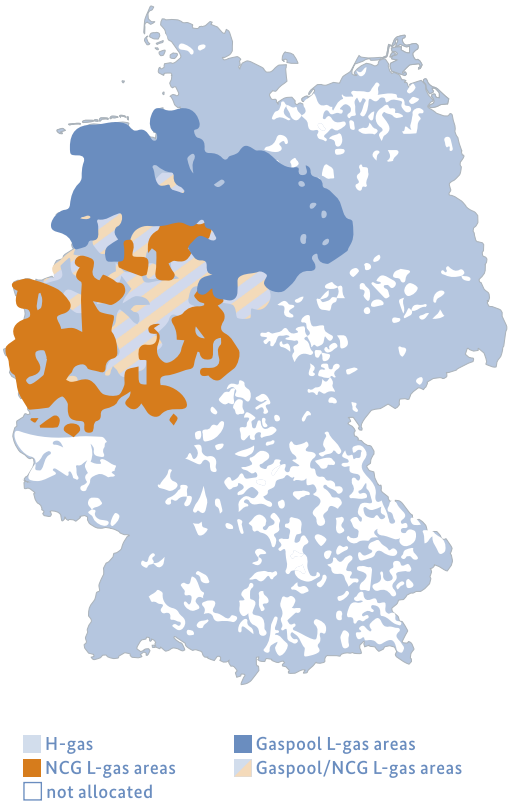
On average it takes 15 minutes: Having been properly prepared, trained service technicians can convert gas burners and other devices from L-gas to H-gas. Random checks determine whether the high safety requirements have been met.

in Germany's neighbour, the Netherlands, is gradually being cut back – the danger of earthquakes occurring through further extraction is too great. The German gas industry must therefore respond to this situation. This is why, after a planning phase that took several years, gas supply conversion was given the green light to start in October 2014 in the North German Plain region. As part of the "gas network development plan" update, certain regions in Germany are gradually converting their entire supply to H-gas.

Pioneering work for over four million households

To ensure that the conversion goes as smoothly as possible, a record has to be made of all the gas devices currently present in the relevant geographical area. This not only covers common gas central heating systems, but also appliances with peculiar names such as "gas/air ladle preheater", "curling tong warmer" or "gas ironing stove" that may not sound familiar to a layperson. For the technicians of the Schneverdingen-Neuenkirchen municipal utility company who are currently carrying out preparatory work for the Schneverdingen pilot project, this naturally does not pose a challenge.

Jörn Peter Maurer, managing director of the Schneverdingen-Neuenkirchen municipal utility company, represents, with his small company, the distribution system operator that has to work together with his end consumers to succeed in the challenging implementation of the pilot project. In the process, he coordinates work closely with the upstream gas transmission system operator. "We spent one year thoroughly planning the project out. The planning was very important, because there was hardly any prior experience that we could call upon here. After all, the last wave of conversions took place a long time ago." Maurer claims that, in addition to the knowledge of his technicians, the mutual trust of all involved helped considerably here. "This helped us to manage to clear up all of the legal, technical and financial issues relatively quickly." The pioneering work will clearly not only benefit the quiet city of Schneverdingen, but many others to follow. Given the typical nature of the project's progression, it can be said that it serves as an example for all further projects, which are generally much larger ones.



The schematic map illustrates the geographic position of the L-gas service areas in western and north-western Germany. Both market areas of Gaspool and NetConnect Germany are affected by the conversion.

Security of supply comes first

Peter Franke, Bundesnetzagentur Vice-President: "With the conversion from L-gas to H-gas, we are tackling possibly the largest infrastructure project in the gas supply sector." The Bundesnetzagentur, as the network development plan supervisory authority, takes care to ensure that the network operators can maintain supply security at all times, to prevent any supply disruptions from happening.

In early December 2014, a special "natural gas office" was set up at the headquarters of the local gas network operator, which in this case was the municipal utility company. This is where technicians specialised in quality adjustments evaluate the inventory data and later steer the work of the service technicians. Additionally, citizens can direct questions relating to all aspects of the conversion to the "natural gas office".

Hardly any additional costs for private households

Peter Franke underlines: "In addition to maintaining supply security we also work to ensure that the burden in terms of costs on individual households

»With the conversion from L-gas to H-gas, we are tackling possibly the largest infrastructure project in the gas supply sector.«

Peter Franke, Bundesnetzagentur Vice-President

remains within acceptable limits." The conversion is free of charge for the households concerned. Initially, the gas network operators bear the direct costs for the conversion. The total costs of the conversion of a service area will be distributed among all consumers, however, until the last devices have been converted in approx. 20 years' time. Moreover, the conversion costs of an individual network operator are verified by the regulatory authorities. All the costs put together are then financed in the two market areas by means of a consumer contribution in the form of a surcharge. "The first two surcharges approved for 2015 amount to a maximum of €1 per average household in a single family home or a single-floor apartment per year," said Franke. "The higher price for a cubic metre of H-gas does not result in additional costs because smaller volumes of the high-energy gas are burned." Municipal utility company chair Maurer adds: "It is critical that every device is found. Otherwise, there is a risk that gas burners that have not been adjusted may cause damage to installations if operated." This is the reason why the work of the mechanics is reviewed by random checks one more time after it is done. Ten percent of all of the gas consumers in the area where the conversion is taking place in the Lüneburg Heath region will be visited again by specialists. Furthermore, items in the list of issues will gradually be addressed. What will be done with all of the ancient devices that, for lack of replacement parts, can no longer be converted? The only option left here is to replace such devices with completely new ones. Also: "Any consumers who do not open their doors to technicians – despite attempts to notify them in advance by mail, phone and in person – can expect their gas to be disconnected by 1 October 2015 as a last resort," warns Maurer, director of the local municipal utility company. "After all, safety always takes precedence." ■

For more information on this topic go to: www.fnb-gas.de.

The basic ABCs of gas

Transmission system operators: Companies that transport natural gas under high pressure over far distances to cities and communities. They are planning and coordinating the conversion on the cross-regional level.

H-gas: High calorific natural gas = natural gas with a high calorific value and a methane content of 87% to 99%.

L-gas: Low calorific natural gas = natural gas with a low calorific value and a methane content of 80% to 87%.

Gas network development plan: Reliable planning basis for the expansion and restructuring of the gas transmission infrastructure in Germany. It has been updated annually since 2012 and has to be confirmed by the Bundesnetzagentur.

Distribution network operators: Companies that transport gas under low-pressure conditions all the way to the final consumers' homes, which are directly connected to their network. They establish the state of the gas devices on site and arrange for their conversion to happen.

POST

Tailor-made *parcels*

Making purchases from the comfort of your sofa is part of everyday life today. The number of orders carried out online is rising; parcel and courier service workloads are rising correspondingly. A series of technical and logistic innovations will ensure that future deliveries will be more comfortable for customers "on the last mile".

"For you." With these words, a thin metal arm comes out of the drone and hands over a parcel containing the winter boots you ordered. Is this science-fiction? Is this something crazy? Well, almost. Germany is not the only country where various parcel carriers and mail-order retailers are testing parcel delivery by drone. Though a country-wide implementation in Germany over the coming years is not to be expected yet because of the strict rules governing unmanned aircraft alone. Still, there is a whole series of other innovations in the parcel logistics sector. From cutting-edge live tracking with advance notice of the rough delivery time to the possibility of redirecting a package at short notice and also advance notification of delivery through text messaging and e-mail.

The Bundesnetzagentur is constantly paying close attention to new developments. "Competitive pressures in the logistics sector drive the creation of diverse innovations." Looking at the near future, I do not have a reason to be worried about the nation-wide provision of basic services", says Ute Dreger, ruling chamber chair and the department head responsible for postal matters at the Bundesnetzagentur. It is clear that without an effective delivery logistics system the potential that express and parcel services have, already offering more than 200,000 jobs today, cannot be exhausted. Ute Dreger adds: "The Bundesnetzagentur works to ensure that the rules of fair competition are adhered to."

Recent studies expect e-commerce's share of total retail trade, currently at just under 9%, to rise to around 20% by 2020. Should this be the case, more than 3bn parcels and 250m returns would have to be tackled logistically. This increase will also have an impact on other areas of life and expectations. For example, many cities and municipalities are interested in doing more to streamline traffic flows and shape these flows more sustainably. Mail carriers are responding to this by deploying hybrid and electric cars for deliveries. Electric carrier bicycles are already shaping everyday city life in a few cities around Germany.

Modern distribution concepts should also be consumer friendly, cost efficient and profitable for parcel service providers. This is why the Bundesnetzagentur seeks to establish dialogue with the delivery service providers and brings up its questions and suggestions at meetings of the industry, for instance.

Various solutions are conceivable

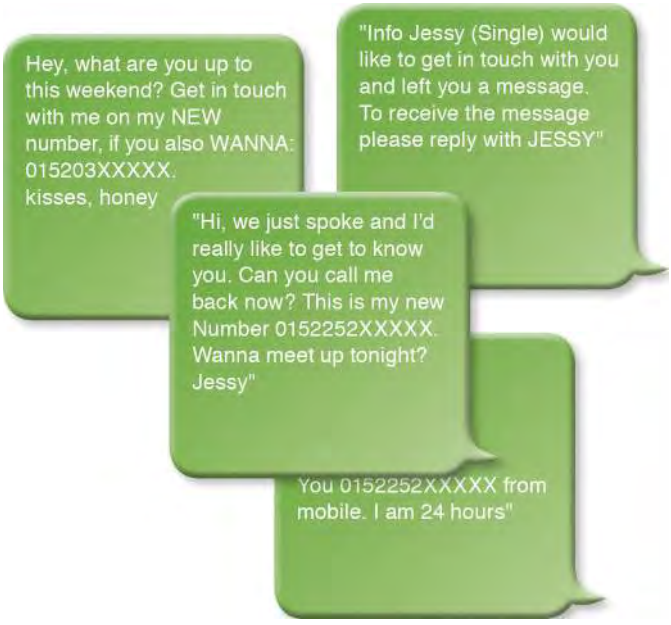
For instance, to separate delivery from the physical presence of the parcel recipient, Deutsche Post DHL started to install, for a charge, parcel boxes predominantly in front of detached or semi-detached family homes. Mail carriers can deposit parcels with an individual code in these parcel boxes or take out returns. This system, however, is not open to other parcel service providers. This is why competitors such as DPD, UPS, Hermes and GLS, in addition to numerous smaller delivery service providers, are planning to launch a parcel box that can be used for all companies later this year. In a next step forward, the boxes are planned to be coupled with a transmitter module, that, for example, sends a parcel recipient a text message the moment a new parcel is deposited.

Time will tell whether such parcel boxes can assert themselves and, if so, where. The demand for parcel boxes in city centres is likely to be limited – alone for lack of space. At the same time, however, parcel shops with customer-friendly opening hours are springing up everywhere and shorten distances for parcel dispatch and pick up. The strong technological momentum and diversity in the parcels market will continue to progress because there is strong potential here for more development and efficiency, both of which can act as a catalyst for creating completely new synergies, services and business models. ■

To learn more, go to "European and international standardisation" in the Post section on page 124.

Crafty Jessy

Playing cat and mouse: No sooner had 0900 numbers stopped being an easy target for criminals, did crooks find another crafty way to trick customers. In 2014, many dubious text messages allegedly made requests for contact by "Jessy" or "Kim". They asked for a reply via text message or call back on what at first glance appeared to be a harmless mobile or land line number. In fact, in these cases, a "Flirt and Party Flat rate" or a "Flirt & Erotic Chat" service was operated under those contact numbers. Whoever replied to the text message was involuntarily attributed membership to a fee-based subscription service. Soon afterwards, calls would follow from alleged employees of a "DHL distribution centre" or a "Deutsche Post forwarding service". Under the pretext of not being able to deliver a parcel, they would ask for a person's address. Anybody who disclosed this information would receive an invoice from a company in Bulgaria for over €90 for the chat or text messaging service allegedly booked. A collection service then put pressure on anyone who did not pay.



The Bundesnetzagentur investigates and punishes this sort of activity. In 2014 alone, the Bundesnetzagentur disconnected 588 numbers and prohibited collection agencies, including Telecom Billing Ltd. and International Billing Services Ltd, from collecting such debts. An overview of the measures taken in the area of number misuse is continuously updated on the Bundesnetzagentur website. Recommendations and information can be found there on how to submit complaints against unsolicited text messages. ■

More information can be found at www.bundesnetzagentur.de/Rufnummernmissbrauch.

RAIL

Better planning for fewer constraints

Every year, construction teams move out around 30,000 times for railway network expansion and maintenance work. To keep the resulting burden and operating constraints within limits, the Bundesnetzagentur works to ensure that all of the relevant planning information is exchanged.

Construction zones are unfortunately just as unavoidable on railways as they are on roads. Construction measures ensure that over 33,000km of railway infrastructure in Germany is kept in good shape. Direct implications of these measures are often met with disappointment however: Detours lead to delays, line suspensions cause train connections to be completely cancelled and travellers must board replacement buses for rail lines.

It is especially important for the numerous railway undertakings operating passenger and freight rail services to avoid such operating constraints or at least inform of them as early as possible to avoid unnecessary stress with passengers and problematic delays in freight traffic. Emergency schedules are complicated and entail long processes of planning and coordination. The issue of "taking customer protection into account in construction work planning" has direct consequences on millions of travellers and industrial production processes. This is why, using comprehensive guidelines on construction work planning, the Bundesnetzagentur has facilitated a reliable and phased exchange of information concerning the planned construction work between DB Netz AG as the infrastructure manager and the railway undertakings since 2009.

The constant exchange of information takes place using a special IT tool which has also given the railway companies the chance to make comments on plans. The companies involved regularly exchange information at regional and centralised rounds of talks where they strive to find customer-centred solutions that at the same time would minimise extra operating costs; these are the railway companies' costs that arise because of construction work. For instance, this includes revenue shortfalls and higher costs for staff and increased energy costs to manage detours.

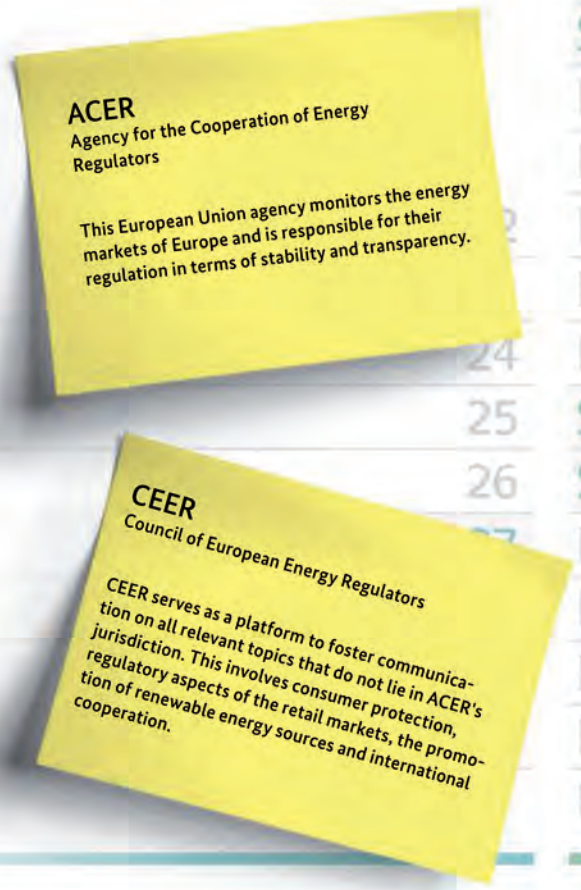
To ensure in the future that travellers will have to deal with as little inconvenience as possible – despite pending complex bridge renovations and new construction projects that will replace old infrastructure – the Bundesnetzagentur is already planning further improvements. "Round table talks will be held in early 2015 for this purpose. In addition to the Deutsche Bahn AG, some 12 railway companies will be participating to identify possible areas of improvement in terms of fostering communication and agree upon specific measures in a new common position paper", says Prof. Dr. Karsten Otte, department head at the Bundesnetzagentur responsible for rail regulation. ■

INTER-
NATIONAL NEWS

Active *internationally*

The Bundesnetzagentur has strong international links. Here a small excerpt from a diary, dense with entries.

Be it energy, telecommunications, post or rail: Staff from various departments and professional backgrounds represent the Bundesnetzagentur at numerous European bodies and take part in international events to contact and network with colleagues and counterparts and market participants. Optimal approaches are developed to promote competition, the single market and infrastructure expansion. Maintaining regular contact is important to have a say in shaping infrastructure expansion on a European level and press ahead with decision making. This is the only way in which the Bundesnetzagentur can ensure that the interests of citizens are heard and that important projects are executed uniformly throughout Europe. ■

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MEETING OF OECD NETWORK OF ECONOMIC REGULATORS, PARIS
ENRRB MEETING, BRUSSELS
BEREC CONTACT NETWORK MEETING, HELSINKI
ERGP PLENARY MEETING, BUCHAREST
IRG-RAIL PLENARY MEETING, LUXEMBOURG
GIVE SPEECH AT ECTA REGULATORY CONFERENCE, BRUSSELS
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ERGP
European Regulators Group for Postal Services
The group advises the European Commission in the postal services sector and supports it in the consolidation and development of the single market.
ENRRB
European Network of Rail Regulatory Bodies
The network serves the purpose of fostering an exchange of information and experience between the European Commission and the European Network Rail Regulatory Bodies of the European Union.
BEREC
Body of European Regulators for Electronic Communications
This body, which is independent of the European Commission, provides a forum for cooperation between national regulatory authorities and between them and the EU institutions.
OECD
Organisation for Economic Co-operation and Development
IRG-Rail
Independent Regulators' Group-Rail
The network serves the purpose of fostering an exchange between regulators meeting together and with other market participants and ensure that the goal of establishing consistent railway regulations is met in the interest of a competitive single market.
ECTA
European Competitive Telecommunications Association
This association works for more market liberalisation and competition in the European communications sector.

EVENTS

Active in a dialogue rich in diversity

The Bundesnetzagentur fosters communication with interest groups at its various events such as workshops, conventional information events and panel discussions.

The **postal market forum (1)** offered market participants and representative bodies a platform for communication. Innovations in the postal market and the future of the postal industry were discussed in moderated podium discussions and presentations. At the **scoping conference (2)**, part of the federal sectoral planning process for grid expansion, in Weinheim, representatives of authorities, municipalities and associations as well as interested citizens discussed the possible route of the lines and contributed their regional knowledge and suggestions for the further proceedings. Experts with experience in economics, judicial decisions and practical applications met at the **specialist conference on current problems concerning rail legislation (3)**. Topics revolving around rail regulation, passenger rights and planning approval were presented and discussed. In Bonn, under the slogan "Bundesnetzagentur meets science", around 80 scientists from diverse fields were invited to the **science dialogue (4)**. Driving the evaluation process forward while using technical expertise – that was the goal of the **workshop on the evaluation of the Incentive Regulation Ordinance (5)**. On the occasion of the German federal government's **open house day (6)** in Berlin, staff of the Bundesnetzagentur's radio monitoring and inspection service presented their wide range of tasks and activities. The grid expansion team was also on hand to answer any questions from visitors. This year's **Göttingen energy conference (7)** dealt with grid financing in times of the *Energiewende*.


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Bundesnetzagentur
ann, Präsident der Bundesnetzagentur
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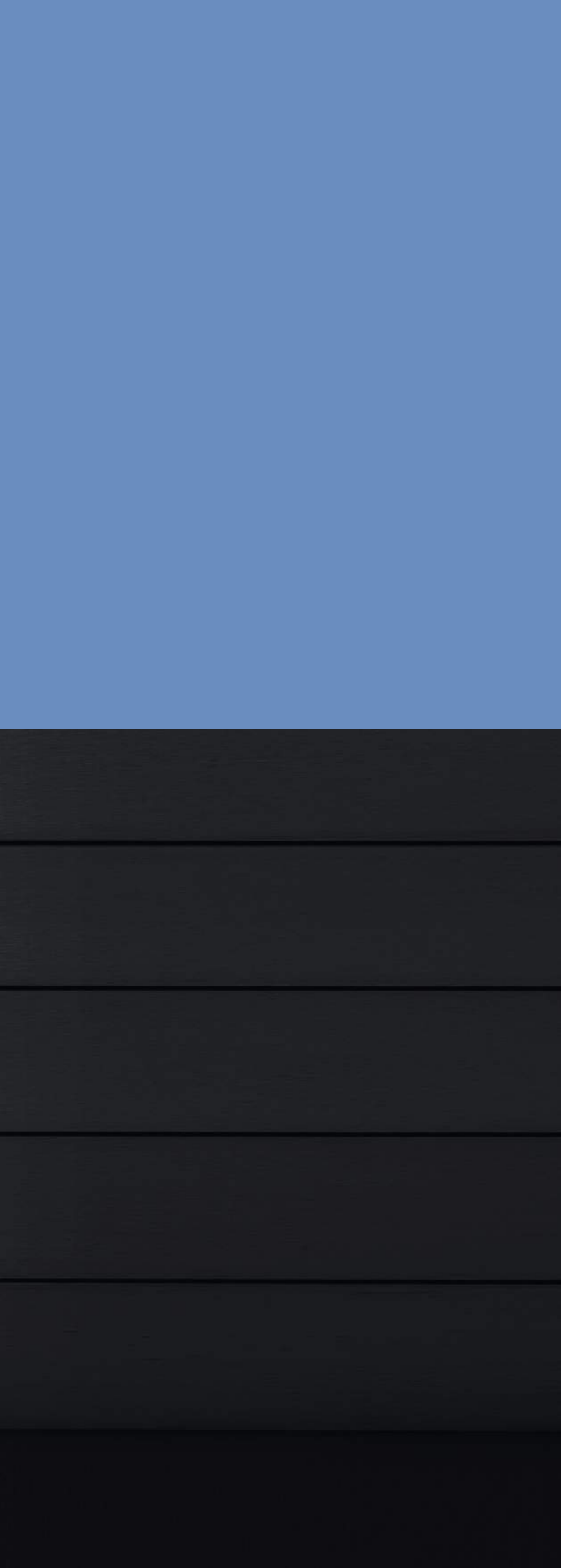
ENERGY

The *Energiewende* – a time of change

The *Energiewende* is placing new demands on the entire electricity and gas market. The work of the Bundesnetzagentur was defined by the expansion and upgrading of the necessary infrastructure as well as the accompanying alignment of the regulatory framework.

Contents



Electricity and gas markets in Germany are changing at a rapid pace. This transformation is being driven by the restructuring of electricity supply and by intense competition between suppliers. A rich diversity of suppliers are active on the most important retail electricity markets. Household customers are changing their electricity suppliers more and more frequently. The amendment to the Renewable Energy Sources Act (EEG) has now introduced elements of competition into the renewable energies sector as well. Integrating renewable energies into markets remains a key task in this context.

Necessary grid expansion work is still not keeping up with the transformation of the power generation landscape. By the third quarter of 2014, around 23% of the power line routes which must be planned by the federal states under the Power Grid Expansion Act (EnLAG) had been completed. Originally the aim was to have completed most of these projects by 2015. In the year under review 2014, network operators also had to dedicate increasing attention to grid and system stability. There was also a discernible shift in the breakdown of electricity generation by energy source: The share of coal used in conventional electricity generation rose while that of gas fell once again.

Market watch

As the power generation landscape changes, the costs of the surcharge system are making up an ever larger share of the price of electricity. In contrast to previous years, however, this has not led to further price increases for most electricity consumers.

Development and generation of conventional energy

In October 2014, total installed capacity for conventional energy sources was 107.1 GW. The increase since the end of the year 2013 is due to +1.9 GW in the capacity of hard coal-fired plants. In 2013 the volume of electricity generated from non-renewable energy sources was driven by a further increase in coal-fired power generation and a continued reduction in the amount of power produced from natural gas. The power produced from lignite increased by 7.2 TWh and from hard coal by 6.0 TWh. In contrast, the amount of electricity produced from natural gas fell by 8.3 TWh and from nuclear energy by 2.1 TWh. Overall, electricity generated from non-renewable sources in 2013 increased by 5.4 TWh to a total of 444.5 TWh.

Development and generation of renewable energy

The Renewable Energy Sources Act (EEG) 2014 established a target for 40-45% of all electricity consumed to be produced from renewable energy sources by the year 2025.

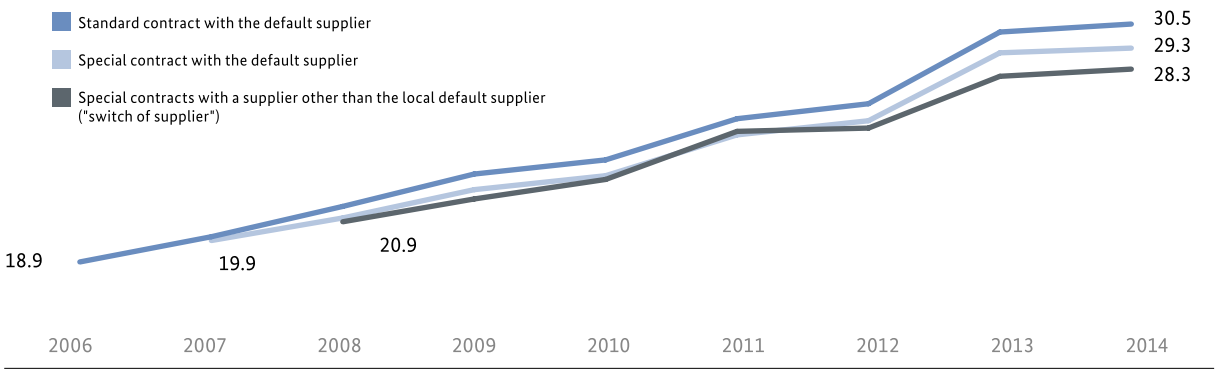
In the year 2013, total net electricity generation in Germany was 590.8 TWh, or an increase of 13.6 TWh compared with the 577.2 TWh produced in 2012. In 2013, 146.3 TWh was generated from renewable sources of energy, which is the equivalent of an increase of 8.2 TWh over the figures for 2012. This means that almost a quarter of Germany's electricity was generated from renewable energy sources in 2013. Official figures for 2014 were not available at the time of going to press.

Electricity for household customers

Household electricity prices

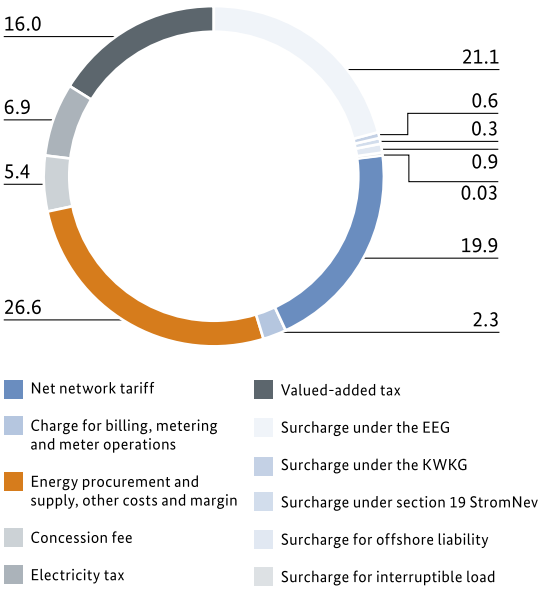
The consistent and substantial price rises of recent years were not repeated in 2014. Compared with the previous year, the rate of increase in electricity prices in the reference period from 1 April 2013 to 1 April 2014 slowed down for all consumer groups – default supply services, special contract with default supplier,

Development of prices for household customers with an annual consumption of 3,500 kWh, according to contract category (volume-weighted average)
ct/kWh



special contract with a third supplier. Despite an increase in the price components which are determined by the government, in particular the increase in the EEG surcharge to 6.24 ct/kWh in 2013 (which accounts for approximately 21% of the mean overall price), a reduction in the "energy procurement, supply, other costs and margin" price component had a downward impact on the overall price established on 1 April 2014. For the first time since 2010, this price component fell for household customers with all types of contract. The average electricity price (calculated as the volume-weighted mean price across all contract categories) paid by all household customers was 29.53 ct/kWh.

Composition of the retail price level for household customers with a consumption of 3,500 kWh/year on 1 April 2014 (volume-weighted average across all types of contract)
%

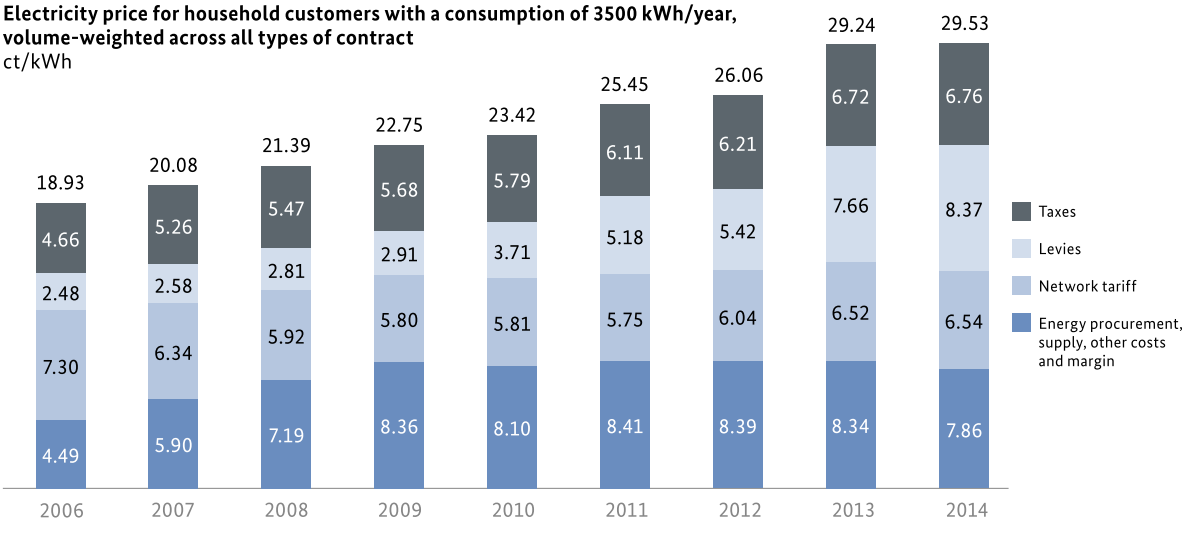


Contract structure and supplier switching

There was a further increase in the number of electricity suppliers in the retail market between which household customers were able to choose. In 2013, household customers were, on average, able to choose between 80 suppliers (excluding corporate links) per network area (plus 11%).

The contract structure for household customers shows that a relative majority of 45% have a special contract with their local default supplier (2012: 43%). 34% of household customers have a classic default supply contract (2012: 37%). 21% of all customers are supplied by a company other than the default supplier (2012: 20%). This means that default suppliers continue to be in a strong position in their own service areas with regard to household customers, although this position weakened again during the year under review.

Electricity price for household customers with a consumption of 3500 kWh/year, volume-weighted across all types of contract
ct/kWh

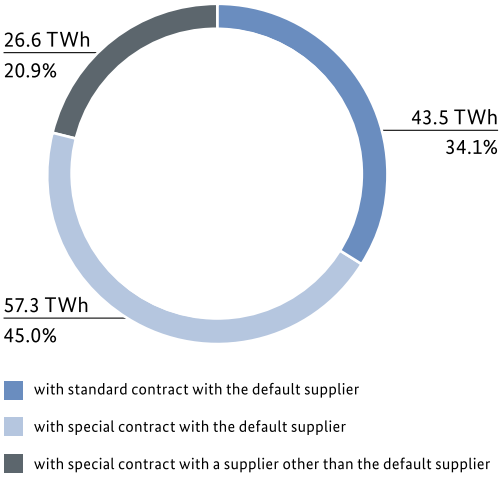


The number of household customers switching supplier rose in 2013 to around 3.6 million compared to 3.2 million in 2012. This increase is due to a higher number of customers switching to a supplier other than the local default supplier on moving to a new home. In contrast, the number of switches of supplier that were not caused by moving home remained at a constant 2.5 million.[1)]

Disconnection notices and disconnections

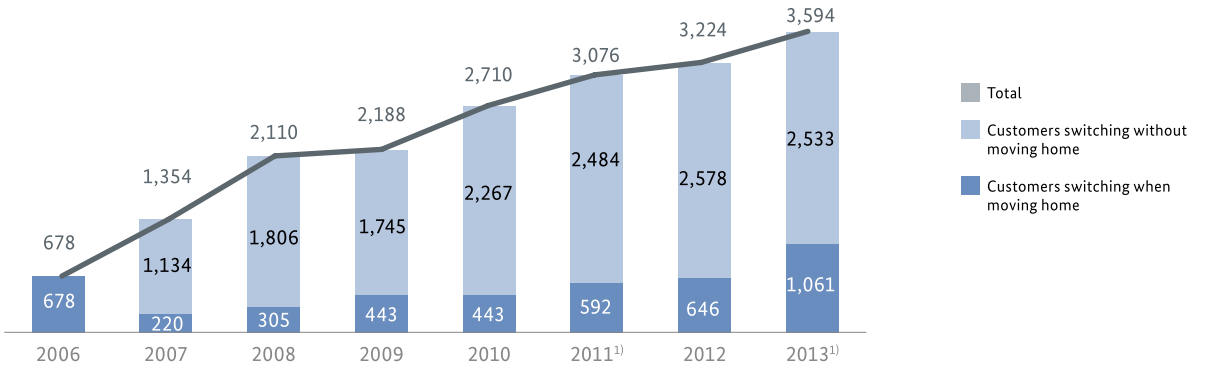
Around 23,000 more household customers with a standard contract with their default supplier had their supplies cut off in 2013. Of the almost seven million threats of disconnection around 21% escalated to disconnection requests. Almost five percent of the approximately seven million threatened disconnections actually led to the system operator cutting off supplies.

Contract structure for household customers
Volume and distribution



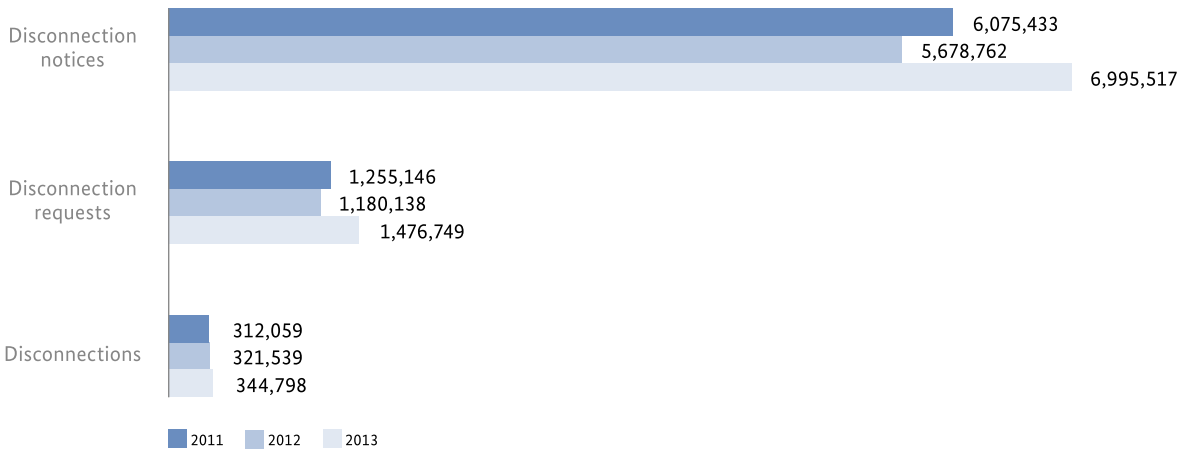
As of 2013

Household customers switching supplier
Numbers in thousands



1) Figures adjusted for the special effect of insolvencies.

Disconnection notices, disconnection requests and actual disconnection of default supplies
Number (electricity)



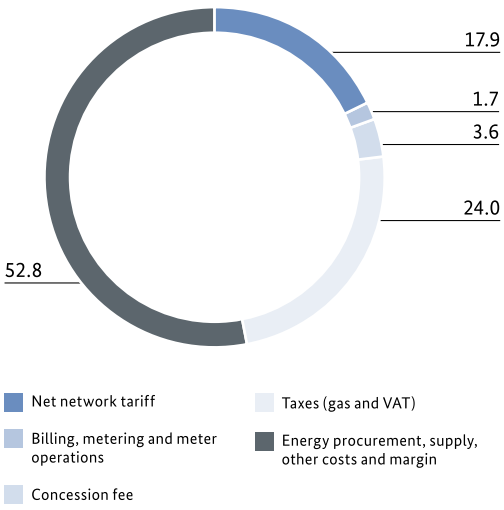
1) Figures for 2013 adjusted to take account of automatic switches following the insolvency of a major supplier in spring 2013.

Gas for household customers

Household gas prices

On 1 April 2014, on the whole gas prices in the segment of household customers with an annual consumption of 23,269 kWh[2)] were stable compared to the previous year. The volume-weighted gas price of default supplies rose to 7.20 ct/kWh compared to 7.09 ct/kWh last year. This corresponds to a price increase of 1.6%. The average volume-weighted price of gas supplied by the local default supplier under special contracts again rose from 6.69 ct/kWh last year to 6.77 ct/kWh on 1 April 2014. This is equivalent to a price increase of 1.2%. Prices therefore only rose modestly in this consumer category. The average price of gas bought from suppliers other than the default supplier ("switch of supplier") fell to 6.39 ct/kWh. Following an increase up to 6.66 ct/kWh in 2013, the volume-weighted price on 1 April 2014 was 4% lower than in the previous year. During the period under review the difference between tariffs for consumers with standard contracts and those with special contracts with the local default supplier for annual consumption of 23,269 kWh grew slightly again. Customers with annual consumption at this level therefore still have an incentive to agree a special tariff. A time series analysis over a period of several years shows that there is a trend for default suppliers to increase prices for both categories of supply.

Composition of the volume-weighted retail gas price for household customers with a consumption of 23,269 kWh receiving gas from the default supplier
Prices on 1 April 2014
%

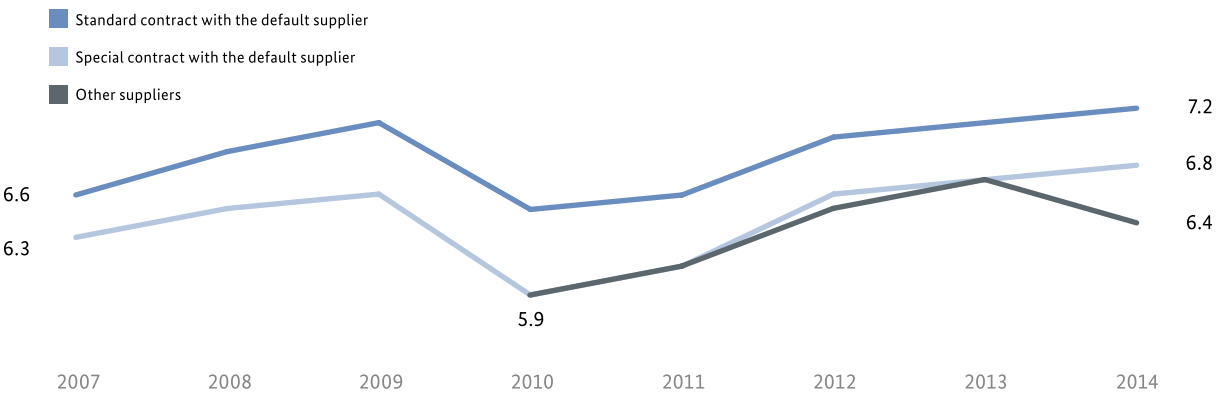


Contract structure and supplier switching

There is an ongoing trend towards a growing diversity of suppliers. In over 90% of network areas, gas is transported to final customers by 31 or more gas suppliers (excluding corporate links). In almost 70% of networks, consumers can choose between more than 50 gas suppliers. In fewer than 5% of network areas, final customers are supplied by 20 or fewer utilities.

The supply structure for household customers in 2013 was as follows: In total, 14% of households were supplied with gas from a source other than the default supplier. Just under 60% of household customers were supplied by their default supplier under a special contract. Around 26% of the volume of gas delivered to household customers was supplied by the default supplier under a standard contract.

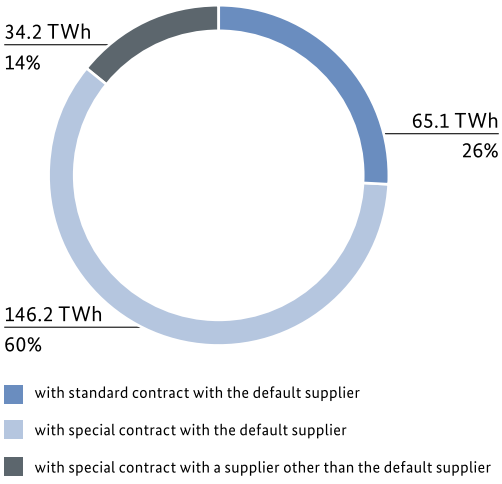
Development of gas prices for household customers with an annual consumption of 23,269 kWh (volume-weighted averages)
As of: 1 April
ct/kWh



2) Annual consumption of 23,269 kWh relates to Eurostat customer category D3.

The switching rate among household customers went up again. The volume of gas reported by gas network operators in 2014 which is affected by supplier switching by household customers (including) changes of supplier by customers moving into a new home) was 27.3 TWh in 2013. This means that there was a significant rise in the volume affected by supplier switching compared to the previous year of 7 TWh or 35%. The volume-based supplier change rate for household customers was 9.6%. In the year under review 2013, network operators reported a total of 1,062,580 changes of supplier by household customers (including switches to other suppliers on moving in to a new home). Compared to the previous year, supplier switching increased by 27% or by around 228,197 cases. In percentage terms, 8.5% of household customers switched supplier.

Contract structure for household customers
Volume and distribution

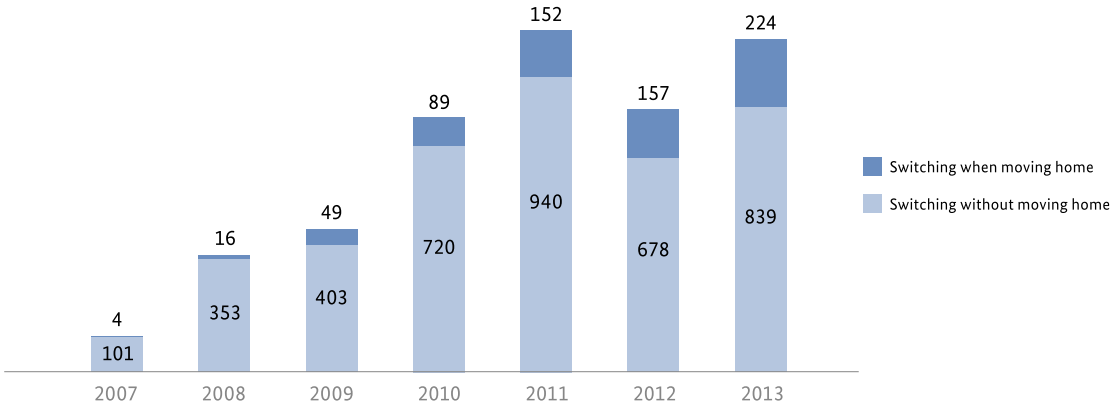


As of 31 December 2013

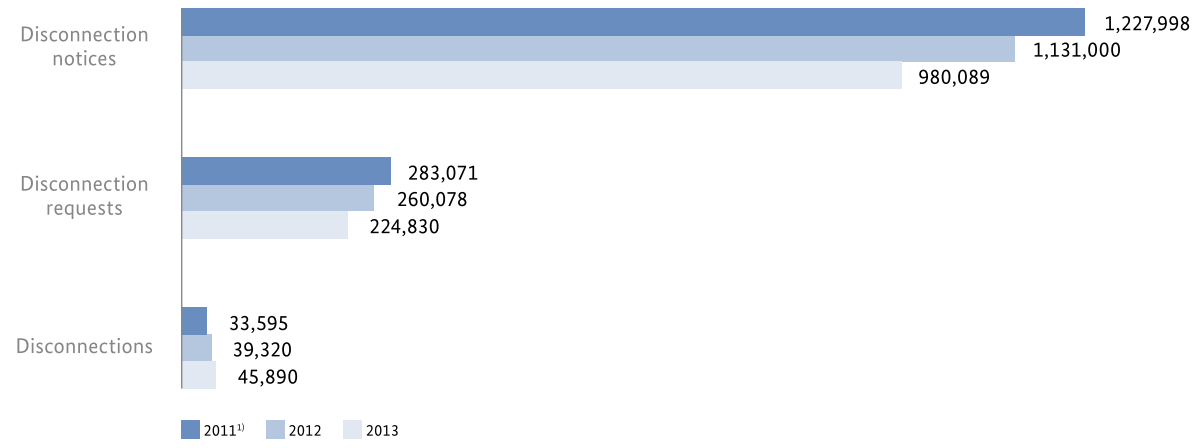
Disconnection notices and actual disconnections

Fewer disconnection notices and disconnection requests were issued than in the previous year, while the actual number of disconnections rose slightly by approx. 6,500.

Household customers switching supplier
Numbers in thousands



Disconnection notices, disconnection requests and actual disconnection of default supplies
Number (gas)



1) It is important to note with regard to the data for 2011 that some suppliers were only able to provide estimated figures for disconnection notices and requests.

Security of supply and grid expansion

The changed power generation structure associated with the *Energiewende* calls for rapid and extensive development of the network infrastructure in both the electricity and gas sectors.

Winter supplies

The need for electricity grid expansion outlined in the foregoing also poses special challenges as far as reliable grid operation is concerned. Security of supply can only be guaranteed if the electricity transmission grid is stable and dependable in operation. The secure operation of the electricity transmission grid may be critically affected on some days if wind power plants in northern Germany feed a large amount of electricity into the grid and, at the same time, power stations in southern Germany are offline. In circumstances such as these during winter months, when electricity consumption is very high and it is not possible to feed in electricity from photovoltaic systems on dark winter evenings, there is a risk that the power lines between northern and southern Germany could become overloaded and be damaged. In this situation there is "too much" electricity in the grid in the north and, because the grid between northern and southern Germany has not been expanded, this electricity cannot be transported to consumers in the south of the country. The electricity then builds up in the north. In order to ensure that the grid can be operated stably, even if power stations in the north are shut down, there must be reliable and sufficient capacity available in the south. However, in southern Germany there is a growing shortage of reliable power plant output. For this reason, since 2012 power station operators have been required by law (section 13a Energy Act (EnWG)) to inform transmission system operators (TSOs) and the Bundesnetzagentur well in advance if they are planning to shut down plant operations and to close a power station. Power station operators must provide such notification twelve months before the planned decommissioning date at the latest.

A power station operator may be prohibited from decommissioning a power station for a period of two years. However, this is only possible if the TSO concludes from its investigation that the power station is needed in order to ensure the continuing safety and reliability of the electricity supply system (system relevance). The Bundesnetzagentur carries out an assessment to determine and confirm whether system relevance is at stake.

By 31 December 2014 the Bundesnetzagentur had been notified of the planned closure of 48 power generation units accounting for a total net nominal capacity of 12,815 MW. Notice was given of the permanent closure of 32 power generation units and of the temporary closure of 16 units.

Of these power generation units, 22 (with a total net nominal capacity of 6,434.5 MW) have already been assessed as not being "system-relevant" and can therefore be decommissioned. These are basically power generation units located to the north of the congested "Middle Rhine Route" and "Rempten-dorf-Redwitz" power lines. These are to the north of the so-called Main Line – a fictive line which runs from west to east through Frankfurt am Main.

In 2014, TSOs designated four power generation units with a total rated output of 992 MW as system relevant. The Bundesnetzagentur has assessed and confirmed the relevant instructions. The four power generation units are all located to the south of the Main line.

As well as monitoring system-relevant power stations, the Bundesnetzagentur also takes other precautionary measures to eliminate any threats to security of supply before they materialise. Reserve power plants are operated during the winter months to prevent overloading of power lines and to ensure that consumers in southern Germany are guaranteed electricity supplies. The amount of reserve power plant capacity needed is calculated by the TSOs every year on the basis of the security stipulations defined in advance by the Bundesnetzagentur. The outcome of this needs analysis is then assessed and established with binding effect by the Bundesnetzagentur. On this basis the TSOs then procure sufficient reserve power plant capacity in consultation with the Bundesnetzagentur.

For the winter of 2014/2015, the Bundesnetzagentur determined a total required reserve capacity of 3,636 MW. This reserve capacity is enough to guarantee security of supply in southern Germany, even in view of the announcement that the "Grafenrheinfeld" nuclear power station is to be decommissioned ahead of schedule. The operators have decided to close down the nuclear power station by mid-2015 instead of on 1 January 2016 as originally planned.

The TSOs can draw on 2,242 MW of power station capacity to cover their total reserve power station requirements. These include, in particular, plants which the Bundesnetzagentur has not permitted to be finally decommissioned and which must continue to be operated for the time being to guarantee security of electricity supply with utilities then being paid for the cost of their standby capacity.

Power plant capacity of 1,394 MW also had to be procured from southern European countries in order to cover total requirements. TSOs have therefore contracted reserve capacity from European partners: 785 MW from Austria and 609 MW from Italy for the winter of 2014/2015.

TSOs instructed plant operators to activate reserve power plants on two days in December 2014 to guarantee security of supply. A total of 1,164 MW from nine reserve power plants was fed into the grid on 20 December 2014, and 540 MW from four reserve power plants again on 22 December 2014. A typical critical grid utilisation scenario existed on both days with a high feed in of wind-generated electricity in northern Germany combined with the simultaneous outages of power plants in the south of Germany.

Expansion in the transmission system

Needs analysis and network planning

It is now almost 4 years since broad political and social consensus was achieved on the launch of Germany's *Energiewende*. All of Germany's nuclear power stations are scheduled for final closure in the year 2022. The reform of the Renewable Energy Sources Act (EEG) in the year under review established as law the target of incremental and cost-efficient increases in the share of power derived from renewable sources to 80% by the year 2050.

In this context, expanding the electricity grid at the transmission level will be of crucial importance. The new power generation structure will lead to a substantial spatial separation between energy production and energy consumption. The wind-generated electricity which is predominantly produced in northern Germany, both on and offshore, will need to be transported to the key consumption areas in southern and western Germany.

The existing grid is not designed to transport this amount of power and is already at the limits of its capacity. It is essential that work on the expansion and upgrading of Germany's extra high-voltage grid is speeded up in order to maintain security of supply.

The amendment of the Energy Act and the coming into force of the Grid Expansion Acceleration Act in August 2011 created the legal framework for a faster expansion of the grid. The new legal framework transfers numerous new responsibilities relating to extra-high voltage grid expansion projects which cross national or federal state borders to the Bundesnetzagentur. The Energy Act stipulates how grid requirements are determined and network planning is undertaken every year.

The first step is for TSOs to forecast likely developments in the German energy landscape over the next ten to twenty years based on factors such as the probable development of both electricity consumption and generation. The TSOs send the findings – set down in what's known as the scenario framework – to the Bundesnetzagentur for review and subsequent public consultation and approval. The Bundesnetzagentur held consultations on the scenario framework for the 2025 network development plans from 12 May through to 23 June 2014. The 2025 scenario framework was approved by the Bundesnetzagentur on 19 December 2014 taking account of the statements received during the review and approval process. In contrast to previous years, the new scenario framework presents a total of six instead of four scenarios, all of which take account of the new framework conditions created by the 2014 reform of the Renewable Energy Sources Act. As well as the greater differentiation achieved by the addition of more scenarios, the scenario framework includes three new important elements: Firstly, grid expansion requirements are determined without taking account of the infrequent peaks in generation from onshore photovoltaic and wind installations. This "peak capping" is an effective way of limiting the required expansion of the transmission system to an economically reasonable level. It also represents the Bundesnetzagentur's response to fundamental demands made by numerous associations and market players commenting on the scenario framework. Secondly, when determining grid expansion requirements, the use of Germany's pool of power plants is to be modelled in three of the six scenarios in a way which meets the federal government's goals of reducing greenhouse gas emissions. This involves limiting carbon dioxide emissions from the power plant pool in the model calculations to a maximum of 187m tonnes for 2025 and 134m tonnes for 2035. All six scenarios are based on a reduction in the installed capacity of brown and hard coal power. Germany will probably be dependent on imports for several hours each year to ensure the security of electricity supply. Finally, the Bundesnetzagentur has specifically designed one of the six scenarios to meet all the federal government's prime energy policy goals, including the efficiency gain targets for the electricity sector.

The groundwork for the drafting of the annual network development plan (NDP) by the TSOs has also been laid. The NDP contains all the network expansion measures which are required for the purpose of maintaining system stability. The "NOVA principle" (network optimisation ahead of reinforcement ahead of expansion) ensures that all optimisation measures are exhausted before measures to reinforce or expand the grid are implemented. The NDP only refers to start and end points. The specific routes will only be finalised in subsequent process steps. In contrast to previous years, it was not possible to complete the latest network development plan for 2014 during the year under review. The Bundesnetzagentur realised from the start that, owing to the major reform of the Renewable Energy Sources Act in 2014, a great deal of work would need to be done to adapt the current NDP process to the changed framework conditions and to ensure that results are viable for the future. The Bundnesnetzagentur urged the TSOs at an early stage to integrate the changes which it was apparent were to be made to the law during the legislative process itself. The Bundesnetzagentur assessed the revisions to the 2024 network development plans submitted to it in November 2014. The preliminary results were published for consultation in the period from 27 February to 15 May 2015.

At this early stage the assessment conducted by the Bundesnetzagentur considered the probable impact of grid expansion on people and the environment. The results of the strategic environmental assessment

were summarised in an environmental report and have been published with the draft versions of the onshore and offshore transmission network development plans. The general public now has the opportunity to respond to the plans in the consultation procedure. The Bundesnetzagentur will then include these responses in its final evaluation and endorsement.

The Bundesnetzagentur submits the confirmed NDPs with the agreed environmental report to the German government at least once every three years as the draft for the Federal Requirements Plan. This then goes through the legislative procedure which leads to a Federal Requirements Plan Act (BBPlG). The first Federal Requirements Plan Act came into effect on 27 July 2013 and endorsed the energy economy's urgent need for 36 projects with around 2,300 km of new lines as well as reinforcement measures to existing lines over a distance of around 2,700 km.

Initial spatial planning

Federal sectoral planning, which the Bundesnetzagentur is responsible for implementing, applies to the 16 projects which cross national or federal state borders and which are identified in the Federal Requirements Plan Act. Federal sectoral planning, which replaces the spatial planning procedures at the federal state level, is laid down in the Grid Expansion Acceleration Act (NABEG) and is the first step in concrete spatial planning. The aim of the Bundesnetzagentur's approval procedure is to define route corridors which are as environmentally safe and compatible with regional planning as possible. These 500m to 1,000m wide corridors are where power lines will later run. The outcome of federal sectoral planning is legally binding for the subsequent planning approval procedure.

Federal sectoral planning begins with an application submitted by the TSOs as the relevant project promoters. The application under section 6 NABEG provides the basic information which is used at the scoping conference by project promoters, public agencies, recognised associations and the interested public to discuss the object and scope of the federal sectoral planning. After this conference the Bundesnetzagentur defines a study scope which also determines the documents and reports which must be submitted by project promoters. The Bundesnetzagentur displays the documents for a month at its office in Bonn and other suitable locations. The next step is for the Bundesnetzagentur to hold official and public participation proceedings on the full application documents submitted by the TSOs on the basis of the study scope and the environmental report. Any objections received are dealt with at a hearing.

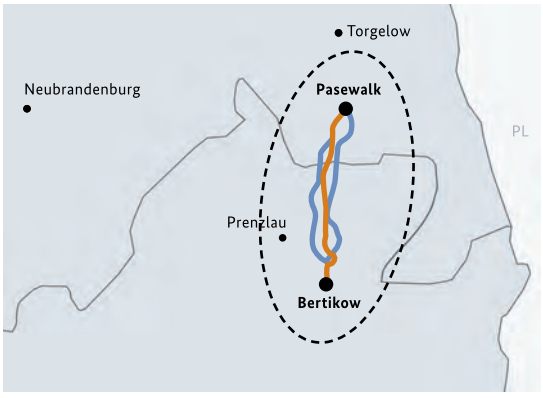
The decision on the route corridor is taken by the Bundesnetzagentur. Arguments concerning the impact on people and the environment are taken into account when this decision is taken. These routes are recorded in a network plan.

Application for federal sectoral planning for the Bertikow – Pasewalk project

The TSO 50Hertz Transmission GmbH submitted the first application for federal sectoral planning for project no. 11 in the Federal Requirements Plan Act (Bertikow – Pasewalk) to the Bundesnetzagentur in August 2014. The around 30-km-long overhead line from Bertikow in Brandenburg to Pasewalk in Mecklenburg-Vorpommern will replace the existing 220-kV with a 380-kV extra-high voltage line.

The formal procedures began after assessment of the submitted documents by the Bundesnetzagentur. The application documents were published on the Bundesnetzagentur website at *www.netzausbau.de/vorhaben11*. In addition to the application documents the website also includes further information about the procedure and the legal background.

BBPlG project no. 11 in the federal sectoral planning/ spatial planning process[1)]
Schematic diagram



1) The diagram is based on the application submitted by the project promoter.

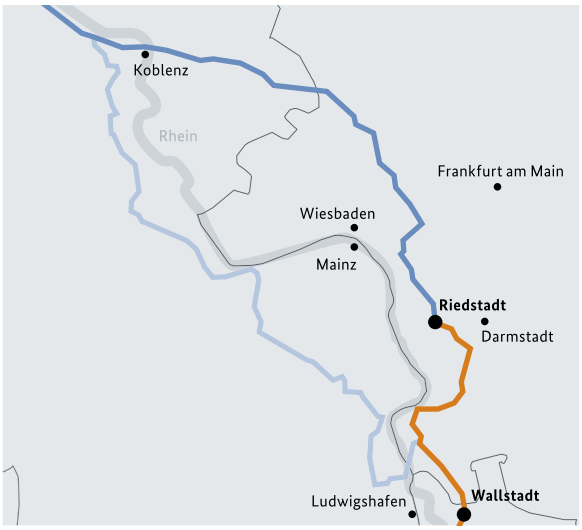
The Bundesnetzagentur held a public scoping conference in Torgelow on 24 September 2014 to which it invited the project promoter, the public agencies concerned and associations. Interested members of the public were also able to participate. Government representatives, local authorities, recognised associations and the general public discussed possible routes in Torgelow and contributed their regional knowledge and new ideas to the ongoing procedure. The focus was on people and nature. The scoping conference also discussed the object and scope of the federal sectoral planning for the route corridors (section 7 NABEG). Discussion focused in particular on the extent to which the route corridors for which application has been made meet, or can be made to meet, the regional planning requirements of the federal states affected. The extent and level of detail of information to be included in the environmental report under section 14g Environmental Impact Assessment Act (UVPG) was also discussed.

The results of the scoping conference were integrated in the definition of the study scope. On 14 November 2014 the Bundesnetzagentur sent the definition of the study scope under section 7 NABEG to the project promoter 50Hertz Transmission GmbH; this was then published on the website of the Bundesnetzagentur at *www.netzausbau.de/vorhaben11*. After the study scope was defined the Bundesnetzagentur set a time period under section 8 sentence 1 NABEG within which the project promoter had to create and submit the documents; unless new information arises during the course of the proceedings, this time period expires on 15 May 2015.

Application for federal sectoral planning for the "Ultranet" project

The project promoter for project no. 2 in the Federal Requirements Plan Act (BBPlG), Amprion, submitted an application for federal sectoral planning for the project section Riedstadt in Hesse to Mannheim-Wallstadt in Baden-Württemberg (known as Ultranet) to the Bundesnetzagentur on 2 December 2014. The Bundesnetzagentur launched the proceedings in mid-December 2014 and made the application documents available at *www.netzausbau.de/vorhaben2*. Two scoping conferences were held in Weinheim and Bingen for this planning section and the potential alternatives in February and March.

Stage A of BBPlG project no. 2[1)]
Schematic diagram



Project in the federal sectoral planning/spatial planning process (proposed route corridor)
Proposed route corridor
Alternative route corridor

1) The diagram is based on the application submitted by the project promoter.

The Bundesnetzagentur received an application on 29 December 2014 for federal sectoral planning from the project promoter TransnetBW for the second project section for "Ultranet" from Wallstadt to Philippsburg. A scoping conference for this section was held in Hockenheim on 14 April 2015.

Stage B of BBPlG project no. 2[1)]
Schematic diagram

Project in the federal sectoral planning/spatial planning process (proposed route corridor)

1) The diagram is based on the application submitted by the project promoter.

The application for federal sectoral planning for the "SuedLink" project has been received

The application for the BBPlG "Suedlink" project no. 4 by the TSO TenneT was received by the Bundesnetzagentur on 12 December 2014. The around 650km of direct current line will run from Wilster near Hamburg to Grafenrheinfeld in Bavaria and will be a key element in grid expansion. Following their submission the documents were found to require revision. The Bundesnetzagentur will only launch a public scoping conference in the regions affected once the outstanding issues have been clarified.

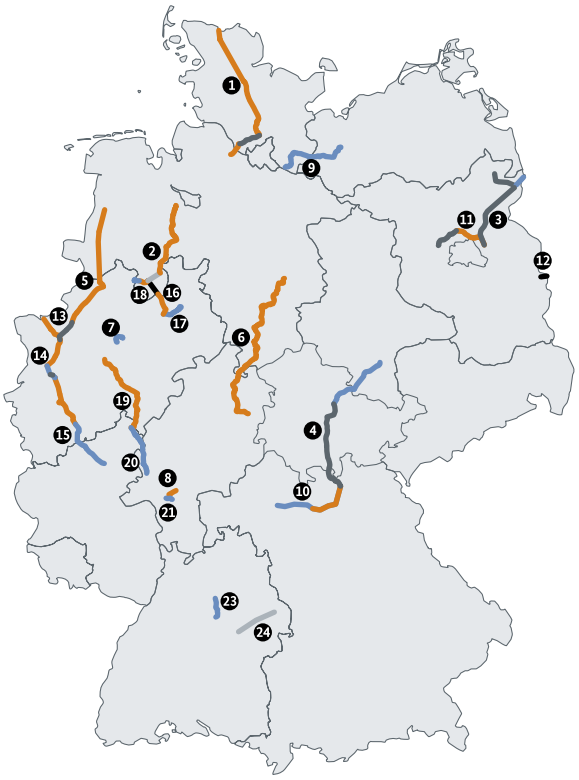
The groundwork for the subsequent planning approval procedure, and a simultaneous and extensive public relations campaign, has now been laid. The objective of the planning approval procedure is to specify the exact route of the power lines and their technical implementation, including decisions concerning the transmission technology used, underground cables or overhead lines, type and height of mast, etc. The locations of masts and other installations will also be decided. Construction work can begin as soon as the planning approval decision has been made. With the adoption of the Planning Approval Responsibilities Ordinance on 23 July 2013 the Bundesnetzagentur has been assigned responsibility for the planning approval procedures for projects spanning regional state and national borders under the federal requirements plan as well as for the implementation of federal sectoral planning.

Documentation of progress made – Monitoring

Attention was already being focused on speeding up the pace of grid expansion under the Power Grid Expansion Act (EnLAG) in 2009, even before the Grid Expansion Acceleration Act (NABEG) came into force. The current version of this legislation specifies 23 projects which require urgent implementation in order to meet energy requirements. These power lines have a total length of 1,883km. Of the 463 kilometres of route which have now been constructed, 140 kilometres were completed in 2014. The TSOs expect around 40% of the overall power line routes planned under the Power Grid Expansion Act (EnLAG) to be completed by 2016.

Progress made on these expansion projects is shown at www.netzausbau.de/enlag.

Status of EnLAG projects (Q4/2014)

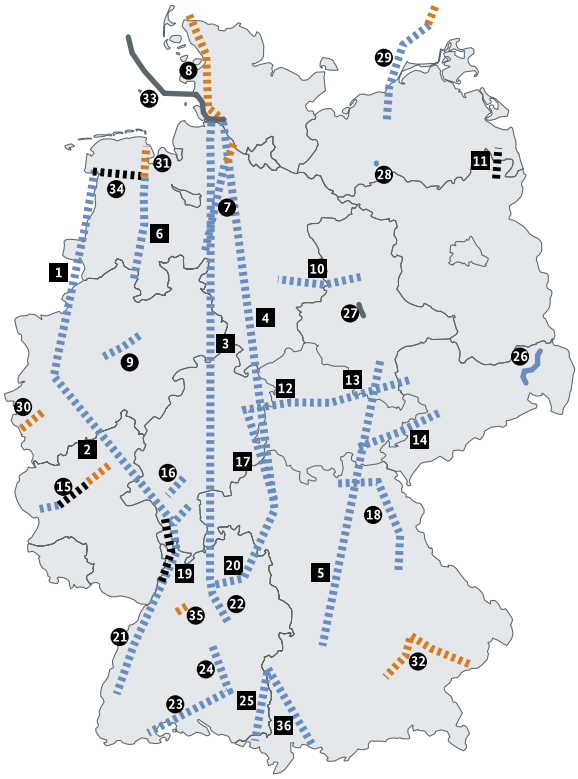


Not in the approval procedure
In the spatial planning procedure
Planning approval procedure initiated or opened
Approved or under construction
Completed

1 Kassø (Denmark) – Hamburg Nord – Dollern
2 Ganderkesee – Wehrendorf
3 Neuenhagen – Bertikow/Vierraden – Krajnik (Poland)
4 Lauchstädt – Redwitz (as part of the connection Halle/Saale – Schweinfurt)
5 Diele – Niederrhein
6 Wahle – Mecklar
7 Bergkamen – Gersteinwerk
8 Kriftel – Eschborn
9 Hamburg/Krümmel – Schwerin
10 Redwitz – Grafenrheinfeld (as part of the connection Halle/Saale – Schweinfurt)
11 Neuenhagen – Wustermark (as first part of the Berlin Ring)
12 Eisenhüttenstadt – Baczyna (Poland)
13 Niederrhein/Wesel – Dutch border (in the direction of Doetinchem)
14 Niederrhein – Utfort – Osterath
15 Osterath – Weißenthurm
16 Wehrendorf – Gütersloh
17 Gütersloh – Bechterdissen
18 Lüstringen – Westerkappeln
19 Kruckel – Dauersberg
20 Dauersberg – Hünfelden
21 Marxheim – Kelsterbach
23 Neckarwestheim – Mühlhausen
24 Bünzwangen – Lindach – Goldshöfe

Alongside EnLAG project monitoring, the Bundesnetzagentur also publishes the procedural status of expansion projects under the Federal Requirements Plan Act on its website at *www.netzausbau.de/bbplg*. Further detailed information about specific projects is also available.

Projects under the Federal Requirements Plan Act (Q4/2014)



BBPlG project
Projects in the spatial planning procedure or federal sectoral planning process
Planning approval procedure for project initiated or opened
Project approved or under construction
Project completed
Consecutive project no. (responsibility of the Bundesnetzagentur)
Consecutive project no. (responsibility of state authorities)

1 Emden/Borßum – Osterath
2 Osterath – Philippsburg (Ultranet)
3 Brunsbüttel – Großgartach
4 Wilster – Grafenrheinfeld
5 Lauchstädt – Meitingen
6 Conneforde – Westerkappeln
7 Dollern – Landesbergen
8 Brunsbüttel – Bundesgrenze (DK)
9 Hamm/Uentrop – Kruckel
10 Wolmirstedt – Wahle
11 Bertikow – Pasewalk
12 Vieselbach – Mecklar
13 Pulgar – Vieselbach
14 Röhrsdorf – Remptendorf
15 Metternich – Niederstedem
16 Kriftel – Obererlenbach
17 Mecklar – Grafenrheinfeld
18 Redwitz – Schwandorf
19 Urberach – Daxlanden
20 Grafenrheinfeld – Großgartach
21 Daxlanden – Eichstetten
22 Großgartach – Endersbach
23 Herbertingen – Tiengen
24 Rommelsbach – Herbertingen
25 Wullenstetten – Niederwangen
26 Bärwalde – Schmölln
27 Abzweig Welsleben – Förderstedt
28 Abzweig Parchim Süd – Neuburg
29 Combined Grid Solution
30 Oberzier – German border (BE)
31 Wilhelmshaven – Conneforde
32 Bundesgrenze (AT) – Altheim
33 NordLink
34 Emden Ost – Conneforde Süd
35 Birkenfeld – Mast 115A
36 Vöhringen – German border (AT)

The hatched lines on the map only show the direct links between the stated grid connection points (linear distance) and should not be understood as visualising transmission line routes.

Grid expansion in a European context

Electricity flows back and forth over national borders. The decommissioning of nuclear power plants and the steady expansion of renewable energy is leading to congestion in the transmission system at cross-border interconnectors. The larger amount of electricity which needs to be transported in Europe as a result was recognised by the European Union in 2013 in a new legal framework for the expansion of cross-border energy projects at the European level.

The Regulation of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure (TEN-E Regulation) came into effect in June 2013. As well as a functioning internal energy market, the Regulation is also aimed at achieving the European Union's energy policy objectives and contributing to security of supply. The TEN-E Regulation also specifies the selection of Projects of Common Interest (PCI). The first PCI List came into effect throughout the Union as an annex to the TEN-E Regulation on 10 January 2014. The first Union List contains 20 PCIs in the electricity sector, five in the gas sector and two in the oil sector relating directly to Germany. In total, around 250 Projects of Common Interest have been added to the Union List of PCIs. The TEN-E Regulation defines measures and instruments which will expedite approval procedures, create a regulatory framework that provides incentives for investment and provide financial support for these energy infrastructure projects.

The timely implementation of the PCIs is a shared European priority. For this reason, the TEN-E Regulation places strict requirements on the approval procedures to expedite these in compliance with strict environmental legislation and European law. The Bundesnetzagentur has been designated as the body which is responsible in Germany for coordinating the comprehensive decision under the collaborative scheme (under Art. 8(3), sentence 2 lit. c TEN-E Regulation). The responsibilities in state and federal authorities for PCI approval procedures remain unchanged. As a "one-stop shop" authority, the Bundesnetzagentur is the single point of contact in relation to PCI approval procedures for the responsible authorities in Germany, for one-stop shop authorities

in other European Member States and for the European Commission. The idea is to make the coordination of PCI permit granting processes more efficient. The permit granting process for PCIs is described in detail in the PCI manual of procedures. The PCI manual of procedures under Art. 9(1) TEN-E Regulation was published by the Bundesnetzagentur in its function as one-stop shop for the first time in May 2014 at *www.netzausbau.de/europa* and *www.bundesnetzagentur.de/pci* . The manual is not legally binding and is updated as and when necessary.

The list of PCIs is updated every two years. Work is currently underway on the second PCI list which will come into effect in 2016. The Bundesnetzagentur publishes up-to-date information on PCIs on its websites at *www.netzausbau.de/europa* and *www.bundesnetzagentur.de/pci*. This enables citizens to obtain information about the importance and current status of grid expansion in the European context.

Implementation of the regulatory specifications of the TEN-E Regulation (Regulation (EU) 347/2013)
In 2014, the Bundesnetzagentur reached a decision on three applications made by German project promoters in the gas sector for the cross-border allocation of costs for projects of common interest under Art. 12 of the TEN-E Regulation. The unit investment costs were allocated in accordance with the application. In the electricity sector, the Bundesnetzagentur received one application for the allocation of costs for the PCI 4.5.1 LIT POL LINK. The Agency for the Cooperation of Energy Regulators (ACER) has been looking into this case since the end of November. Applications are made at the discretion of the project developer. A cost allocation decision is a precondition for application for financial assistance from the European Union in the form of grants for work under Article 14 of the TEN-E Regulation. The application requirements are governed by the Regulation and stipulated in an ACER recommendation.

For more information go to www.acer.europa.eu.

In addition, the Bundesnetzagentur evaluates investments for projects of common interest as well as the risks incurred pursuant to Article 13 of the TEN-E Regulation. The method applied by the Bundesnetzagentur was published in March 2014.

In collaboration with ACER and European regulatory authorities, the Bundesnetzagentur has drawn up the ACER Recommendation (03/2014) for managing incentives for PCIs and for the development of a common method of risk assessment.

Expansion of electricity distribution systems

The expansion of the transmission system is closely linked with the expansion of distribution systems. At the same time, distribution system operators are confronted with highly specific distribution system-specific challenges emerging from changes in the energy landscape. This is because the expansion of renewable energy arising from the *Energiewende* will largely take place in the distribution system. Around 98% of all renewable energy generation installations are already linked up to distribution systems, equivalent to wind power and photovoltaic output of around 61 GW. This means that electricity from renewable energy sources is "collected" in the distribution systems and, because it cannot be consumed locally, must then be transported further through the transmission system.

Depending on the expansion trajectory of renewables more work will therefore need to be done on expanding distribution systems in Germany. The moderate scenario described in the "EEG 2014" distribution system study undertaken by the Federal Ministry for Economic Affairs and Energy has identified the following expansion requirements up to the year 2032:

- 50,400km in low voltage networks (plus 4.5% of the 2012 grid length)
- 70,100km in medium voltage networks (plus 13.8% of the 2012 grid length)
- 10,800km in high voltage networks (plus 11.3% of the 2012 grid length)

It should be noted that the need for electricity grid expansion differs sharply between distribution system operators. Only 35% of system operators are affected by the expansion of low voltage and 64% of system operators by expansion of medium voltage networks.

Based on a medium expansion trajectory ("EEG 2014" scenario), this will entail additional grid expansion costs of €23 billion by the year 2032, or additional costs of €1.8 billion annually.

However, innovative planning approaches and intelligent technologies would significantly reduce the need for conventional expansion measures. It would not be economically efficient either to build networks with a capacity for the "last" kilowatt hour of electricity generated. The distribution system study undertaken by the Federal Ministry for Economic Affairs and Energy calculates that a combination of a three percent peak cap for wind power and photovoltaic systems with the use of controllable local network transformers would cut the additional costs involved in expanding the grid by 20% a year.

The Bundesnetzagentur has also developed a concept for grid expansion plans (NAP) at the 110kV level. These can be obtained from the Bundesnetzagentur by system operators as required in order to determine the energy sector's need for grid expansion and to achieve greater transparency, public participation and improved coordination with the TSO. This concept has been implemented in the Grid Planning WG set up by the Federal Ministry for Economic Affairs and Energy and should be in place and established by 2015.

Security of gas supplies

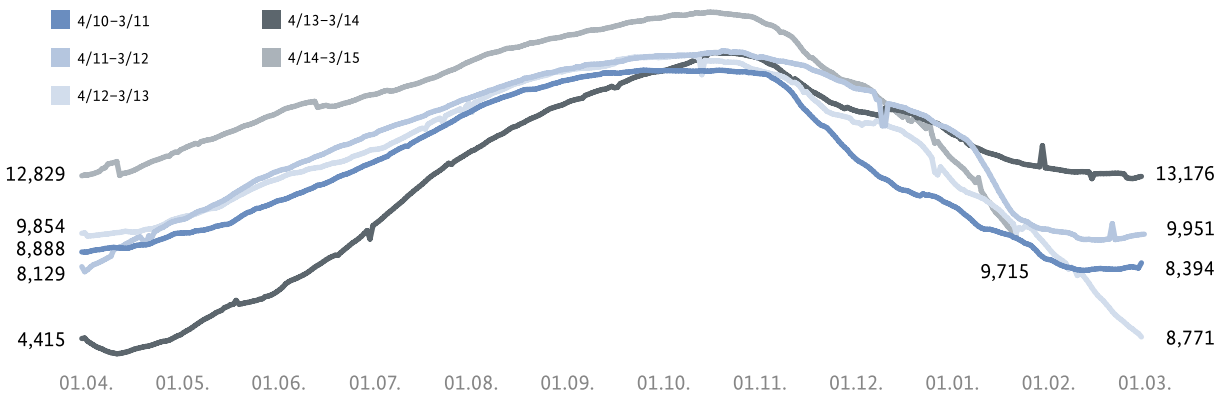
Owing to the mild winter of 2013/14, natural gas underground storage facilities were still almost 60% full at the start of the storage phase in March 2014. The large amount of natural gas consequently available to the German market during the summer ensured that short-term prices remained low and that the difference in price in the following winter increased. This is one of the reasons why more natural gas is being filled. In fact, in the early winter of 2014/15 more than 21bn m³, more than at any time in the past, was being stored by storage users (mainly dealers and suppliers) in German natural gas storage facilities.

Expanding the gas network

Gas network development plan 2014

Gas transmission system operators are required by section 15a of the Energy Act (EnWG) to produce an annual joint national network development plan and submit this to the Bundesnetzagentur. The Bundesnetzagentur endorsed the scenario framework for the 2014 gas network development plan on 16 October 2013, including the assumptions in the framework on the development of the extraction, supply and consumption of gas.

Storage levels in Germany from 2010 to the present
million m³



Source: Data GSE (*http://transparency.gie.eu*), diagram Bundesnetzagentur

The key differences in the 2014 Gas NDP compared to the 2013 Gas NDP relate to the modelling subvariants which (apart from there being substantially fewer) served the primary purpose during this year of determining the impact of two different ways of identifying the capacity requirements of downstream network operators on the scope and cost of expanding the network. The two approaches basically differ in that, in the first variant, the capacities for the requirements of distribution system operators were geared towards the long-term forecasts of the distribution system operators themselves and that these are projected consistently from 2019 through to the NDP target year of 2024. In variant 2, in contrast, this long-term forecast was reduced from 2019 according to the "reduction path" calculated by the TSOs up to 2024. This "reduction path" is based on the reduction in gas consumption projected by Prognos AG.

Based on the confirmed scenario framework, the 17 gas transmission system operators drew up a draft version of the 2014 national gas network development plan and submitted this to the Bundesnetzagentur for confirmation in early April 2014.

The draft plan comprises various measures for the needs-oriented optimisation and reinforcement as well as needs-oriented expansion of the gas transmission system which the grid will require in the next ten years in order to guarantee security of supply. Despite differing assumptions concerning the gas requirements of the distribution system operators the overall need for expansion is much the same in both variants.

The 2013 Gas NDP measures are basically confirmed by the results of the 2014 gas NDP. Additional expansion measures will also be required up to 2024, mainly due to L/H-gas changeover requirements, the greater need for H-gas and the greater need for gas storage capacity.

The two different modelling subvariants in the draft 2014 Gas NDP differ only slightly in terms of grid expansion measures and costs (€2.9bn as against €3.1bn up to 2024).

The NDP proposal by the TSOs selected from these variants – a combination of two modelling results – amounted to around €3.1bn over the next ten years for 760km of pipeline construction and 358 MW compressor construction.

The Bundesnetzagentur launched the consultative procedure on the 2014 Gas NDP on 14 April 2014. In addition to the written consultation, the Bundesnetzagentur also held a workshop on the core topic of distribution system operators in May 2014. A public workshop also gave market participants an opportunity to express their views on the draft 2014 Gas NDP verbally.

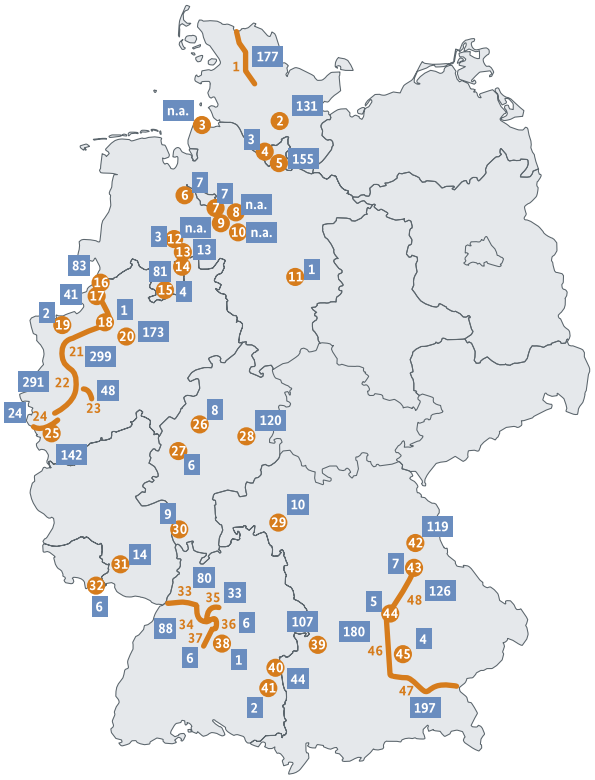
After evaluating the outcomes of the consultation, and with a view to future network development plans, the Bundesnetzagentur sent a recommendation to amend the 2014 Gas NDP to gas transmission system operators on 17 November 2014. It includes changes involving the deletion of five measures from the NDP which could not be shown to be absolutely necessary.

The measures approved in the recommendation to amend include additional pipeline construction of 748 km and 343 MW of compressor capacity over the next ten years. The remaining 51 (from an original 56) network expansion measures will require investments of approximately €2.8bn (€3.1bn).

The TSOs implemented and published the required changes within three months of publication of the recommendation to amend under section 15a(3), sentence 5 EnWG. The 2014 Gas NDP became binding on TSOs on announcement of this decision.

The Bundesnetzagentur is confident that the 2014 Gas NDP is consistent with the Community-wide network development plan (Art. 8 (3b) of Regulation (EC) No. 715/2009) and a recommendation to amend (Art. 41 (1g) of the Electricity Directive 2009/73 EC) was therefore not issued.

Network expansion measures according to 2014 Gas NDP after recommendations for amendment



7 Compressor station or network coupling point to be newly built/expanded

7 Network expansion measure

111 Costs per measure in € million according to draft 2014 Gas NDP

1 Loop Fockbek-Ellund (2016)
2 VDS Quarnstedt (2016+)/Expansion (2016)
3 MRU: Bremen-Cuxhaven (2021)
4 Project Wedel (2016)
5 Expansion NEL (2024)
6 M+R Ganderkesee (2020)
7 M+R Achim (2018)
8 MRU: Walsrode/Fallingbostel (2016)
9 MRU: Bremen/Achim/Delmenhorst (2020)
10 MRU: Luttum/Wolfsburg (2020)
11 Connection Ahlten (2015)
12 MRU: GDRM Nordlohne (2018)
13 Conversion Rehden (2016)
14 NKP Drohne
15 MRU: GDRM Voxtrup 2 (2020)
16 VDS Ochtrup (2017)
17 Ltg. Epe-Legden (2018)
18 MRU: Hüthum (2017)
19 MRU: GDRM Legden (2018)
20 VDS Werne reverse flow project (2017+)/New build (2018)
21 ZEELINK 2 (2024)
22 ZEELINK 1 (2024)
23 Ltg. Voigtslach-Paffrath (2023)
24 Ltg. Stolberg-Eynatten (2018)
25 VDS Rheinland (2024)
26 MRU: GDRM Marburg (2018)
27 MRU: GDRM Weidenhausen (2018)
28 VDS Herbstein (2018)
29 GDRM Rimpar (2019)
30 GDRM Gernsheim (2019)
31 GDRM Mittelbrunn (2019)
32 GDRM Obermichelbach (2019)
33 Nordschwarzwaldleitung (2015)
34 Qu./M+R Leonberg-Reutlingen (2024)
35 Qu./M+R Pforzheim Bietigheim (2024)
36 Qu./M+R Pforzheim Bietigheim (2024)
37 Qu./M+R Leonberg-Reutlingen (2024)
38 M+R Tachenhausen (2015)
39 VDS Amerdingen (2019)
40 VDS Scharenstetten (2016)
41 M+R Hittistetten (2016)
42 VDS Rothenstadt (2018)
43 GDRM Schwandorf (2017)
44 GDRM Arresting (2017)
45 M+R Landshut (2015)
46 Loop Forchheim-Finsing (2018)
47 Monaco BA1 (2017)
48 Loop Schwandorf-Forchheim (2017)

Gas network development plan 2015

In parallel to the implementation of the recommendation for amendment, the TSOs are already modelling and drafting the 2015 Gas NDP on the basis of the 2015 gas scenario framework endorsed by the Bundesnetzagentur on 6 November 2014.

The 2015 scenarios continue to focus on the different assessment of capacity needs for downstream DSOs. These can be divided into the three variants of low (forecast by TSOs, falling as of 2020), medium (forecast by DSOs, constant updating from 2020) and high capacity requirements (forecast by DSOs up to and including 2025). The TSOs are required to calculate high and low capacity requirements. TSOs can also optionally calculate the medium capacity requirement. The use of "efficient" capacity products for new storage facilities and new power plants as the planning basis for determining long-term network expansion is the same in all variants. Efficient products of this kind allow the overall cost of network expansion to be reduced to an overall economic level.

With regard to the statement of capacity for existing storage and power plants, a change of modelling approach has been announced for next year's scenario framework and thus for the 2016 Gas NDP. This will involve the TSOs developing criteria for the modelling of existing storage facilities with TaK (temperature-dependent capacity) and power plants with DZK (dynamically allocable capacity) which will be used by all TSOs in future NDP processes. This should ensure that existing storage facilities and power plants, which are no longer booked or which only offer interruptible capacities, are treated in the same way as new storage facilities and power plants in the context of network development planning.

Moreover, the need for higher capacities notified by TSOs at three cross-border interconnection points was not endorsed owing to lack of sufficient evidence. This means that the current status will continue into the future.

What is more, the 2015 Gas NDP will again focus on the incremental switch over in areas currently served with lower calorific gas (L-gas) to high calorific gas (H-gas).

The gas TSOs will submit the draft network development plan to the Bundesnetzagentur on 1 April 2015 on the basis of this scenario framework.

All the documentation on the 2014 Gas NDP and on the 2015 gas scenario framework, as well as extensive lists of all storage facilities, nodes and power stations, is available on the gas TSOs' website at www.netzentwicklungsplan-gas.de

For more information on the development of the gas network, including information on the decision to request amendments to the 2014 Gas NDP, the evaluation of the consultation findings and the 2015 scenario framework, go to www.bundesnetzagentur.de/gasnetzentwicklung.

Changeover from L- to H-gas (market area conversion)

The market area conversion plans for the switch from L-gas to H-gas were pursued in 2014. The changeover is necessary as there will be both a reduction in the production volume of German L-gas and of large-scale L-gas imports from the Netherlands from 2020 onwards. Current planning in the Netherlands envisages the termination of supplies of L-gas to Germany in 2029. This will require a successive and extremely well-coordinated changeover in L-gas networks in Germany. This will affect both the five L-gas transmission system operators and a large number of L-gas distribution system operators.

The 2014 Gas NDP contains a separately calculated scenario which states the planned order in which network areas will switch over in the next ten years. The changeover of the first, as yet small areas, will take place in 2015; larger areas such as Bremen will follow from 2017.

In 2014, the Bundesnetzagentur again focused on the interpretation and implementation of the regulatory framework and exchanges with market participants. The Bundesnetzagentur and the regulatory authorities of the affected states provided information to network operators in response to numerous inquiries about the way in which costs are allocated to ensure that these operators had the data they needed in order to determine correctly the surcharge due for the first time in 2015 under section 19a Energy Act (EnWG).

The Bundesnetzagentur also advises the industry on issues relating to the technical organisation of market area conversion and regulatory aspects. Another important point is the support provided to network operators in informing the affected general public. The changeover of networks from L-gas to H-gas will require most final consumers to have their equipment modified to enable it to use H-gas. The Bundesnetzagentur has drawn up and published an FAQ list for this purpose on its website (*www.bundesnetzagentur.de/umstellungGas*) .

Consumer protection and advice

The enormous interest shown by the general public in energy-related issues and the work of the Bundesnetzagentur is demonstrated by the large number of inquiries received from consumers.

Energy consumer advice service

The energy consumer advice service received a total of 12,396 inquiries and complaints by telephone or letter in 2014. Of these, around 7,755 related to electricity and 854 to gas. In addition, the energy consumer advice service also received around 3,787 inquiries on general and cross-cutting topics.

Overall, inquiries received by the energy consumer advice service showed that there is enormous interest among the general public in energy-related issues and in the work of the Bundesnetzagentur. As well as inquiries and complaints relating to electricity and gas, the energy consumer advice service also received a large number of inquiries from all segments of the market and from the public at large on general matters concerning energy and related law; not all of these inquiries fell within the Bundesnetzagentur's area of responsibility.

In 2014, consumer inquiries and complaints again tended to concern questions relating to contracts and billing as well as to complaints about the quality of service offered by suppliers in particular. Most of these inquiries and complaints concern just a few companies. Consumers are particularly concerned about bills which are received late or not at all as well as about delays in the payment or settlement of credit notes and bonuses.

Instead of clarifying contractual or billing problems before court, since November 2011 private consumers have been able to submit complaints about contracts or the quality of a company's services to the relevant energy utility, meter operator or metering service provider. If the relevant company does not respond to the customer complaint within four weeks, customers have the option of applying for a dispute resolution service provided by Energie e. V. This energy arbitration body received 9,300 applications in 2014. The dispute resolution service is usually free for consumers. The arbitration award is not binding, however, and consumers and companies still therefore have the option of calling on the courts.

Oversight procedures for consumer protection

Owing to the large number of complaints relating to the company immergrün-Energie GmbH, the Bundesnetzagentur had no alternative but to open oversight procedures in autumn 2014 on suspicion of violations of energy law on accounting periods and billing periods.

The Bundesnetzagentur had fined the chief executive officer of the group operating Care Energy €40,000 as early as June 2013 for failing to meet its obligation to notify the Bundesnetzagentur of its supply of energy to household customers. As the company raised objections to the fine, the case was passed on to the Chief Public Prosecutor in Düsseldorf. In the subsequent proceedings before the Düsseldorf Higher Regional Court (OLG) in October 2014, the chief executive officer of the group operating Care Energy withdrew the company's appeal and paid the imposed fine.

As no notification of supplies of energy to household customers has since been submitted, the Bundesnetzagentur ruled on 12 November 2014 that Care Energy must submit notification of such supplies of energy to household customers. Care Energy then made a notification on 3 December 2014. However, this notification was not sufficient to meet the statutory requirements. On the same day, the company withdrew, stating that it had not made any such supplies of energy. On 19 December 2014, the Bundesnetzagentur therefore imposed an administrative fine of €400,000. Following dismissal of an application for interlocutory injunction against the imposition of an administrative fine by the Düsseldorf Higher Regional Court (OHG), Care Energy paid the fine of €400,000 on 16 February 2015. On 2 March 2015, the Bundesnetzagentur issued a warning that it would impose a further fine of €800,000 if the company failed to meet its obligations.

Rulings, activities and proceedings

The start of the second regulatory period for electricity, the reallocation of offshore connection capacity and the various determinations issued reflect the wide range of the Bundesnetzagentur's decisions and activities.

Evaluating incentive regulation

Since 2009 the revenue that gas and electricity network operators may generate has been determined by the Incentive Regulation Ordinance (ARegV). The Bundesnetzagentur was required by law in 2014 to draw up an evaluation report on the Ordinance. The evaluation focused on how network operators' investment behaviour had developed since the Ordinance came into force and on possible barriers to investment. It also looked closely at how the Ordinance affected efficiency, innovation and quality of supply and at the practicability of the Ordinance.

The network operators, professional associations and representatives of other economic sectors concerned were actively involved in the evaluation process. A total of four workshops each with around 300 participants were held between November 2013 and October 2014 in addition to numerous discussions with experts from industry and associations.

The evaluation report incorporates contributions from both the Bundesnetzagentur's experts and as well as external experts commissioned by the Bundesnetzagentur. An econometric study undertaken by DIW Econ examined the development of investment behaviour while a report drawn up by E Bridge GmbH looked at the situation in other countries.

The *Energiewende* poses great but widely varying challenges in particular for the electricity network operators. As already mentioned, studies estimate that over the coming twenty years some 20 to 50 billion euros – depending on the assumptions made – will need to be invested in the electricity distribution systems.

The future regulatory framework therefore needs to ensure that the necessary sums are available to the operators in good time. At the same time, however, the framework also needs to ensure that the potential identified in studies to use intelligent and innovative solutions in grid expansion and cut costs by 20% is actually realised.

The evaluation report concludes that the basic concept of incentive regulation is well suited to this task, and at least better suited than other regulatory approaches which reward capital-intensive solutions and fail to create incentives for innovation or cost savings. With its fixed budget, efficiency benchmarking and additional expansion factor the Ordinance gives operators scope to lower costs through intelligent and innovative solutions and to retain at least some of the savings as profit. However, the report found that the present scheme is not absolutely ideal and pointed to a number of possible improvements.

The Bundesnetzagentur, together with many of those involved in the evaluation process, is in favour of incorporating these improvements into the current incentive regulation scheme whilst also taking account of the need for continuity and stability of the operators, investors and funders. This does not rule out considering more fundamental alternatives in the long term as well.

The conclusion can also be drawn at the political level that minimising the delay in recognising capital costs should have priority over increasing the potential for innovation and savings.

The findings of the evaluation can be summarised as follows:

- The Ordinance essentially guarantees the investment ability of the network operators. The analysis of actual investment behaviour shows that the Ordinance has not had any negative impact.

- The Bundesnetzagentur proposes that additional incentives should be considered. These could include an efficiency carry-over to allow network operators undercutting the budget to retain some of the additional revenues beyond a regulatory period, or a bonus scheme for particularly efficient network operators.

  The efficiency benchmarking scheme for distribution system operators matched expectations. Thought should, however, be given to how the methodology could be improved.

  It makes sense to set a new general sectoral productivity factor in line with the regulations for the future regulatory periods.

  The quality of supply remains high, hence there is no need for additional measures to regulate quality.

- The incentive regulation procedures are very detailed and complicated, hence elaborate and long-winded. Simplifying and generalising the procedures would make things easier for all concerned. The Bundesnetzagentur sees room for improvement in respect of non-wage labour costs, the flat rate for non-controllable costs in the simplified procedure, simplifying the incentive regulation account, splitting revenue caps for split networks, and enhancing transparency.

- The expansion factor should be adjusted to make it more accurate. At the same time the delay between mapping expansion measures and granting additional resources for such measures should be abolished. This would make it considerably easier for network operators to manage their additional tasks. These steps should be combined with an efficiency carry-over or a bonus scheme to reward operators carrying out the additional tasks with highly intelligent solutions and fewer additional expansion measures. These proposals are summarised in the evaluation report under the heading "ARegV 2.0".

  In addition, distribution system operators that are particularly affected by the *Energiewende* should also be given more scope to apply for "investment measures". These operators would be identified in a two-step application process combining material criteria and a forecast of future challenges.

- If priority were given to eliminating the delay in mapping replacement and expansion investments, an annual adaptation of the cost of capital based on the predicted costs could be considered. If capital costs were to increase, depreciation and residual value would be corrected upwards, and if capital costs were to decrease, final depreciation and decreasing residual value would be corrected downwards. The operational costs would be adjusted on a flat-rate basis within the regulatory period. Efficiency benchmarking would still be based on the total costs. Although this model eliminates the existing time delays, it requires considerably more standardised and simplified methods to determine the cost of capital and creates incentives for more capital-intensive network expansion strategies. Incentives to save costs through intelligent and innovative solutions would be reduced.

The final report was submitted to the Federal Ministry for Economic Affairs and Energy in January 2015 and is available together with the accompanying studies at *www.bundesnetzagentur.de/ARegVBericht*. The report provides the basis for the discussions on developing the incentive-based regulation scheme further in 2015.

Rates regulation

Conclusion of the gas and electricity revenue cap procedures

The second regulatory period for gas distribution and transmission system operators began on 1 January 2013 and lasts five years. The base level for the revenue cap for gas network operators was set in accordance with section 6(1) of the Incentive Regulation Ordinance (ARegV) in 2012. Following this, work began in 2013 on setting the revenue caps for all the transmission system operators and for all the distribution system operators participating in the simplified and in the standard procedure. The amounts to be added to or deducted from the revenue caps for the second regulatory period

to balance the gas incentive regulation account were reviewed and finalised. The procedures were successfully completed in 2014.

The second regulatory period for electricity distribution and transmission system operators began on 1 January 2014 and also lasts five years. At the beginning of the regulatory period not all revenue caps had been formally approved. The base level for operators participating in the simplified procedure was set in 2014. The balances of the incentive regulation accounts were also determined in 2013 and 2014; these balances are taken into account as deductions or additions when setting the revenue caps for each calendar year. The revenue caps are then consulted on and submitted to the total of 278 operators. Some of the caps have already been finalised, while others are still outstanding, and the procedures are due to be completed in 2015.

Electricity

Revocation of the determination on the contribution charge under section 19 of the Electricity Network Charges Ordinance in derogation from section 17(8) of the Ordinance (BK8-11-024)

On 3 December 2014 the Bundesnetzagentur revoked the determination on the charge to offset revenue losses resulting from individual network charges agreed under section 19 of the Electricity Network Charges Ordinance (StromNEV) (BK8-11-024) with effect from 1 January 2015. The general principles of the redistribution mechanism are now well established in the market.

New regulation on pooling

On 22 August 2013 the Ordinance on the Change of Ordinances in the field of Energy Legislation of 14 August 2013 (Federal Law Gazette I page 3250) entered into force. This provides for a new regulation on pooling in section 17(2a) of the Electricity Network

New network charges methodology?

An increase in self-produced electricity and distributed generation has triggered a debate on the structure of network charges. The aim is for the network costs to be shared fairly between all the network users. At the moment, though, there is no prospect of any profound changes in the short term.

Most network costs are fixed costs. They are incurred by the network operators through simply providing the agreed network capacity and are charged to the electricity suppliers. The suppliers in turn pass on the costs to the consumers through their electricity tariffs. But how can people who produce their own electricity but are still fully reliable on the grid pay their share of the network costs?

The EFZN, an energy research centre in Lower Saxony, and the Bundesnetzagentur held an interdisciplinary conference on 27-28 March 2014 to discuss these issues. The conference focused on how to redesign electricity network charges to take greater account of the possibility customers have to use electricity (capacity) from the low voltage grid.

The discussions showed that views differ as far as amending the regulations is concerned. However, no viable concept has been presented that offers a better alternative to the current system in terms of correctly allocating network costs and taking due account of the financial capability of private households in particular. At the moment it would seem best for the network operators to exhaust all the options available in setting charges for the low voltage grid before any fundamental changes are made to the existing system.

Charges Ordinance (StromNEV). The Bundesnetzagentur withdrew its existing determinations on pooling (settlement of several points of offtake with synchronous supply) in derogation from section 17(8) of the Ordinance (BK8-11-015 to 022) with effect from 1 January 2014.

Various questions of interpretation were discussed with the market players as part of this process. On 14 November 2014 the regulatory authorities of the federal states and the Bundesnetzagentur published a joint position paper with the aim of establishing a common interpretation of section 17(2a) of the Ordinance to be effective as of 1 January 2014.

Determination setting an incentive scheme for system services and inclusion of the resulting costs in the revenue caps

The Bundesnetzagentur in 2014 set the transmission system operators an incentive model for system services (control power, energy loss, redispatch). This applied to the entire second incentive regulation scheme period and provided a continuation of the essential key aspects of the model effective in the first period.

With the aid of the model set out in the determination, and on the basis of the energy amounts and price trends forecast annually for the following year, a reference value is set up, which is included in the operators' revenue caps as the predicted cost. Based on a subsequent comparison of the predicted costs and the actual costs, it can be seen whether the reference value is undercut or exceeded. If the difference is below the target value, the operators must refund the difference to the network user with a two-year delay; they may, however, keep a bonus. If the target value is exceeded, they are refunded the difference but must themselves pay a penalty, which in turn is credited to the network users. This creates an incentive for the operators to set up efficient system services so as to keep any negative impacts on the network tariffs to a minimum.

Conclusion of a contract for the provision and use of the plants in Marbach and Walheim as reserve power plants

The facilities at Marbach and Walheim which had been designated and approved as systemically relevant in accordance with section 13a(2) of the Energy Act (EnWG) were included in the reserve capacity on 6 July 2014.

A contract was concluded between TransnetBW GmbH and EnBW AG on 18 December 2014, following coordination with the Bundesnetzagentur. The contract provides the basis for compensation for the systemically relevant facilities at Marbach and Walheim, as provided for by section 1(2) of the Reserve Power Plant Ordinance (ResKV). The contract covers the facilities whose designation as systemically relevant was approved on 19 December 2013 (file no 608 12 03), namely MAR GT II (77 MW) and MAR Block III (347 MW), and WAL 1 (96 MW) and WAL 2 (148 MW).

Under section 6 of the Reserve Power Plant Ordinance the costs arising for the transmission system operator as a result of the contract are recognised as regulated costs by a determination from the Bundesnetzagentur on a voluntary commitment by the transmission system operators in accordance with section 11(2) fourth sentence and section 32(1) para 4 of the Incentive Regulation Ordinance (ARegV) and are thus incorporated as non-controllable costs in the revenue cap for TransnetBW GmbH.

Individual network charges under section 19(2) of the Electricity Network Charges Ordinance

Under section 19(2) first sentence of the Electricity Network Charges Ordinance (StromNEV) final customers are entitled to agree an individual network charge with their immediate upstream network operator if, on the basis of existing or predicted consumption data or technical or contractual conditions, their peak load contribution is predicted to diverge considerably from the simultaneous annual peak load of all offtake at the network or voltage level. The individual charge may not be less than 20% of the general network charge, however.

Final customers with a consumption of more than 10 GW/h and a minimum of 7,000 hours of use at one particular supply point in each calendar year are also entitled to agree an individual network charge with their immediate upstream network operator, as provided for by section 19(2) second sentence of the Ordinance. In this case, the individual charge is to reflect the final customer's actual contribution to lowering or avoiding an increase in the costs at the network or voltage level to which the customer is connected.

Up until the end of 2013, such individual network charges required approval from the competent regulatory authority. Following the Bundesnetzagentur's

ruling of 11 December 2013 (file no BK4-13-739) laying down the criteria for determining individual network charges under section 19(2) of the Ordinance, individually agreed charges no longer require approval; as from 1 January 2014 they are effective provided they have been notified to the competent regulatory authority. Spot checks are made to verify the compliance of at least some of the charges notified in 2014 with the criteria in section 19(2) of the Ordinance and the Bundesnetzagentur's ruling.

Approvals for individual network charges

Work in 2014 focused on processing the outstanding applications for approval by the Bundesnetzagentur under its own or an official delegation of powers; most of the cases could be completed. The figures for the applications from 2012 and 2013 and the notifications made in 2014 are presented below.

Classification of the costs for flow commitments as volatile costs within the meaning of section 11(5) of the Incentive Regulation Ordinance

On 15 May 2014 the Bundesnetzagentur issued a determination on the basis of section 32(1) para 4a of the Incentive Regulation Ordinance (ARegV) and section 50(1) para 4 of the Gas Network Access Ordinance (GasNZV) in conjunction with section 29(1) of the Energy Act (EnWG).

Under the determination, the costs arising for the transmission system operators as a result of load flow commitments are recognised as volatile costs within the meaning of section 11(5) of the Incentive Regulation Ordinance. Furthermore, the determination obliges all transmission system operators to observe the relevant requirements laid down by the Bundesnetzagentur in obtaining load flow commitments. The determination replaces the provisional order of 20 December 2012 classifying the costs for load flow commitments as volatile costs within the meaning of section 11(5) of the Incentive Regulation Ordinance.

Gas

Determination proceedings regarding entry and exit capacity charges

In 2014 the Bundesnetzagentur's Ruling Chamber 9 opened determination proceedings – with a high level of participation from the market – regarding appropriate network charge setting arrangements with requirements for converting annual capacity charges into charges for non-annual capacity rights in accordance with section 13(2) fourth sentence of the Gas Network Charges Ordinance (GasNEV) in conjunction with section 50(1) para 4 of the Gas Network Access Ordinance (GasNZV) and regarding appropriate network charge setting arrangements in accordance with section 30(2) para 7 in conjunction with section 15(2)

Section 19(2) first sentence of the Electricity Network Charges Ordinance (StromNEV) (atypical use)

Year	Applications	Approved	Discontinued	Refused	Saving (€m)
2012	3,170	2,727	375	67	**approx 63**[1]
2013	1,112	622	190	300	**approx 30**

1) Approvals expire on 31 December 2014

Section 19(2) second sentence of the Electricity Network Charges Ordinance (StromNEV) (intensive use)

Year	Applications	Approved	Discontinued	Refused	Saving (€m)
2012	134	83	41	12	**approx 58**
2013	60	36	21	3	**approx 24**

Notifications as from 2014

Legal basis	Notifications	Notified saving (€b)
Section 19(2) first sentence StromNEV	1,995	**approx 106**[1]
Section 19(2) second sentence StromNEV	302	**approx 307**[2]

1) The increase compared to the previous years is due to the expiry of the individual charge approvals granted in 2013 in accordance with section 19(2) first sentence of the Ordinance (approx €30m) and to the fact that traction electricity charges (approx €35m) were notified for the first time.
2) The increase compared to the previous years is due to the expiry on 31 December 2013 of the charge exemptions granted in 2011 in accordance with section 19(2) second sentence (old version) of the Ordinance (approx €240m).

to (7) of the Gas Network Charges Ordinance. The Ruling Chamber is also due to issue a determination in early 2015 laying down the requirements for setting charges for interruptible capacity and for entry and exit capacity at gas storage facilities.

Determination proceedings for horizontal cost allocation in accordance with section 29(1) of the Energy Act in conjunction with section 30(2) para 10 of the Gas Network Charges Ordinance

Gas transports between transmission system operators within the same market area are currently not charged for. This means that although costs are incurred at the connection points between the operators they are not allocated. Based on the two-contract model, this distorts pricing at the "edges" of the market area and provides inappropriate price signals, which can in turn create disincentives within the German capacity market.

During the second regulatory period Ruling Chamber 9 recognised the danger of the wrong price signals in the network charges and opened determination proceedings to adequately address the problem. A consultation event for the market players was held in November 2014, and the Chamber is expected to issue its determination in 2015.

Tasks under the Renewable Energy Sources Act and the Ordinance implementing the Equalisation Scheme Ordinance

The Bundesnetzagentur is responsible under the revised Renewable Energy Sources Act (EEG) for various tasks relating to renewable electricity generation.

Under the 2014 Act and the Energy Act (EnWG), the Bundesnetzagentur – in addition to keeping the renewable installations register – is tasked with monitoring four areas of activity: correct feed-in management by the operators, correct calculation of the renewable energy surcharge, the collection of

Making the *Energiewende* transparent

The revision of the Renewable Energy Sources Act (EEG) was accompanied by the introduction of an official register of all new installations generating electricity from renewable sources.

To make sure that the costs of Germany's *Energiewende* do not get out of hand, the federal government revised the Renewable Energy Sources Act to provide more scope to manage the increase in wind, photovoltaic and biogas installations, for instance by gradually scaling back the financial incentives for renewables. Alongside this, the Bundesnetzagentur was tasked with setting up a register of all new renewable electricity installations. The register, established on 1 August 2014, can be accessed by electricity network operators, potential investors and the general public via the Bundesnetzagentur's website.

The idea behind the register is to make it easier for renewable electricity to be integrated into the grid. It gives network operators a better overview of the installed capacity and location of renewable installations, putting them in a better position to adapt network operations accordingly. At the same time the register makes it easier for network operators to set the incentive rates for the individual installations, since

all installation operators are required to register their new facilities. Operators can calculate the rate for new installations and – under the new, flexible scheme – the rate can be increased given certain conditions or reduced to varying degrees.

data for calculating the surcharge and publication of the surcharge, and electricity labelling. The Ordinance implementing the Equalisation Scheme Ordinance (AusglMechAV) sets out what the transmission system operators have to do when calculating the surcharge each year in advance. The aim of the feed-in management scheme is to give priority to energy generated from renewable sources. To ensure that the change in the generation landscape is successful and networks are adequately equipped, renewable installations have the privilege of generally being able to feed in to the grid at any time. System operators are only allowed to restrict feed-in if there is congestion in the grid and, if this happens, the installation operators are entitled to compensation for the energy not fed in. These strict rules helped operators to keep the proportion of renewable electricity not fed in to well below 1% in 2013. Monitoring compliance with the feed-in management rules is tasked to the Bundesnetzagentur.

Monitoring calculation of the renewables surcharge involves checking that the revenues and expenditures used to set the surcharge are correct as well as the surcharge itself. This means checking accounts to make sure that no revenues and expenditures other than those allowed by the legislative provisions have been used. Revenues are checked to make sure that the surcharge has actually been charged and has been passed on by the energy suppliers to the transmission system operators and entered in the renewables account. Expenditures are checked to make sure that the installation operators receive only the financial support they are actually entitled to. This task does not overlap with the activities of the body responsible for handling disputes about compensation between system and installation operators.

To ensure maximum transparency, transmission system operators have to provide each other with and then publish the figures they use to calculate the renewable energy surcharge. Compliance with this requirement is monitored by the Bundesnetzagentur.

The Renewable Energy Sources Act and the Energy Act state that customers' bills must indicate how much of the electricity is subsidised under the Renewable Energy Sources Act. The renewables surcharge paid by each customer corresponds to a certain amount of "green electricity", which – for standard household customers – is now more than 35% of their electricity consumption. Monitoring how electricity is labelled is again the responsibility of the Bundesnetzagentur.

Allocation and transfer of offshore connection capacity

The amendments to the Energy Act which took effect on 1 August 2014 brought about fundamental changes in the regulations for connecting offshore wind installations to the grid. The maximum connection capacity that can be allocated up to 31 December 2020 for links connecting installations in the North Sea and the Baltic Sea is 6.5 GW. This limit cannot be exceeded until 2021, when the maximum is raised to 800 MW per year. However, a transitional arrangement provided for in section 118(14) of the Energy Act allows the Bundesnetzagentur to allocate up to 7.7 GW prior to 1 January 2018. Capacity is allocated by the Bundesnetzagentur following an objective, transparent and non-discriminatory procedure set out in a determination issued by the Bundesnetzagentur.

The Bundesnetzagentur published its determination with the rules for allocating offshore connection capacity on 13 August 2014. The determination lays down in particular the requirements to be met by operators seeking capacity on existing transmission links or those under construction. It also establishes the rules for auctioning connection capacity in the event of a shortage.

The Bundesnetzagentur opened the first allocation round on 27 August 2014, setting the total connection capacity available for allocation at 7,700 MW, the maximum allowed in the Energy Act. Taking into account all the unconditional grid connection commitments already in place, this meant up to 1,722.7 MW of capacity was available for new links in the North and Baltic Seas. The deadline for written applications from offshore wind farm operators seeking to take part in the capacity allocation procedure was 1 October 2014. The Bundesnetzagentur then decided which operators would be allowed to participate in the procedure and how much capacity could be allocated to each.

Several companies objected to the Bundesnetzagentur's decision. Two applications for provisional legal protection in particular threatened to hold up the procedure, but this was avoided thanks to the matter being settled in court, paving the way for a swift and legally sound allocation of the available capacity.

On 26 August 2014 the Bundesnetzagentur opened proceedings under section 17d(5) of the Energy Act on its own initiative to look at the option of transferring 400 MW of the capacity allocated to the transmission link for BorWin2 in cluster 6 to the link for BorWin3 in cluster 8. This would enable all the unconditional grid connection commitments made under the old legal framework to be met without having to construct a new transmission link, and thus save the network user up to €2bn in costs.

Market Transparency Unit and REMIT tasks

The agreement between the Bundesnetzagentur and the Bundeskartellamt on cooperation within the Market Transparency Unit for Wholesale Electricity and Gas Markets was concluded in February 2015 with the approval of the Federal Ministry for Economic Affairs and Energy. The agreement covers aspects such as staffing, task allocation and data collection and exchange.

One of the key sources of data for the Market Transparency Unit will be ACER, to whom data will be reported at European level under Regulation (EU) No 1227/2011 (REMIT). The rules for the provision of data by market participants are laid down in Commission Implementing Regulation (EU) No 1348/2014, which was drawn up by ACER with the participation of the Bundesnetzagentur. The Regulation was published in the Official Journal of the European Union on 18 December 2014 and entered into force on 7 January 2015. The reporting obligations for transactions and fundamental data apply from 7 October 2015 and those for certain other data from 7 April 2016.

Market participants obliged to report data are required to register with the Bundesnetzagentur. The Centralised European Register for Market Participants (CEREMP) was tested in 2014 by the Bundesnetzagentur, market players and professional associations and has been open for market participants to register in Germany since 6 March 2015.

REMIT is designed to ensure that prices in wholesale energy markets reflect a fair and pro-competitive balance between supply and demand. Insider trading and market manipulation resulting in unlawful profit and price distortion are prohibited, and violations are pursued and sanctioned by the Bundesnetzagentur. All consumers ultimately benefit from fair gas and electricity prices.

In 2014 the Bundesnetzagentur received five reports of possible violations of the REMIT regulations from other authorities. Two of the five cases are within the responsibility of foreign regulatory authorities, one case was closed without identifying a breach, and two cases are still being investigated.

Unbundling of distribution system operators

Distribution system operators with 100,000 or more customers that are part of a vertically integrated energy company have been legally required since 2011 to guarantee that their corporate communication and branding does not lead to any possibility of confusion with the sales and distribution activities of the vertically integrated company. The operation of gas and electricity networks constitutes a natural monopoly. This means that only the operator established in a certain coverage area is able to supply the market on reasonable economic terms, and operation of a parallel network is generally not an economically viable option. Competitors wishing to supply the connected customers are therefore reliant on using the existing network. All those involved must be able to be sure that the network is a neutral platform and that each supplier has exactly the same chance as the others to provide customers with reliable and reasonably priced services. The unbundling requirements therefore stipulate that network operations must be clearly separated from the other levels of the value chain. This separation of communication activities is designed to improve transparency for consumers.

The Bundesnetzagentur's monitoring activities revealed that half of the distribution system operators under its remit (those with 100,000 or more connected customers) did not have unique branding, a basic requirement for a communication system that is in conformity with the unbundling requirements. Most customers had been unaware for a long time that network operations and sales and distribution were actually two separate business areas.

To push through the requirements, proceedings were initiated to supervise the compliance of 37 distribution system operators. Most of the operators concerned then took measures to implement unique

branding in conformity with the unbundling requirements, and the majority of the proceedings were consequently discontinued. Formal rulings have been issued for two companies. The companies found not to have adequate differentiation in their branding are shown in the Bundesnetzagentur's Monitoring Report 2014 (Annex, page 326). Updated information on the proceedings is published on the Bundesnetzagentur's website on the pages of Ruling Chambers 6 and 7.

Determination on data exchange processes for the energy information network for electricity

Transmission system operators are responsible for guaranteeing reliable and secure operation of the grid at all times and as such are faced with a growing number of increasingly difficult situations in which potential threats or disruptions to reliability or security can be offset by the operators' specific intervention only. In addition to purely network-related and classic market-related measures, direct intervention in the operation of generating and storage facilities as provided for by section 13(1a) of the Energy Act (EnWG) is increasingly necessary.

The transmission system operators rely on comprehensive information to plan and manage the system, including accurate details of the current and future state of the system and the short-term measures available to counter threats and disruptions.

Effective and smooth cooperation between power plant operators and transmission system operators is also essential to guarantee system reliability. To ensure realistic system planning and maintain a continuous overview of the system services contracted, comprehensive planning data is required even before facilities are put into operation to enable adequate measures to be planned and implemented in good time should there be a threat to the supply system.

The Bundesnetzagentur's determination on data exchange processes within the framework of the energy information network for electricity, published on 16 April 2014, lays down binding data provision obligations for all operators of electricity generating or storage facilities. Section 12(4) of the Energy Act imposes a general obligation on generating and storage facility operators to provide data to the transmission system operators. However, the fact that the operators planning and managing the system need to be able to react quickly and accurately assess the situation in the grid, combined with the vast scope of the data to be provided, means that virtually all the data processing needs to be done automatically. This in turn means that binding rules are needed to state exactly which data is to be provided when and how. Such rules applicable to the whole market did not previously exist. In addition, the transmission system operators had made it clear to the Bundesnetzagentur that there would be a considerably higher risk of threats or even disruptions to the stability of the supply system in extreme situations should there be no real improvements in the provision of information on operating schedules. As from 1 October 2014 electrical generating or storage facility operators are required to provide the transmission system operators with availability schedules on a regular basis. The deadline for the first schedules showing the planned and unplanned non-availability of facilities is 1 April 2015.

International cooperation

Significant progress was made in 2014 towards completing the internal energy market.

The Agency for the Cooperation of Energy Regulators (ACER) was launched in 2011 to support the national regulatory authorities in the Member States to fulfil their tasks at Community level and to coordinate their efforts where necessary. From the start the Bundesnetzagentur has played an active role on ACER's committees, in particular on the Regulatory Council and in working groups, in order to press ahead with pertinent European solutions wherever cross-border trade demands it.

Progress towards completing the internal energy market was marked by the successful go-live of the North-Western Europe (NWE) price coupling on 4 February 2014 and the adoption of the first electricity network code, the Capacity Allocation Congestion Management (CACM) binding guideline, by committee procedure on 5 December 2014. The Network Code on Gas Balancing of Transmission Networks, which entered into force on 16 March 2014, was the second gas network code to be adopted. The regulatory authorities, the European professional associations of gas and electricity transmission system operators (ENTSO-E for electricity and ENTSOG for gas) and the European Commission will focus their efforts in 2015 on implementing the new rules as well as adopting further network codes.

Electricity network codes

Guideline on Capacity Allocation and Congestion Management (CACM)

The Guideline on Capacity Allocation and Congestion Management, which was adopted by committee procedure on 5 December 2014, was the first electricity network code to be adopted. The Bundesnetzagentur closely followed the procedure and advised the Federal Ministry for Economic Affairs and Energy, which was directly involved in the process. The Guideline provides the legal basis for implementing a target model for the design of a single electricity market across Europe and is expected to take effect in mid-2015. It sets out rules for calculating and allocating cross-border day ahead and intraday capacity and for congestion management. It provides for the designation of nominated electricity market operators responsible for market coupling. The Guideline also provides for a joint assessment of the bidding zone configuration by ACER and ENTSO-E every three years. Any proposals to amend the existing configuration will be decided on jointly by the Member States concerned.

Other electricity network codes
The Bundesnetzagentur was also actively involved in 2014 in the work on the network codes for grid connection, system operation, electricity balancing and forward capacity allocation. These codes are expected to be submitted for scrutiny in the course of 2015. Here, too, the Bundesnetzagentur will support and advise the Federal Ministry for Economic Affairs and Energy.

Gas network codes

Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems
The Network Code on Capacity Allocation Mechanisms (CAM) was adopted by the European Commission as the first gas network code on 14 October 2013. It sets out common rules for market-based and non-discriminatory capacity allocation for access to the gas transmission networks. The network code essentially standardises the timing of capacity products at cross-border and market area interconnection points and their allocation by means of an auction. Any capacity to be newly allocated must be offered as bundled capacity to enable natural gas to be transported between market areas without any restrictions and without network users running the risk of being "stranded" with gas at a border. This bundles liquidity at trading points, minimises the risk of market exclusion by dominant capacity holders at borders, and enhances security of supply.

The provisions of the network code will become binding on 1 November 2015. ACER and ENTSOG have jointly elaborated, in close cooperation with national regulatory authorities and transmission system operators, a roadmap to facilitate and support the early implementation of the network code. The CAM Roadmap is updated each year and provides an overview of the progress in implementing the provisions. The latest version for 2014 was published in October 2014. Many of the new network code provisions have already been implemented in Germany and are being implemented early in many Member States on a voluntary basis. The CAM Roadmap also reports on the pilot projects on the European booking platforms. There are currently three platforms in Europe (PRISMA, GSA and RBP) which market capacity on behalf of transmission system operators. In 2014 ACER also began its review of the progress made in implementing the guidelines on congestion management procedures (CMP) and the occurrence of contractual congestion at interconnection points. ACER is expected to publish its findings shortly.

Amendment of the CAM Network Code
On 12 December 2013 ACER recommended that the network code be amended. The national regulatory authorities and the European Commission had agreed to initially not include rules for the market-based allocation of incremental and new capacity in the network code. The Council of European Energy Regulators (CEER) and ACER had already outlined processes for such capacity allocation in 2012 and 2013, providing the foundation for further work on this topic. ACER invited ENTSOG to draft and consult on an amendment to the CAM Network Code. The proposal published by ENTSOG on 11 December 2014 sets out rules for identifying the demand for and allocating new capacity. ACER now has the opportunity to assess the draft and propose amendments. The aim is to submit the proposal to the European Commission by the end of 2015 and recommend that the Commission adopt the proposal subject to specific amendments.

Network Code on Gas Balancing of Transmission Networks
The Bundesnetzagentur was also involved in developing other key gas network codes, including the code on balancing. The objective of the provisions on balancing is to facilitate gas trading across balancing zones and thus help to establish a liquid market. The harmonised balancing rules aim to ensure that all network users across the European Union can balance their portfolios in an economically efficient and non-discriminative manner. ENTSOG submitted its final proposal to ACER on 21 February 2013. On 25 March 2013 ACER forwarded the proposal to the European Commission and recommended that the Commission adopt the network code. The network code entered into force on 16 March 2014, and the provisions will become binding on 1 October 2015. Following the Madrid Forum in May 2014 ACER and ENTSOG have started to coordinate the early implementation of the new provisions. The first joint report on the progress made in implementing the rules was published in October 2014.

In December 2014, following a public consultation process, the Bundesnetzagentur published its determination on the redesign of the gas balancing regime (GaBi Gas 2.0) to provide for implementation of the new network code rules by 1 October 2015. The revised balancing regime includes a new methodology for calculating imbalance charges, changes to the existing within-day obligations and an incentive scheme for the daily assessment of network accounts.

Other network codes and the Gas Target Model
The Bundesnetzagentur was involved in developing rules on interoperability and data exchange and on harmonised transmission tariff structures. The new network code on interoperability and data exchange rules is expected to be adopted in the first half of 2015 and the new code on tariff structures by the end of the year. The Bundesnetzagentur was also active in updating the Gas Target Model, which was first developed in 2011. The Gas Target Model sets out criteria enabling conclusions to be drawn about a functioning wholesale market. The updated Gas Target Model was published in January 2015.

Launch of price coupling in North-Western Europe (NWE) on 4 February 2014

The North-Western Europe (NWE) price coupling project involving the day-ahead markets in Central Western and Northern Europe was launched successfully on 4 February 2014. This is a continuation of the successful market coupling in Central Western Europe, launched in 2010. A significant further step towards creating an integrated European electricity market was reached on 13 May 2014 with the successful go-live of the full price coupling of the South-Western Europe (SWE) and North-Western Europe (NWE) day ahead markets (multi-regional coupling, or MRC). Electricity can now be traded from Portugal to Finland or from Great Britain to Germany under a common day ahead power price calculation. The Bundesnetzagentur supports the plans to gradually extend market coupling to cover further regions and markets.

Bundesnetzagentur participation in the Council of European Energy Regulators

Since 2005 the Bundesnetzagentur has been a member of the independent Council of European Energy Regulators (CEER). Since ACER was established in 2011, CEER has concentrated on issues that do not fall under the remit of ACER. These include consumer protection, regulatory aspects of retail markets, the promotion of renewable energy sources, the future of the internal market, and international cooperation. In addition, CEER supports the work of ACER in many areas.

Consumer protection
As a step towards implementing its 2020 Vision, CEER consulted on and published a suite of recommendations on cooperation between consumer organisations and regulatory authorities and how information exchange can be made more efficient to the mutual benefit of both the regulators and the consumers. The recommendations centre around focused information exchange, capacity building through training activities on both sides, collaboration in the field of policy development and design, and monitoring compliance with existing legislation. Involving consumer organisations in regulatory processes can help achieve better functioning retail markets, enhanced involvement of consumers and improved consumer protection.

CEER also developed recommendations about customer information on sources of electricity. These recommendations aim to enable consumers to make informed choices about renewable electricity suppliers and present criteria for information concerning energy sources and for green electricity labels.

Future role of distribution system operators
In 2014 CEER published a consultation paper on the future role of distribution system operators in an evolving energy market and on how the European regulatory framework could be adapted. CEER first presents its principles for distribution system operators: they must act in a way which reflects the expectations of the other market players, as a neutral market facilitator and in the public interests, taking account of costs and benefits. CEER also deals with the increasing involvement of distribution system operators in system operation and coordination between distribution and transmission system operators. Finally the paper discusses the role of economic incentives, including the regulatory framework for distribution system operators' possible investments, the integration of demand-side response and future network tariff structures.

Cooperation with the International Energy Agency
CEER worked closely together with the International Energy Agency (IEA) within the Electricity Security Advisory Panel (ESAP) launched in 2014. ESAP members discussed various topics such as congestion management, demand-side management and the future design of the electricity market. In January 2015 CEER and the IEA are holding two joint workshops on network investment and regulation and regional resource adequacy.

EU-US Roundtable

The annual EU-US Roundtable held in Boston on 13-14 May 2014 provided a platform for senior regulators from the US and Europe to exchange views and experiences on the common challenges they face and the role of the regulators in a time of political uncertainty impacting on the international energy markets. The Roundtable focused on issues including managing volatility from variable renewable generation, the impact of new technologies and distributed generation on distribution networks, increasingly complex and interconnected networks, and measures to reinforce the resilience and reliability of networks.

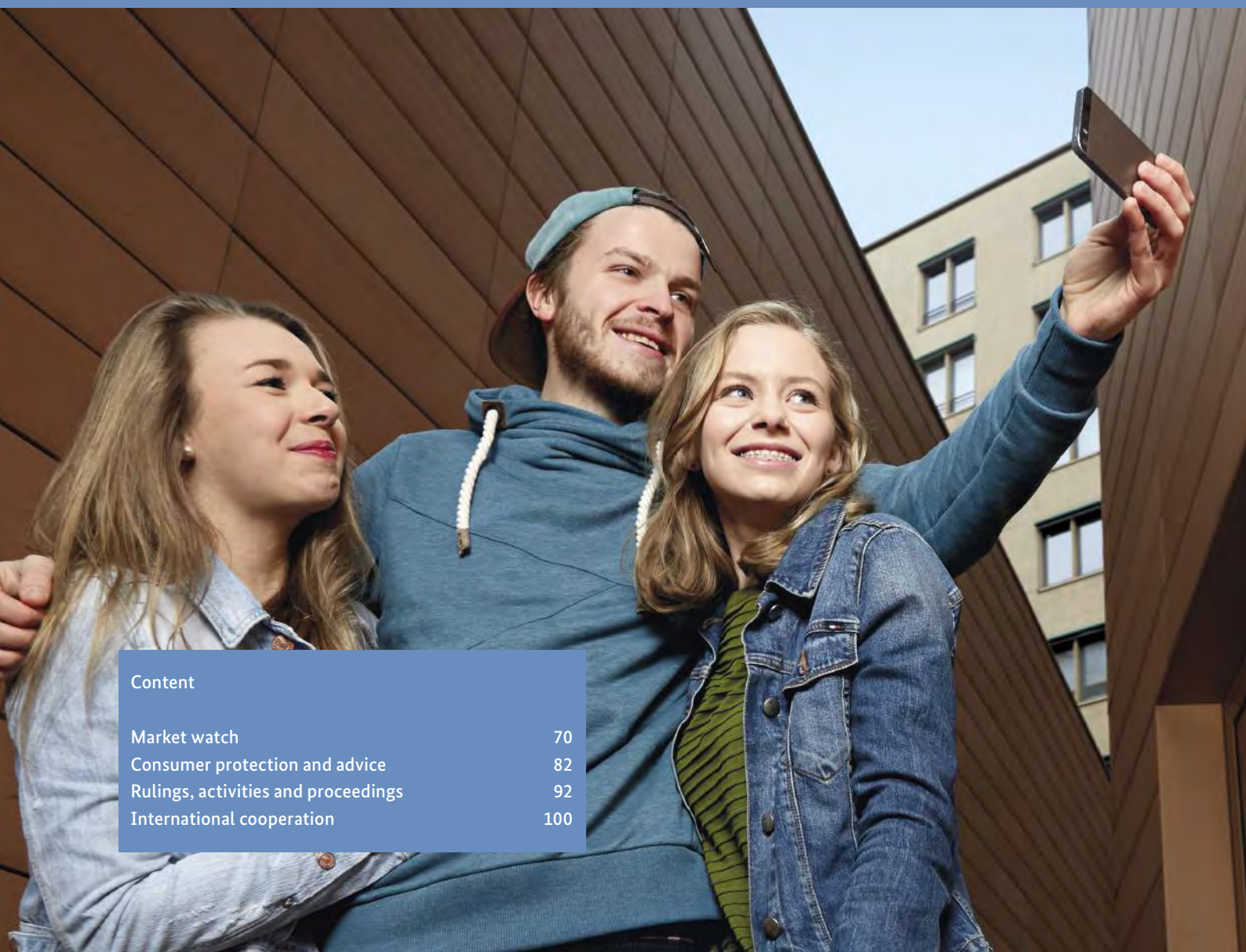
Florence School of Regulation and Bundesnetzagentur Forum

The Florence School of Regulation (FSR) and the Bundesnetzagentur held their sixth joint forum on legal issues of energy regulation in Brussels on 14 February 2014. In addition to evaluating the current and potential future activities of ACER, the forum held three sessions addressing the future role of distribution system operators, the role of incentive regulation, and state aid in the energy sector.

TELECOMMUNICATIONS

Life in a digital world

High-speed broadband networks for the rapid exchange of information are an important factor in the choice of location for companies. They create jobs and are essential for innovation. The Bundesnetzagentur continued to improve the regulatory framework for telecommunications networks in 2014.



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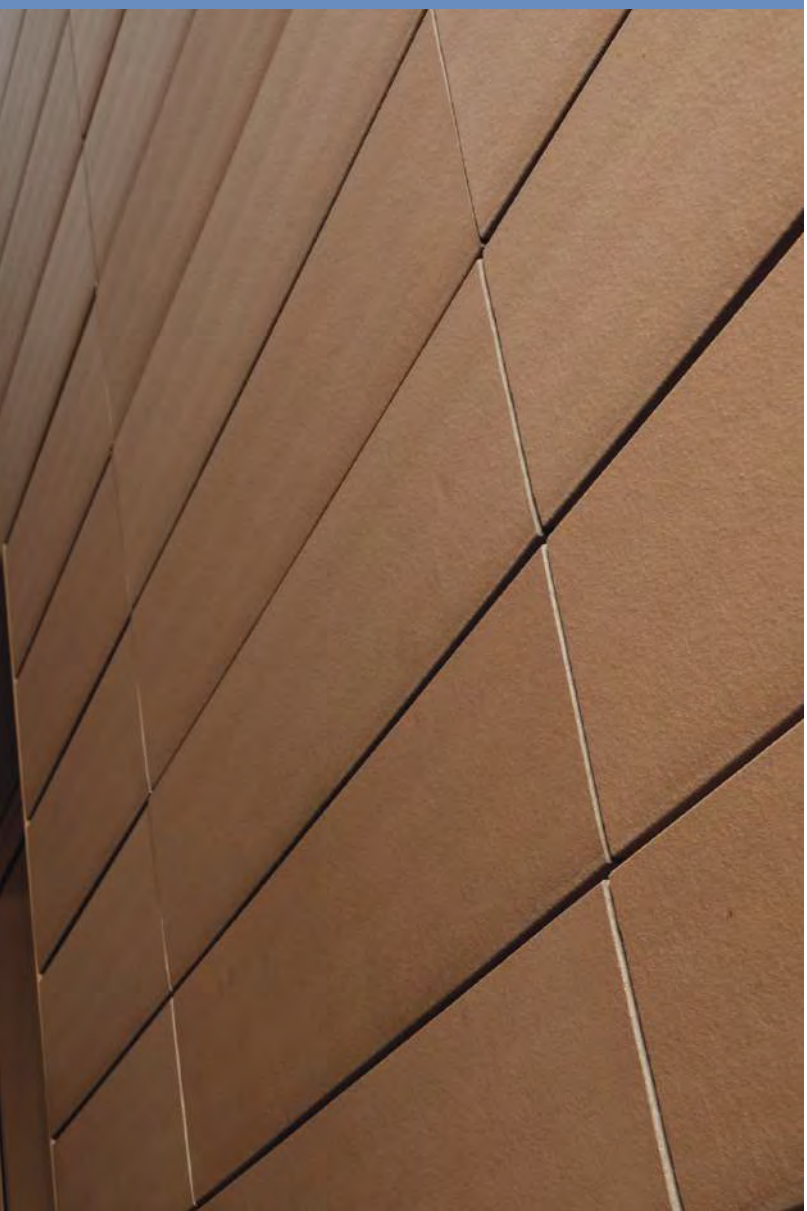


The Bundesnetzagentur continued to improve the framework conditions for broadband rollout in 2014, especially in rural areas. Through the further development of the infrastructure atlas, definition of specific conditions for the use of vectoring technology, and preparation of the auction of additional spectrum for the further rollout of mobile internet services, the Bundesnetzagentur is supporting the German government's Digital Agenda. The aim is to make "digital equality of opportunity" a reality for all citizens and commercial enterprises.

In the telecommunications market, the possibilities of information and communication technology and the range of services available in this segment are becoming increasingly diverse and more and more complex for consumers. The Bundesnetzagentur's Consumer Advice service is responsible for the implementation and enforcement of consumer rights in accordance with the German Telecommunications Act (TKG).

The main subjects of enquiries and complaints concerning telecommunications were switching providers and relocation issues. Many consumer enquiries also related to contractual matters, the provision of basic telephone services, and the allocation and administration of telephone numbers.

Market watch

There has been a marked rise in investment in the telecommunications market. Higher speeds are in demand in both the fixed network and in mobile networks. Bundled products comprising internet and telephone services are increasingly becoming the norm.

Telecommunications market as a whole

External revenue

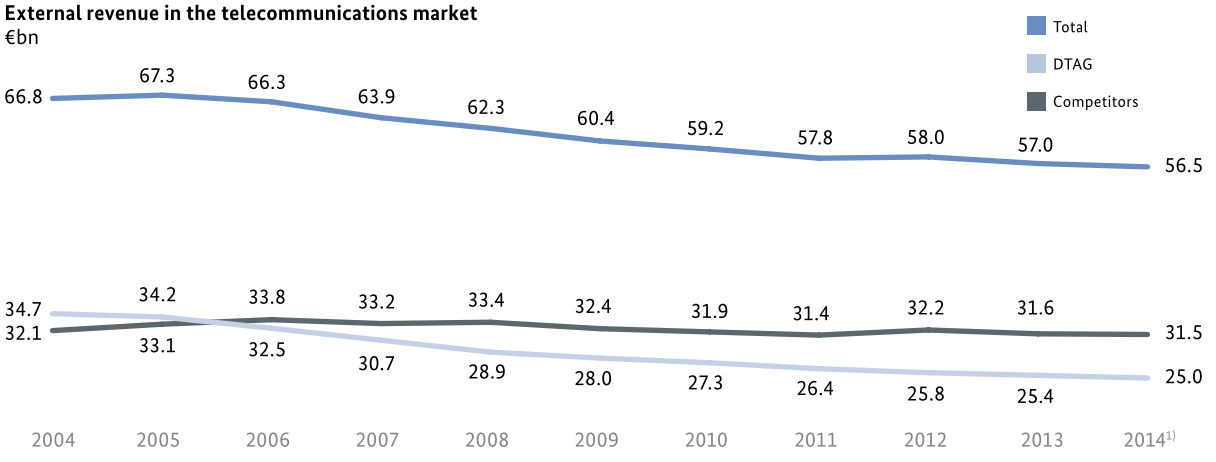
Preliminary calculations put external revenue in the telecommunications market at approximately €56.5bn in 2014. This represents a year-on-year decrease of €0.5bn or 0.9% and a continuation of the general downward trend of recent years.

Alternative providers generated external revenue of €31.5bn, down €0.1bn or 0.3% on the previous year. Deutsche Telekom AG (DTAG) generated external revenue of €25.0bn in 2014, a reduction of €0.4bn or 1.6% compared with 2013.

Alternative providers accounted for a market share of around 56% in 2014.

A breakdown of revenue by conventional telecommunications networks[1], HFC networks[2] and mobile networks shows that there was a further reduction in revenue in conventional telecommunications markets in 2014. External revenue in 2014 fell by 3% compared with the previous year. Some 78% of this revenue was generated from retail business. This includes external revenue generated from services for private, commercial and public-sector subscribers. Wholesale services for fixed-network and mobile operators and service providers outside of the DTAG group accounted for just under one fifth of external revenue. These services include wholesale products for voice traffic/telephony, broadband/internet and infrastructure services.

External revenue in the telecommunications market



1) Forecast figures

1) Conventional telecommunications networks are defined as networks with two-wire copper pairs or fibre in the loop.
2) Networks with a hybrid fibre coaxial (HFC) architecture in the loop.

External revenue by segment						
	2012[1]		2013		2014[2]	
	€bn	%	€bn	%	€bn	%
External revenue in the telecommunications market	**58.0**		**57.0**		**56.5**	
External revenue in conventional telecommunications networks	**24.45**	**100[3]**	**24.30**	**100**	**23.56**	**100[3]**
Via retail	18.97	78	19.14	79	18.46	78
Via wholesale	5.03	21	4.63	19	4.57	19
Other external revenue	0.45	2	0.53	2	0.53	2
External revenue in HFC networks	**4.25**	**100**	**4.48**	**100**	**4.77**	**100**
Via retail	3.87	91	4.12	92	4.40	92
Via wholesale	0.14	3	0.12	3	0.10	2
Other external revenue	0.24	6	0.24	5	0.27	6
External revenue from mobile services	**26.53**	**100**	**26.22**	**100**	**26.04**	**100[3]**
Via retail (excluding terminal equipment)	18.88	71	18.81	72	19.15	74
Via wholesale	3.68	14	3.07	12	2.86	11
Via terminal equipment	2.79	11	3.27	12	3.05	12
Other external revenue	1.18	4	1.07	4	0.98	4
Other external revenue	**2.79**		**1.98**		**2.11**	

1) Updated figures
2) Forecast figures
3) Totals may deviate from rounded cumulative figures.

Bucking the trend, external revenue generated in HFC networks continued to grow. In 2014 it increased by more than 6% on the previous year to €4.77bn. However, its market share was still less than that of mobile services (46%) and conventional telecommunications networks (42%). The lion's share of this revenue (90%) was attributable to retail.

In 2014 external revenue from mobile services fell by just under 1% year on year to €26.04bn. By contrast, external revenue via retail increased slightly. This positive development is likely to be due in part to the rise in data volumes.Wholesale business shrank once again from 12% in 2013 to 11% in 2014. External revenue via terminal equipment remained constant in 2014 at 12%.

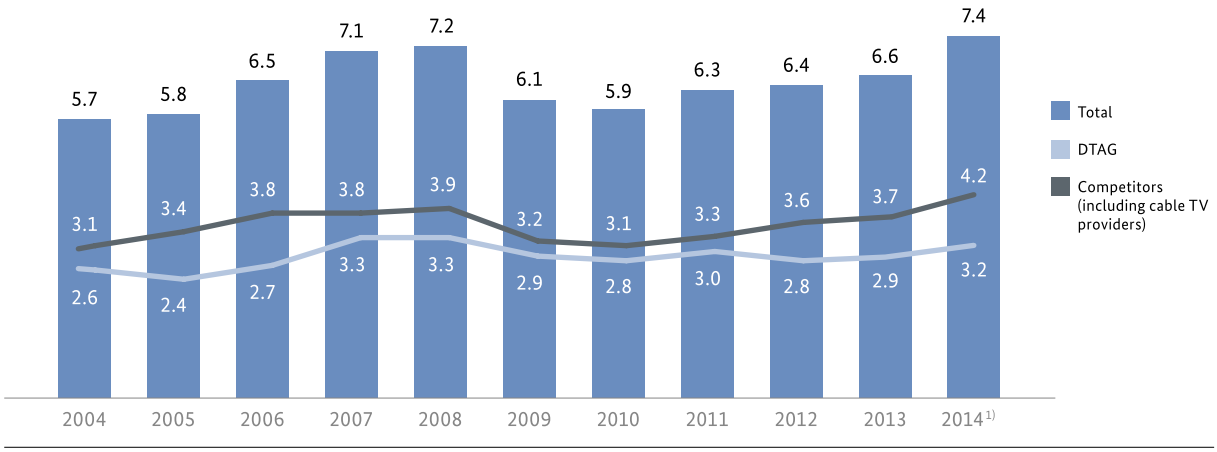
Investments in fixed assets

Investments in fixed assets in the telecommunications market amounted to €7.4bn in 2014, the highest level since 2004. This corresponds to an increase of 12.1% compared with 2013. Investments by alternative providers rose by € 0.5bn, from €3.7bn in 2013 to €4.2bn in 2014. DTAG increased its investments by €0.3bn to €3.2bn, while the share of investments made by alternative providers increased by just under one percentage point year on year to around 57% in 2014.

Investments in the cable TV infrastructure came to €1.1bn in 2014 (2013: €0.9bn), or approximately 15% of all investments in the telecommunications market (2013: just under 14%).

Companies invested mainly in the rollout of optical fibre networks, the changeover to IP-based networks and the rollout of LTE networks.

Investments in fixed assets in the telecommunications market
€bn



1) Forecast figures

In the period from 1998 to 2014 a total of €120.0bn was invested in fixed assets in the telecommunications market. Of this amount, €63.3bn (around 53%) was invested by alternative providers and €56.7bn by DTAG.

Employees

According to preliminary figures, 168,900 employees were employed by companies in the telecommunications market at the end of 2014, which is 1,800 or 1.1% less than in 2013 (170,700). 54,200 people were employed by alternative providers. This is roughly on a par with the previous year (54,100). DTAG continued to reduce staff numbers to 114,700 (a year-on-year decrease of 1,900).

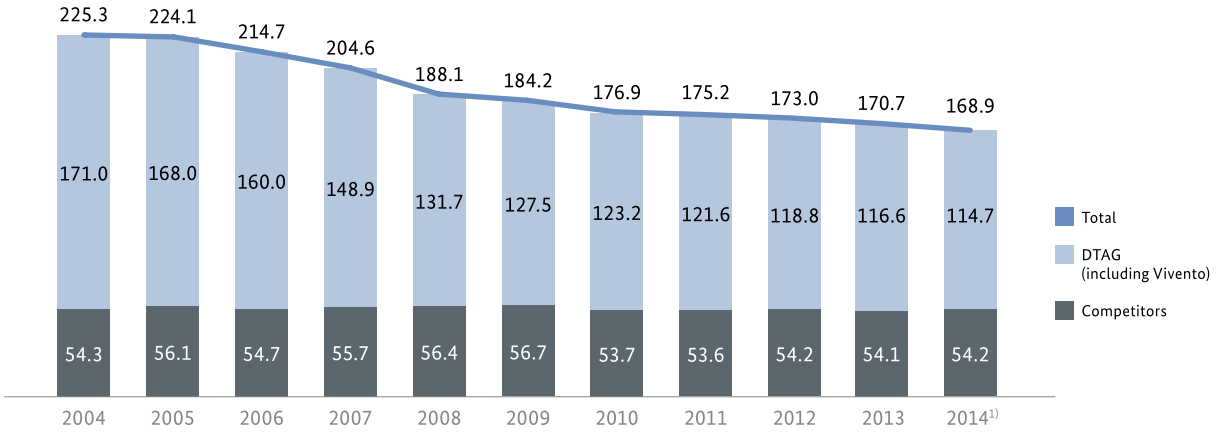
Fixed network

Lines/connections

Broadband connections as a whole and bundled products

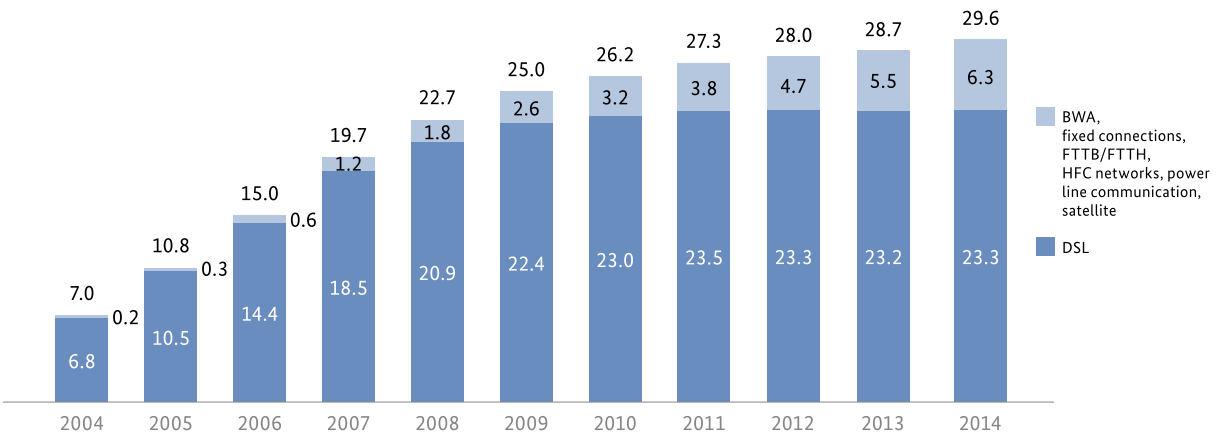
Most broadband connections are currently based on copper pairs (DSL) and on copper coaxial cables in HFC (hybrid fibre coaxial) networks. Other fixed connection technologies include optical fibre cables, satellite and wireless infrastructures in the fixed network.

Employees in the telecommunications market
Thousands



1) Forecast figures

Broadband connections in fixed networks
m

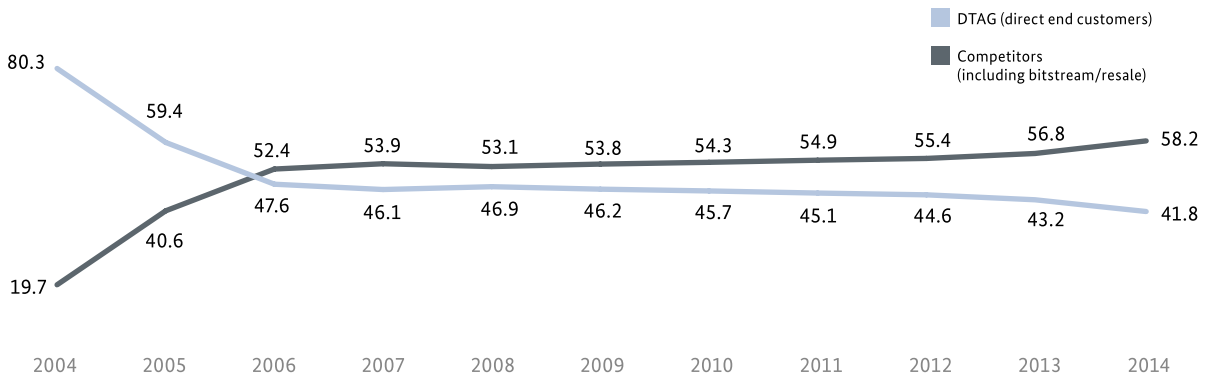


The number of fixed-network broadband connections rose to 29.6m in 2014, an increase of around 0.9m. 23.3m of these connections were based on copper pairs. In the case of broadband connections not based on copper pairs, the main growth driver in recent years has been connections based on HFC networks (5.9m). Together, all other technologies accounted for only approximately 0.4m connections. User figures for FTTB/FTTH technology therefore remain relatively low.

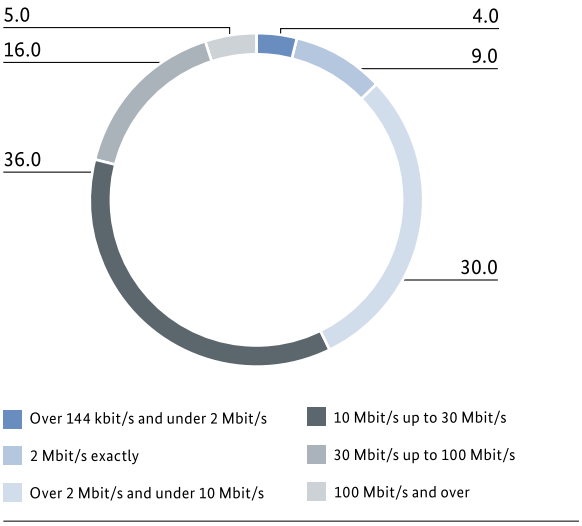
With regard to retail business, DTAG's competitors achieved a market share of around 58% in 2014. In doing so, they once again increased their share of the broadband market slightly. Gains in market share in recent years have been driven primarily by companies which operate HFC networks.

Supply and demand of broadband connections continued to be highest in the mid-range segment, with data rates of up to 30 Mbit/s. However, supply and demand of particularly high bitrate connections with transmission rates of 30 to 100 Mbit/s also rose by more than five percentage points in 2014.

Share of broadband connections in fixed networks
%



Distribution of broadband connections by speed in 2014
%



The use of full DSL or coaxial connections and bundled products also rose sharply in 2014. Such products are usually marketed to end customers as product bundles comprising both broadband internet access and telephone services. The individual services within the bundled product are tied to the connection and offered at a fixed price based on a single contract. For new customers, it is becoming increasingly difficult to purchase these services separately. Moreover, companies are increasingly attempting to migrate existing customers to bundled products.

Most internet and telephone connections within bundled products are IP-based (VoIP). Some bundled products also include TV.

By mid-2014 DTAG and its competitors had marketed approximately 24.7m bundled products comprising internet and telephone services and around 2.8m bundled products comprising internet, telephone and TV services[3]. It can be assumed that the importance of such bundles will continue to grow.

DSL connections

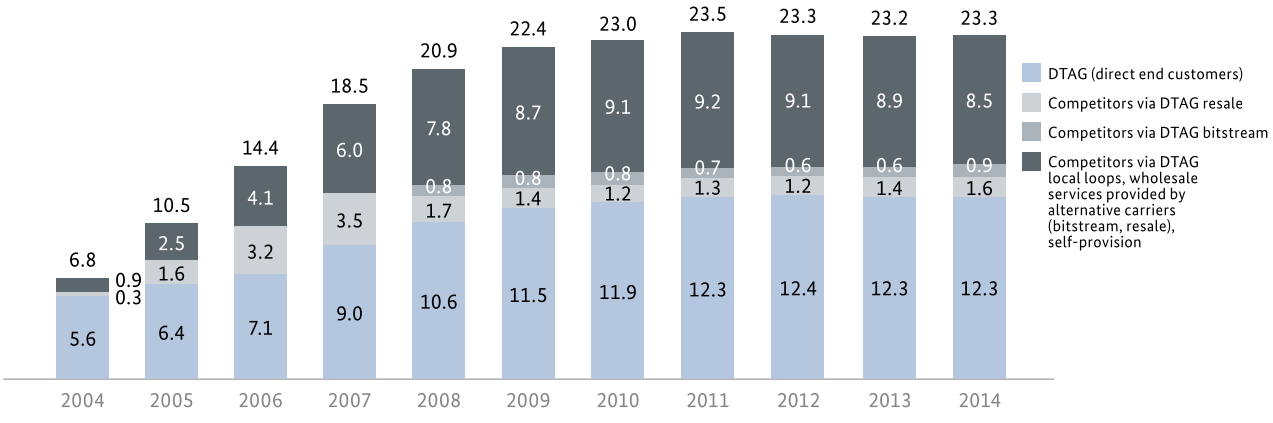
There was a slight rise in the number of DSL connections in 2014, although the overall number of DSL connections has stagnated in the last three years.

At the end of 2014 DTAG provided approximately 12.3m DSL connections for end customers, around 1.8m of which were based on VDSL. Alternative providers provided a total of around 11m DSL connections for end customers, giving them a market share of around 47%. In doing so, they provided roughly 1.0m VDSL connections to end customers.

The figures show a positive trend in the number of VDSL connections provided by both DTAG and alternative providers. Overall, this technology accounted for around 12% of the total number of DSL connections. VDSL therefore played a much more important role in the DSL market in the reporting period. At the wholesale level, the increase in the number of VDSL connections provided by alternative providers led to a rise in demand for DTAG's VDSL wholesale products.

Here, the number of bitstream and resale wholesale products provided by DTAG rose by 0.5m.

DSL connections
m



3) Only packages which include a broadband connection.

Broadband connections via HFC (hybrid fibre coaxial) networks

The combination of optical fibre and coaxial cables, in conjunction with the DOCSIS 3.0 transmission standard, enables broadband services with download speeds of up to 200 Mbit/s. At the end of 2014 there were 5.9m connections via these networks. In recent years customer numbers have grown at a consistently high rate of between 700,000 and 800,000 per year. With 67% of connections delivering speeds of over 30 Mbit/s and 23% delivering speeds of over 100 Mbit/s, the bandwidths demanded by customers are significantly higher than the average bandwidths provided by the different connection technologies. With HFC networks, it is possible to realise ever higher transmission speeds on a flexible basis by gradually increasing the optical fibre content.

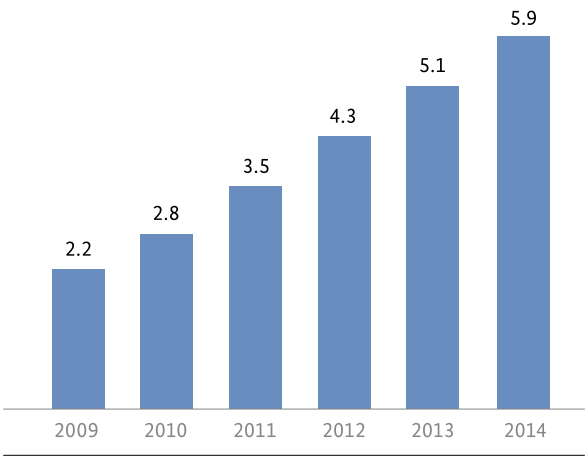
Broadband connections via optical fibre cables (FTTB/FTTH)

Limited by geographical availability, user figures for broadband connections via optical fibre cables are still relatively low, with just under 240,000 customers accessing the internet via FTTB and around 106,000 doing so via FTTH at the end of 2014. However, the potential offered by this infrastructure, which is considered to be the ideal medium for data transmission, is much greater. Around 1.7m connections were available to customers via FTTB/FTTH infrastructures at the end of 2014.

Satellite broadband connections

At the end of 2014 around 30,000 customers were using satellite technology, which makes it possible to access the internet from virtually any location.

Broadband connections via HFC networks

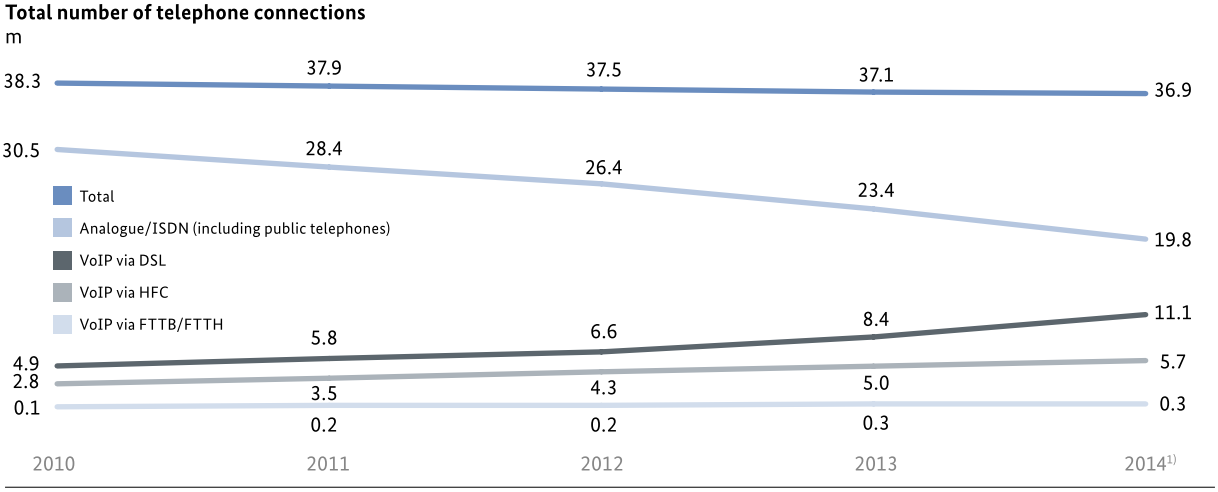


Although speeds of up to 36 Mbit/s can now be achieved thanks to the introduction of new technologies, demand for such technology remains low due to the cost advantage and higher speeds of cable-based alternatives. In specific circumstances, however, satellite internet connections can make a contribution to ensuring full broadband coverage.

Telephone connections

The last few years have seen contrasting trends in communication using conventional telephone lines (analogue/ISDN) on the one hand and DSL and HFC networks on the other. While demand for DSL and HFC telephone services has increased, there has been a decline in the use of conventional telephone lines. Optical fibre telephony (FTTB/FTTH) continues to play only a marginal role. There was a slight overall decrease in demand for voice communication connections in fixed networks.

Total number of telephone connections



1) Forecast figures

Telephone connections and competitors' shares

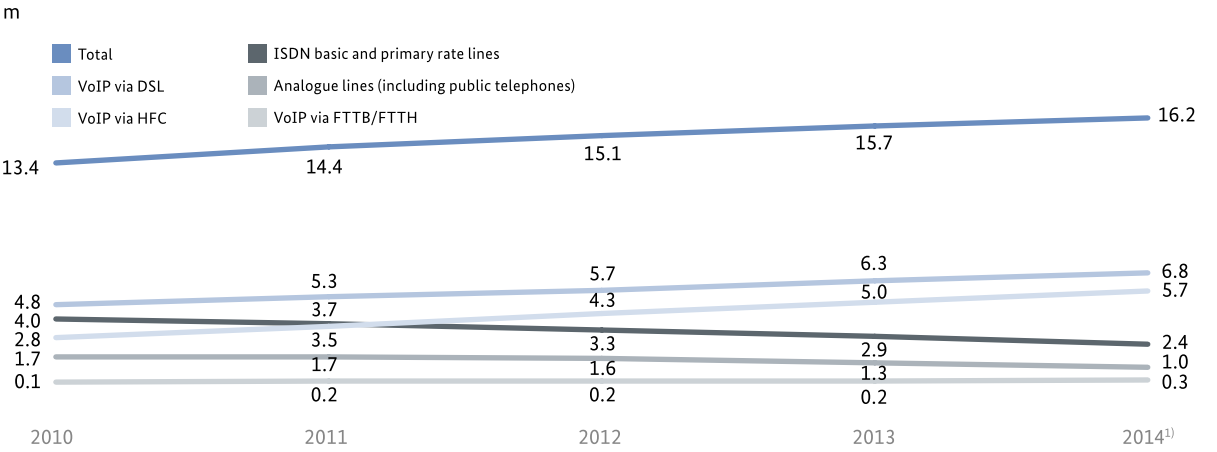
	2012			2013			2014[1]		
	Total stock	Competitors' share		Total stock	Competitors' share		Total stock	Competitors' share	
	m	m	%	m	m	%	m	m	%
Analogue lines	16.09	1.55	9.6	14.29	1.26	8.8	11.94	1.00	8.4
ISDN basic rate lines	10.10	3.26	32.3	9.06	2.88	31.8	7.64	2.41	31.5
ISDN primary rate lines	0.088	0.03	34.1	0.087	0.03	34.5	0.087	0.03	34.5
Public telephones	0.050	0.001	2.0	0.040	0.001	2.5	0.036	0.001	2.8
VoIP via HFC	4.30	4.30	100.0	4.95	4.95	100.0	5.71	5.71	100.0
VoIP via FTTB/FTTH	0.213	0.209	98.1	0.252	0.240	95.2	0.340	0.319	93.8
VoIP via DSL	6.64	5.70	85.8	8.43	6.30	74.7	11.14	6.76	60.7
Total connections	**37.48**	**15.05**	**40.2**	**37.11**	**15.66**	**42.2**	**36.89**	**16.23**	**44.0**

1) Forecast figures

Analogue remained the most common fixed-network connection type in 2014, although the number of analogue lines fell by around 16% to an estimated 12m. At the same time, the number of ISDN basic rate lines fell to just over 7.6m (another decrease of around 16%). The total number of ISDN primary rate lines[4] stagnated at approximately 87,000. By contrast, there was an increase in the number of DSL lines used for VoIP (full connections) and in telephony using HFC networks. The total number of DSL lines for VoIP increased to an estimated 11.1m in 2014, which represents a year-on-year increase of approximately 32%. This was mainly due to changes at DTAG. The number of HFC connections used for telephony increased by approximately 15% to around 5.7m. By the end of 2014 the number of voice lines in optical fibre networks had also risen to approximately 0.34m. Conventional fixed-line connections are gradually being replaced by IP-based technologies, which now account for just over 46% of connections. The total number of public payphones (coin- and card-operated) stood at around 36,000 at the end of the year.

DTAG's competitors had an estimated 16.2m telephone lines at the end of 2014, another year-on-year increase of around 0.6m. While the number of analogue and ISDN basic rate lines provided by alternative subscriber network operators decreased further, their share of

Telephone connections from alternative subscriber network operators



1) Forecast figures

4) Figures for ISDN primary rate lines are based on estimates.

DSL lines for VoIP and telephone lines in HFC and optical fibre networks continued to rise. At the end of 2014 these technologies accounted for an estimated 79% of competitors' lines.

There were around 200 alternative subscriber network operators[5] providing telephone services at the end of 2014. These were operated on the basis of contracts on access to the DTAG local loop, on the basis of DTAG's IP bitstream and resale wholesale products, using the alternative providers' own local loops, or the wholesale products of alternative carriers (bitstream or resale).

Subscriber lines

Competitors were leasing around 8.8m local loops from DTAG at the end of 2014. This represents a year-on-year decrease of approximately 0.5m.

This development continues to reflect the shift in demand by alternative carriers to DTAG's bitstream and resale products and the fact that many internet and telephony customers are switching to other technologies such as cable TV. In addition, leased copper pairs are being replaced by these carriers' own optical fibre cables as a result of the rollout of optical fibre networks.

For subscriber lines, wholesale products include not only unbundled access to copper pairs but also sub-loop unbundling, ie access at a DTAG street cabinet.

Some 0.3m sub-loops from the street cabinet to the end customer were being leased by DTAG's competitors in mid-2014.

Traffic volumes

Broadband traffic volumes

According to initial estimates by the Bundesnetzagentur, the average monthly data volume per broadband connection increased significantly once again in 2014 to around 27 GB as of the end of 2014. Volumes therefore increased by almost one quarter over the course of the year.

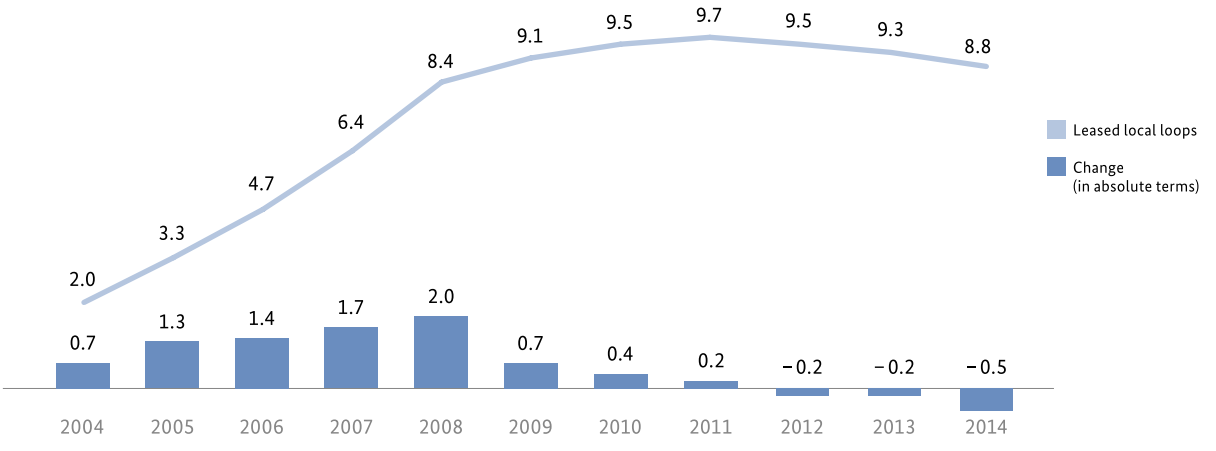
The total data volume via fixed broadband connections rose to approximately 9.3bn GB. This figure does not include traffic volumes from DTAG's IPTV service.

Call minutes

The total volume[6] of outgoing call minutes within the fixed network continued to decrease, amounting to an estimated 154bn minutes at the end of 2014. Calls within German fixed networks accounted for 132.5bn minutes, while calls to foreign fixed and mobile networks accounted for approximately 11.5bn minutes and calls to national mobile networks for around 9.9bn minutes.

The overall decrease in call minutes is likely to be due not only to the shift in traffic volumes to mobile networks but also to other communication services, such as instant messaging and text messaging.

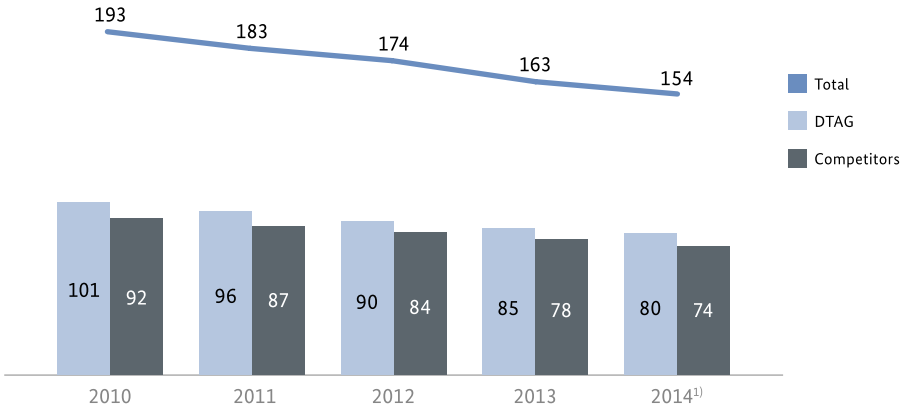
Volume of leased subscriber lines
m



5) Operating companies; around 140 from a consolidated perspective.

6) Calls within Germany, international calls, and calls to German mobile networks.

Outgoing call minutes in fixed networks
bn



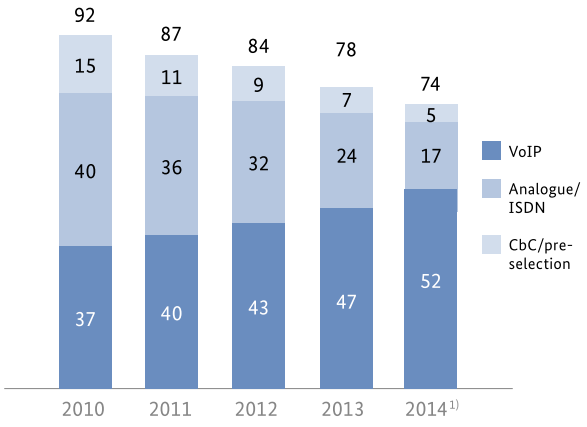
1) Forecast figures

In 2014 around 74bn call minutes were handled by DTAG's competitors. The majority of these calls (52bn minutes) were made via IP-based networks. By contrast, the volume of calls made via conventional analogue or ISDN lines (17bn minutes) continued to fall.

This trend was also increasingly evident at DTAG during the reporting period. The percentage of call minutes made via the internet increased considerably year on year to an estimated 14% at the end of 2014.

At the end of 2014 indirect call-by-call and preselection calls accounted for just under 7% of the total volume of call minutes handled by alternative providers. In total, approximately five billion call minutes were therefore handled indirectly by alternative providers. Preselection call volumes continued to exceed call-by-call. The number of lines with preselection in the DTAG network was an estimated one million at the end of 2014.

Call minutes via alternative providers
bn



1) Forecast figures

Due, among other things, to DTAG's progressive switch to IP-based network technology, an increasing number of calls are being handled exclusively via IP-based networks. At the end of 2014 41% of call minutes within the fixed network were being handled via VoIP.

Mobile communications

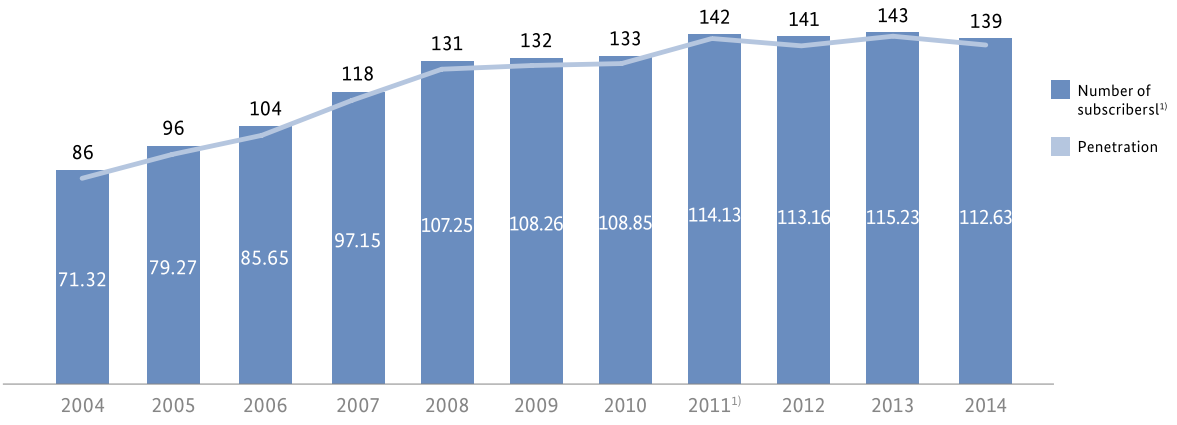
Subscribers

At the end of 2014 there were 112.63m SIM cards activated by network operators. This year-on-year decrease of 115.23m results from adjustments for SIM cards which have been inactive for some time.

A share of 5.2m SIM cards were used for data communication between devices (M2M) (end of 2013: 4.3m).

Statistically speaking, each inhabitant has 1.4 SIM cards. However, the use of two or three devices means that these devices are not in constant use. If only active SIM cards are taken into account, the actual number is lower. SIM cards are defined as active if they have been used for communication in the last three months or if an invoice has been generated for the SIM card in this period. On this basis, data collected by the Bundes-

Subscribers and penetration in mobile communication networks



1) Number of SIM cards according to network operators' annual reports

netzagentur suggest that there were 108.20m active SIM cards at the end of 2014 (end of 2013: 107.65m), 24% of which were attributable to service providers (2013: 20%).

More than half a million SIM cards were used at a fixed location. The number of LTE SIM cards in active use had increased to 13m by the end of 2014.

An increasing share of active SIM cards are postpaid cards. At the end of 2014 they accounted for 58% compared with 57% at the end of 2013.

A growing number of customers are subscribing to tariffs which offer a combination of mobile telephone services and mobile data volumes. In mid-2014 more than 30m mobile customers were making use of such bundled tariffs.

Traffic volumes and usage

Mobile broadband

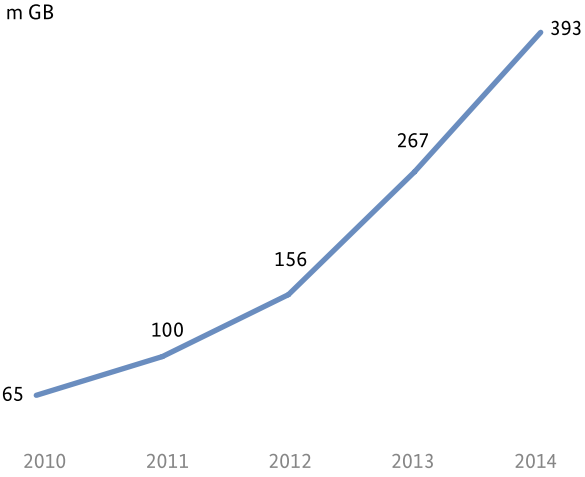
Mobile data volumes continued to rise sharply. In 2014 393m GB of data were transmitted via mobile communication networks (2013: 267m GB).

In order to use mobile data transmission services, the number of SIM cards being employed in UMTS- and LTE-enabled devices once again rose considerably to 52.6m in 2014 compared with 36.9m in 2013.

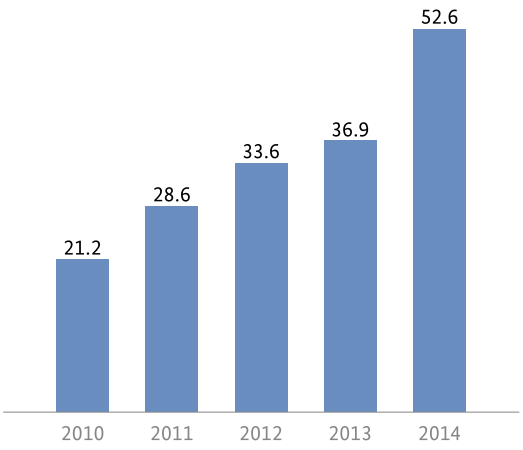
Text messaging

Another decline in the use of the Short Message Service (SMS) was observed in 2014. The number of text messages sent fell to 22.5bn in 2014 compared with 37.9bn in 2013. Given the growing number of smartphones, text messages are increasingly being replaced by messaging apps and email.

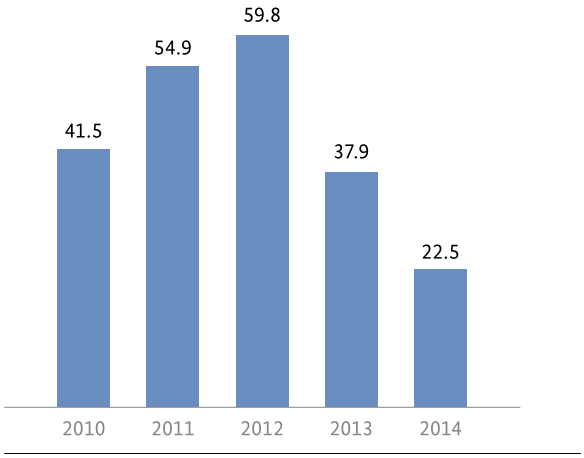
Mobile data volumes
m GB



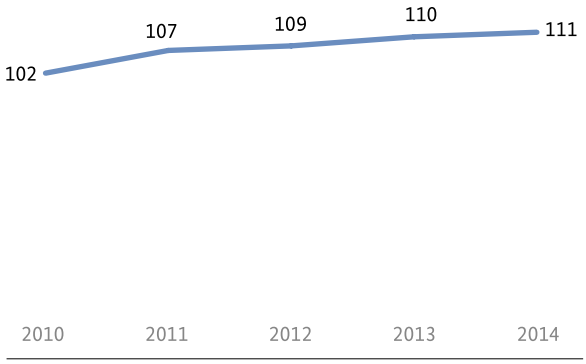
Number of regular UMTS and LTE users
m



SMS sent
bn



Outgoing call minutes in mobile networks
minutes (bn)



Call minutes

The volume of outgoing calls made by mobile subscribers in Germany in 2014 (111bn minutes) was only slightly higher than in recent years.

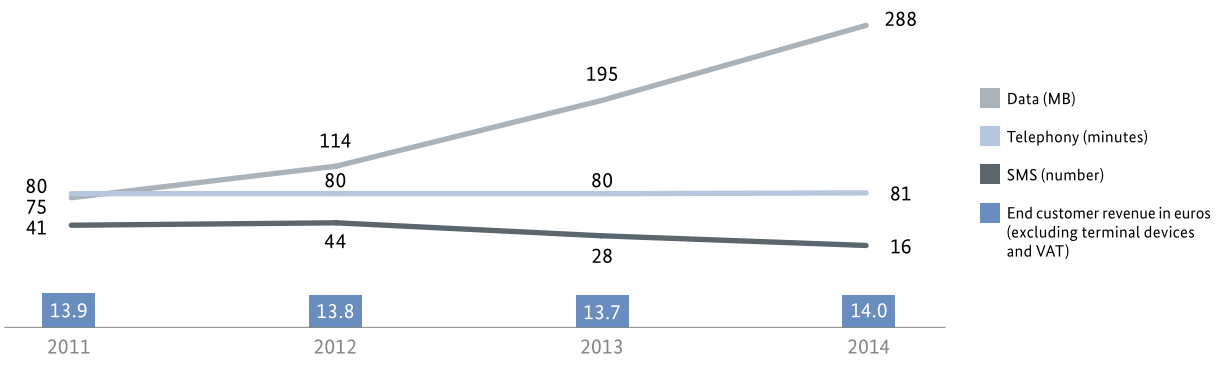
In previous years monthly revenue (excluding terminal equipment and VAT) per registered SIM card was around €14. The average data volume included in this amount has almost quadrupled since 2011.

Infrastructure and network coverage

The LTE rollout continued at a brisk pace. At the end of 2014 there were 28,700 LTE base stations compared with 17,800 in 2013. Coverage therefore improved, both in relation to the population and in geographical terms. Vodafone achieved LTE network coverage in relation to population of 73%, while DTAG achieved 80%. Telefónica Germany had achieved LTE population coverage of 62% by the end of 2014.

According to the German government's broadband atlas, LTE connections with download speeds of over 2 Mbit/s were available to 92.1% of German households by the end of 2014. LTE connections with download speeds of over 6 Mbit/s were available to 74.7% of households.

Revenue and services per SIM card per month



Key figures and competitors' shares

The following table provides an overview of selected key figures and competitors' shares in the telecommunications market for the period from 2012 to 2014.

Key figures and competitors' shares in the telecommunications market

Key figures	**2012**	**2013**	**2014**
Revenue (€bn)	58.0	57.0	56.5[1)]
Investments (€bn)	6.4	6.6	7.4[1)]
Employees	173,000	170,700	168,900[1)]
Total fixed broadband connections (m)	28.0	28.7	29.6
DSL	23.3	23.2	23.3
HFC	4.3	5.1	5.9
FTTB/FTTH	0.2	0.3	0.3
Other	0.2	0.1	0.1
Broadband penetration rate (% of households)[2)]	70	72	74
Total fixed telephone lines/access points (m)	37.5	37.1	36.9[1)]
Analogue/ISDN (including public telephones)	26.4	23.4	19.8[1)]
VoIP via DSL	6.6	8.4	11.1[1)]
VoIP via HFC	4.3	5.0	5.7[1)]
VoIP via FTTB/FTTH	0.2	0.3	0.3[1)]
DTAG leased subscriber lines (m)	9.5	9.3	8.8
Mobile subscribers (sim cards in m)[3)]	113.2	115.2	112.6
Mobile penetration rate (% of inhabitants)[3)4)]	140.5	143.0	138.9

Competitors' shares %	**2012**	**2013**	**2014**
Revenue	56	55	56[1)]
Investments	56	56	57[1)]
Fixed broadband connections	55	57	58
DSL (including bitstream/resale)	47	47	47
Fixed telephone lines/access points	40	42	44[1)]

1) Forecast figures
2) Number of households according to Eurostat
3) According to network operators' annual reports
4) Number of inhabitants according to destatis, 31 December 2012: 80.5m, 31 December 2013: 80.8m (provisional), 31 December 2014: 81.1m (provisional)

Consumer protection and advice

The Bundesnetzagentur received around 129,000 consumer enquiries and complaints in connection with telecommunications in 2014. In the telecommunications market, the possibilities of information and communication technology and the range of services available in this segment are becoming increasingly diverse, and the volume of information for consumers is becoming more and more complex.

General consumer enquiries and complaints

The Bundesnetzagentur's Consumer Advice service focuses on providing practical information for consumers and on the implementation and enforcement of customer rights in accordance with the German Telecommunications Act.

In 2014 the Consumer Advice service received around 64,000 enquiries and complaints in connection with telecommunications and general questions relating to the Bundesnetzagentur. This represents a year-on-year increase in consumer enquiries of 10%, with two thirds of those seeking advice contacting the Consumer Advice service by e-mail. For energy, postal and rail services, the specific competencies have been pooled into individual units within the Consumer Advice service.

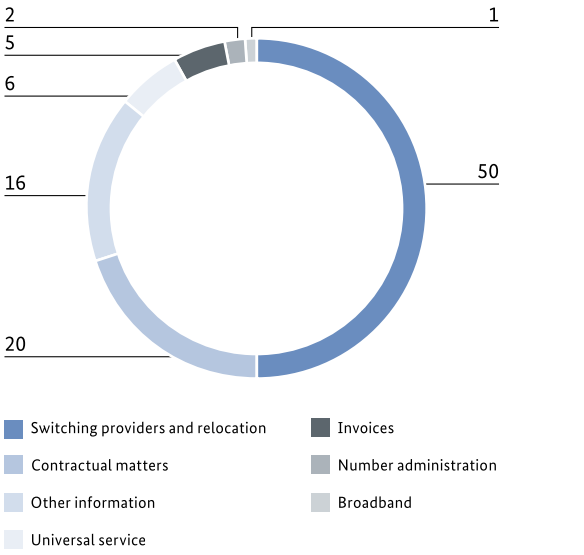
The main subjects of enquiries and complaints concerning telecommunications were switching providers and relocation issues. Half of all enquiries received by the Consumer Advice service related to these topics. Many consumer enquiries also related to contractual matters, invoices issued by telecommunications providers, the provision of basic telephone services, and the allocation and administration of telephone numbers.

Common problems experienced by consumers in connection with switching providers include disruption to service and failed or delayed number porting. In many cases, it was possible to provide assistance by quickly escalating the matter to the competent unit. The Consumer Advice service also received some enquiries relating to the amount charged by transferring providers for number porting.

Following a relocation, a number of consumer complaints related to the failure to provide the contractually agreed services or changes to the content of a contract, for instance, the extension of the contract term or a reduction in data transmission rates. There were also discrepancies in the interpretation of the notice period for the special termination of contracts following a relocation to an area not served by the provider.

Main subjects of enquiries and complaints in connection with telecommunications

%



A large number of complaints regarding the conclusion of contracts related to contracts which were concluded or altered by telephone or in a service shop. Either the consumer's wishes were not implemented on a contractual basis or the consumer was not informed of the details of the contract in a sufficiently transparent manner. Many contract amendments in 2014 gave rise to difficulties which necessitated a change in transmission technology (IP migration). In other cases, the service provided was not compatible with the existing terminal equipment. With regard to contract design, there were also a number of enquiries regarding the coupling of telecommunications contracts with a router determined by the provider.

When concluding contracts, consumers generally expect the content of the contract to be transparent. Within contractual relationships, those seeking advice demand the timely provision of connections and immediate fault clearance, especially when there is no alternative for the subscriber. Many claims for compensation were made in this respect. However, the Bundesnetzagentur's Consumer Advice service can only assess contracts and their implementation on the basis of the German Telecommunications Act (TKG). Any assessment on the basis of civil law must be made by the ordinary courts, even in the case of matters concerning telecommunications.

Another common problem is invoice items which are contested by the consumer. On the one hand, these are contentious claims by third parties and, on the other, costs incurred as a result of unintended calls from mobile devices to numbers on speed dial (pocket dialling) or automatic internet connections. Such cases are resolved using verifiable evidence regarding the date, time and duration of the connection in question.

Further grounds for dispute between telecommunications providers and consumers include the blocking of telephone lines, despite the fact that the German Telecommunications Act (TKG) defines three prerequisites (arrears of more than €75, advance notice of the block and information on the right of appeal) designed to protect subscribers from being taken by surprise by such action.

Complainants were also unhappy with the availability and competence of customer services and objected to the business practices of some providers. In particular, some consumers felt that their concerns were not being taken seriously, received standard letters or did not receive any response at all.

Further consumer enquiries included basic questions regarding connection to the existing telecommunications network, the expansion of wire-based coverage to new areas, and the advancement of the German government's broadband initiative as well as measures implemented by the Bundesnetzagentur in this regard.

Through dialogue and the exchange of information between the Consumer Advice service and market players, developments can be identified at an early stage and regulatory measures initiated on a timely basis to the benefit of consumers.

Dispute resolution

The dispute resolution panel is the point of contact in the event of disputes between end customers and telecommunications providers. It acts as an intermediary within the scope of the German Telecommunications Act (TKG) in cases where disputes between end customers and their telecommunications companies cannot be resolved by the parties themselves. The aim is to find a solution that is acceptable to both parties and thus avoid a legal dispute. This is achieved through fast, unbureaucratic and cost-effective mediation, as an alternative to a civil procedure.

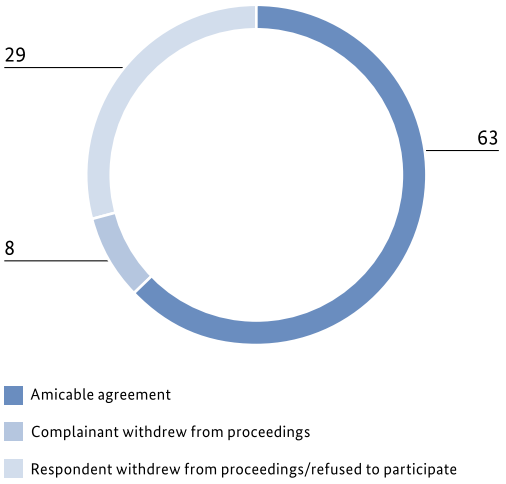
A total of 1,014 requests for dispute resolution were received in 2014. There were also 326 other enquiries and requests for assistance. This represents a further year-on-year increase of approximately 17%, the highest level since the dispute resolution panel was set up in 1999, thereby continuing the clear upward trend of recent years. The increasing use of the dispute resolution panel, which had already seen a rise of around 30% in the previous year, is largely due to the 2012 amendment of the TKG, which significantly expanded the panel's powers in contract law disputes pertaining to consumer protection rights. This reflects developments in the telecommunications market, where many disputes between companies and end customers relate to contractual matters. Traditional disputes regarding call charges now play a minor role due to the high prevalence of flat-rate tariffs.

During the reporting period, the conflict resolution panel supported the coordination of draft legislation on the implementation of the Directive on Alternative Dispute Resolution (ADR) and the implementation of the Regulation on Online Dispute Resolution (ODR) in consumer matters. The draft legislation, which aims to standardise the practices of dispute resolution panels in Germany, contains new core legislation (consumer dispute resolution act) as well as various follow-up regulations in a variety of federal laws. These follow-up regulations include amendments to the sections of the TKG pertaining to dispute resolution. The dispute resolution panel for telecommunications has presented its opinion on the draft legislation.

In the reporting period, 944 proceedings were concluded by the dispute resolution panel. In 14% of cases, this was due to the withdrawal of the application, while in 30% of cases the prerequisites for carrying out dispute resolution proceedings were not met.

Of the remaining 531 dispute resolution proceedings, the parties reached an agreement in 63% of cases. In most cases, the participants either reached an amicable settlement between themselves prior to the issue of a mediation proposal or the matter was resolved before formal proceedings began. The percentage of proceedings in which the respondent chose not to take part in the dispute resolution proceedings owing to the voluntary nature of such proceedings, without offering a solution to the issue at hand, was 29%.

Results of eligible dispute resolution cases in 2014
%



The percentage of eligible dispute resolution cases pertaining to contractual matters continued to rise to 60% in 2014. Most of these cases related to tariffs, the provision of contractually agreed technical performance levels and the extension or termination of contracts. The number of complaints about billing continued to fall, accounting for just 14%. The percentage of dispute resolution cases pertaining to problems switching providers, relocation issues or number porting also fell, ultimately accounting for just 20%.

Switching providers

When a switch of providers occurs, telecommunications providers and network operators have a legal obligation to ensure that there is no disruption to the service provided to subscribers by the company they are leaving before the contractual and technical requirements for the switch have been met. In doing so, the service of the subscriber must not be interrupted for more than one calendar day. If the switch to the new provider is unsuccessful, the transferring provider is obligated to resume service provision.

To ensure that the process of switching providers runs smoothly, consumers are advised to task the new provider with terminating the contract with the old provider rather than attempting to do so themselves. To this end, the new provider sends the consumer a number porting form which covers both the termination of the contract and the application for number porting. This form must be filled out carefully and sent back to the new provider. The new provider then contacts the old provider and informs the consumer of any problems during the switching process.

If anything goes wrong during the switching process, the consumer should initially contact the companies involved. If this does not yield the desired results, the parties should contact the Bundesnetzagentur.

The Bundesnetzagentur has issued a determination on the escalation of customer complaints about switching providers. Consequently, more than 200 companies involved in the process of switching providers are now obligated to set up an escalation point of contact, present their stance on the matter in hand within set deadlines and quickly propose solutions.

The aim of the escalation procedure is to bring the change of providers to a swift and successful conclusion. In doing so, however, the primary objective must always be to provide consumers with telecommunications services as quickly as possible.

To this end, consumers can download a complaints form from the Bundesnetzagentur's website which should be filled out and returned to the Bundesnetzagentur office set up to specifically handle complaints about switching providers.

With this office, the Bundesnetzagentur is providing a dedicated, free contact point for consumers who are experiencing problems switching providers.

Experience thus far shows that an increasing number of consumers are making use of the support offered by the Bundesnetzagentur, not least because of the increased media coverage of the issue of switching providers. In 2013 the Bundesnetzagentur represented consumer interests in around 22,000 cases pertaining to switching providers (including repeat enquiries). This number increased to over 28,000 in 2014. The number of escalation cases initiated also increased year on year from approximately 4,500 in 2013 to around 5,000 in 2014.

These figures show that, in order to meet the relevant legal requirements, improvements still need to be made in the process of switching providers. For this reason, the Bundesnetzagentur's experts engage in ongoing dialogue with companies with the primary aim of identifying and resolving systematic shortcomings in the process of switching providers.

In 2013 the industry took a major step towards improving the process of switching providers by developing an electronic interface for the preliminary coordination of this process. In view of the large number of providers on the market, however, the advantages of an electronic interface can only be realised if the interface is used as widely as possible across the sector. The Bundesnetzagentur is supporting ongoing efforts to automate the process of switching providers and to establish this process on a market-wide basis.

Despite the considerable efforts of companies, it is vital – especially in view of the continued high number of end customer complaints – that all available legal resources are channelled into ensuring that the regulations on switching providers are implemented in accordance with the law.

Accordingly, fine proceedings were initiated against three major companies accused of failing to meet their obligations with regard to switching providers. The proceedings were completed in February 2014. The Bundesnetzagentur fined the companies in question a total of €225,000. The appeals lodged by two of the companies will be heard by Bonn Local Court. Fine proceedings were also initiated against another major German company in February 2014. All four providers account for around 70% of complaints received about switching providers.

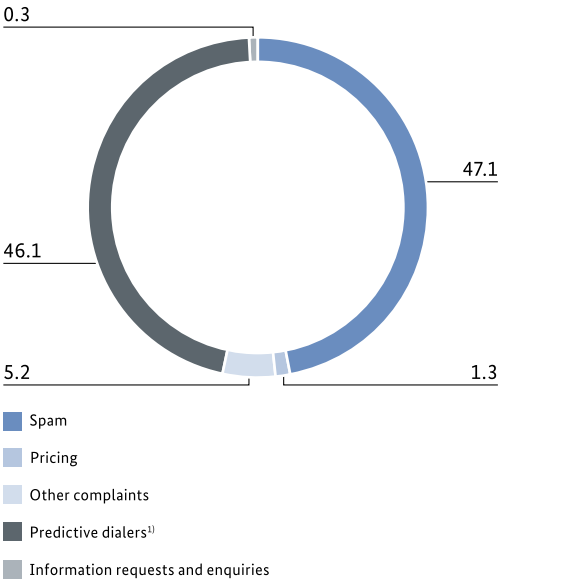
Combating number misuse

The TKG places responsibility on the Bundesnetzagentur for combating number misuse. This could involve the Bundesnetzagentur imposing fines for breaches of TKG consumer protection provisions, such as the rules on price data and price announcements, prohibitions on circumvention and constraints on the use of call queueing. However, breaches of competition rules, such as unsolicited telephone marketing calls, also fall under the Bundesnetzagentur's remit. Consumers are to be protected against disturbance and financial loss caused by number misuse and other market participants are to be protected against distortion of competition caused by breaches of law.

In 2014, the Bundesnetzagentur received 64,934 written complaints and queries about telephone number misuse, which shows a slight rise from 63,874 in 2013.

In addition the Bundesnetzagentur received 20,327 telephone enquiries and complaints about number misuse and unsolicited marketing calls last year. When compared with the previous year, the volume of complaints has remained at the same level.

Main subjects of written complaints and enquiries in 2014
%



1) Unreasonable telephone behaviour by call centres

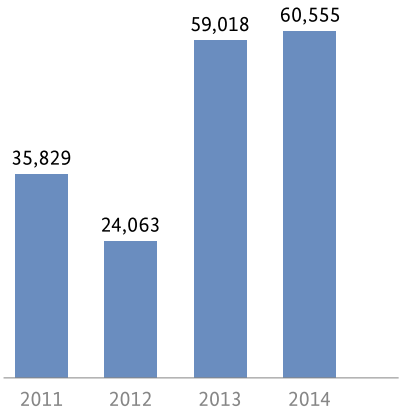
The Bundesnetzagentur opened 1,624 administrative proceedings last year, the majority of which involved extensive investigation. In 116 cases the Bundesnetzagentur ordered the disconnection of 1,004 phone numbers. Billing and collection bans were also issued for 217 telephone numbers. A ban on billing means that the sums involved may no longer be charged. If consumers have already received an invoice but not yet paid it, the ban on collection applies. In fact the ban prohibits the collection of any claims. The large number of bans on billing and collection serve to make the misuse of numbers financially non-viable. Besides disconnections and bans on billing, other measures were ordered during the reporting period, for example bans were imposed on porting numbers. One case in 2014 even led to a business model being prohibited. In a number of cases where legal violations were found to have occurred, written warnings were issued to the persons or undertakings involved following assessment of the individual case.

Spam

As part of its work dealing with number misuse, the Bundesnetzagentur is responsible for spam, whether telephone, fax or e-mail. The Bundesnetzagentur can only take action, however, if the spam can be related to a telephone number. Hence the criterion for intervention, even for email spam, is that a telephone number is given, perhaps as a contact number. Telephone spam covers spam texts, telephone prize scams, "missed call" scams and unreasonable telephone behaviour by call centres (predictive diallers).

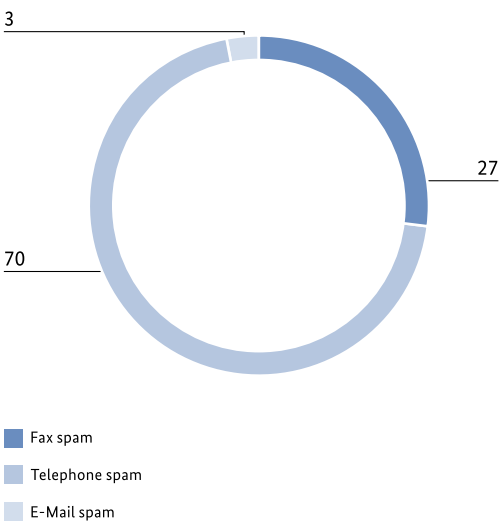
The number of complaints relating solely to telephone number spam reached 60,555 last year. Compared with the previous year, this has remained practically unchanged.

Written complaints about spam



Most complaints about call number spam received by the Bundesnetzagentur related to telephone spam (70%), followed by complaints about fax spam (27%) and email spam with a related telephone number (3%).

Breakdown of complaints about spam in 2014
%



Low-cost hotlines for questions about contracts
Since 13 June 2014, the Bundesnetzagentur has also been responsible for pursuing and penalising violations of section 312a(5) BGB (German Civil Code). Under this provision undertakings are no longer permitted to maintain hotlines to answer questions or provide explanations about consumer contracts that have already been concluded if the telephone caller has to pay a charge for the hotline over and above the cost of simply using a telecommunication service to make the phone call. This new statutory regulation is in place so that consumers do not avoid calling a business if they have questions or need explanations about a contract they have made simply because they do not want to incur additional charges. Consumers should only be required to pay the cost incurred for using the telecommunication service to make the phone call. It must be ensured that businesses do not make a profit from operating a hotline.

Subscription scams
Cases involving hidden costs led to numerous measures being taken by the Bundesnetzagentur. The consumers affected first of all received "missed calls" or unsolicited promotional text messages with an alleged desire for personal contact. If consumers responded to this with a return call or a text reply, they were then charged for a fee-based membership of a telephone chat portal or a premium text club. As this was an illegal use of telephone numbers, orders were issued to disconnect more than 500 numbers operating under this business model, although some of these numbers were in fact disconnected as a preventive measure. Alongside this, the two service providers involved, as well as the collection companies working on their behalf, were issued with comprehensive bans on billing and collection from the contact numbers they had acquired.

Combating fax spam
In the year under review complaints about fax spam still accounted for a high percentage of total complaints (roughly 27%). The Bundesnetzagentur regularly responded by ordering the telephone number of the incoming call to be disconnected insofar as the number could be determined. In 2014 some 92 telephone numbers were disconnected for fax spam. Besides this, the Bundesnetzagentur increasingly called upon network operators to fulfil their duty of information in accordance with section 45o TKG.

In April 2014, the Bundesnetzagentur was successful in putting a stop to one case of a particularly large amount of fax spam, in which the main complainant received unsolicited marketing faxes every minute (junk fax attack). The complainant's attempts to contact the sender to put an end to the faxes were unsuccessful. As none of the faxes showed the number they had originated from, it was only through an interception advised by the authority and set up by the network operator that it became possible for the main complainant's network operator to determine the sender's number. The very same day the Bundesnetzagentur ordered the disconnection of the nuisance fax-sending number.

Irritating call centre telephone practices
During the year under review the Bundesnetzagentur was faced with a considerable number of complaints about call centres' nuisance telephone behaviour. The complaints were compiled in the "predictive dialler" category and in 2014 alone they accounted for 45% of all complaints. Predictive diallers are computer programmes that dial several numbers at the same time. If one of the calls is answered, the others are abandoned and dialled again later.

At present there is no statutory legislation on specific telephone behaviour and therefore none on the configuration of predictive diallers. The number and circumstances of the attempted calls (time of day, repeated call attempts etc), however, can become an unreasonable nuisance for those receiving the calls and thus constitute a violation of section 7(1) UWG (German Unfair Competition Act). In such cases the Bundesnetzagentur has recourse to various measures, such as ordering the call centre's numbers to be disconnected or prohibiting

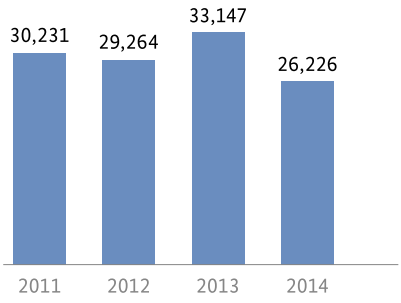
the business model. As the law does not specify what is meant by an "unreasonable nuisance", this must be decided on a case by case basis. Complainants do not always perceive and describe a nuisance in the same way. Thus, when assessing this problem, the point of reference taken is how it is perceived by the average market participant.

The Bundesnetzagentur took a systematic approach to resolving this issue, which included interviewing 2,380 consumers plus professional associations and companies during the first six months of 2014. Following the presentation and evaluation of the results, and an analysis of the statements received and of the various solution approaches, the industry's associations were requested to draw up a standard code of conduct on appropriate telephone behaviour for call centres by the end of 2014 to protect consumers.

Combating nuisance marketing calls

In 2014 the Bundesnetzagentur received 26,226 written complaints about unsolicited marketing calls and cold callers hiding their identity. Also last year, the Bundesnetzagentur received 20,327 telephone enquiries and complaints about number misuse and unsolicited marketing calls. Thus the number of complaints has fallen markedly since the previous year (33,147).

Written complaints about unsolicited marketing calls



Overall, 83 administrative fines proceedings were concluded in 2014. For the most part these resulted in fines being imposed or warnings being issued. Some proceedings had to be discontinued for lack of evidence. The proceedings initiated were very time-consuming because of the frequent extremely difficult and complicated investigative work and not least because of the recipient's possibilities for legal redress. In addition, one major case that is still ongoing is tying up considerable resources.

In 2014 the Bundesnetzagentur imposed fines totalling roughly €700,000 due to unsolicited marketing calls and cold callers hiding their identity. This figure reflects an increase of about 29% from the previous year. Warnings for minor infringements were issued to 36 parties comprising enterprises and individuals from various branches of industry. Those most frequently involved were enterprises advertising energy supply services via the telephone. The other main sectors involved were telecommunications, insurance and finance, the same as in the previous year.

The Bundesnetzagentur currently has ten cases of unsolicited marketing calls pending before the courts. The court decides on a specific decision if the Bundesnetzagentur considers an appeal to be unfounded.

The impact of the German Improper Business Practices Act (Gesetz gegen unseriöse Geschäftspraktiken), which entered into force in October 2013, is reported in the following. To assess the practical effects of the increase in permissible fines it is necessary to look at the period following October 2013. It must be borne in mind that the present fine schedule can only be applied to cases in which the wrongdoing occurred after the new upper limit for fines had entered into force.

A clear downwards trend in complaint numbers from previous years can be seen since the new upper limit on fines came into force in the prosecution of unsolicited marketing calls. From 33,147 written complaints in 2013, the number of complaints in this reporting period has fallen to 26,226. In fact it must be stated that the number of complaints lodged is continuously falling.

At this point it is only speculation as to whether the increase in possible fines or other reasons, such as decisive intervention on the part of the Bundesnetzagentur, are responsible for this fall in complaint numbers. It is also possible that reporting on the Bundesnetzagentur's searches had an additional dissuasive effect. These searches are carried out on suspicion of breaches of the prohibition on unsolicited telephone marketing and occurred for the first time in November 2013.

In the 2014 reporting period the Bundesnetzagentur carried out one search of premises on suspicion of unsolicited telephone marketing. Some 16 employees of the Bundesnetzagentur took part in the search in Munich in March 2014, assisted by the local state police. The company involved in the Bundesnetzagentur search made unsolicited telephone calls to sell photovoltaic systems. As a result of this search, witness testimony was successfully obtained and the pertinent evidence confiscated.

Universal service

Last year numerous consumers contacted the Bundesnetzagentur with queries and complaints about the universal service, in this case the provision of basic telecommunication services.

Universal services are a minimum set of publicly available services of a specific standard to which all end users, irrespective of their place of residence or work, shall have access at an affordable price and whose provision to the public as a basic service is indispensable. Deutsche Telekom AG (Telekom) provides the basic service in Germany on a voluntary basis.

Connection at a fixed location to a public telecommunications network and access to publicly available telephone services were the main focus of activities in universal service during the reporting period. Some 3,100 consumers contacted the Bundesnetzagentur in this respect, which represents an increase in queries and complaints of about 1,000 compared with the previous year. Generally, the consumer issues could be solved amicably with Telekom; nevertheless, once again it could be seen that delays occurred in providing new lines or in changing lines. Consequently, the Bundesnetzagentur has agreed a separate work process with Telekom for this so as to ensure a speedier solution in the individual cases.

The nationwide provision of public payphones and cardphones is likewise part of the universal service. At the end of 2014, an inventory of payphones and cardphones listed 35,000 phones. At the same time mobile communications have continued their extensive spread, now having reached more than 112.63 million SIM cards. The market developments in mobile telecommunications and the full coverage nationwide that has been attained with the fixed telephone line network have led to a complete change in users' telecommunications behaviour and subsequently an extremely low level of demand for public telephones. Despite the measures adopted in the past, such as acknowledging the public pay telephone and cardphone as being a "basic telephone", in the period from January to August 2014 about 5,600 extremely uneconomic telephones were removed with the consent of local authorities.

Another basic service issue is the migration to IP telephony forced by Telekom last year. The change of technology to a packet switched IP (internet protocol) address and the resulting contract law ramifications led to a rise in queries and complaints made to the Bundesnetzagentur, particularly in the second half of the year. This change, and thus the multistage termination process that frequently accompanies it, was brought about by Telekom's own business decision. According to Telekom, the IP migration will have been completed in full by the end of 2018.

Telekom's products, like the products of other enterprises operating in the marketplace, are governed by the company's own right to design its products. Hence they have sole responsibility for the design and for the revocation of their products insofar as nothing to the contrary has been provided for by legislation or by any court or administrative order based on such legislation. As far as ensuring the provision of a basic service, Telekom is merely obliged to provide a connection to the public telecommunications network with access to public telephone services that enables conversations, fax transmissions and data communication at transmission rates that are sufficient for functional internet access. No specific network technology is mandatory, for example, PSTN, which is the public switched telephone network technology.

IP technology is used worldwide and has also been in use in Germany for a long time. The fact that problems can occur during the transition period cannot be completely ruled out despite taking the utmost care. The Bundesnetzagentur is assuming that in the medium term the IP technology will not be as susceptible to interference as conventional technology.

Text and video relay service

The TKG sets out that providers of publicly available telephone services have to set up a text and video relay service for deaf and hearing-impaired people, which will enable them to have the customary "speech" telephony. The aim is to ensure accessible telephone contact to family members, friends, doctors, the local authorities etc. The services of a sign language interpreter or speech-to-text interpreter is intended to compensate for the disability. Through the text and video relay service deaf people are able to make and receive calls to and from anybody participating in the service. The Bundesnetzagentur has been following this service since 2005 (pilot project) and since 2009 has put the regular operation of this service out to tender.

The provision of text and video relay services for deaf and hearing-impaired end-users was put out to tender again in 2014 by the Bundesnetzagentur with the intention of giving a mandate to a service provider in order to secure the service beyond 2014. In previous years the service was put out to tender for two years each time; however, in the year under review it was awarded under tender for four years for the first time. The tender was awarded to Tess – Sign & Script – Relay Dienste für hörgeschädigte Menschen GmbH (Tess GmbH), which will provide the service until the end of 2018.

Furthermore, the Bundesnetzagentur took appropriate measures to ensure that the text and video relay service would also be financed in 2015 by the telecommunications operating companies. An increase in salaries for sign language interpreters and speech-to-text interpreters in accordance with the JVEG (Court Payment and Reimbursement Act) has meant that the costs for the interpreters employed at Tess GmbH have also risen. Linked to this increased cost is an increase in the contributions of telecommunications companies and in the call tariffs for users of the text and video relay service in their profession or occupation. As in previous years, however, any surplus of Tess GmbH will be distributed in full to the telecommunications companies that were called upon to make payment.

Radio interference operations

Securing efficient and interference-free use of frequencies as well as electromagnetic compatibility with the environment is a core task of the radio monitoring and inspection service (PMD) throughout Germany. The PMD is based in the service centres of the Bundesnetzagentur throughout the country to carry out its tasks and employs the most up-to-date mobile and stationary measuring technology.

In addition to its varied and extensive radio monitoring and measuring activities, the PMD's core tasks also include eliminating radio interference. This covers most especially those radio services related to safety and security, such as applications used by aviation, by authorities and organisations concerned with public safety and by other public agencies.

Depending on the particular disturbance, both all-purpose and specially equipped vehicles are used alongside stationary measuring facilities and direction-finding systems to determine domestic and foreign sources of interference.

The Bundesnetzagentur has a special monitoring station for space radiocommunications to deal with interference to satellite services. This is especially advantageous for those consumers using domestic satellite or GPS receivers and, in the future, Galileo receivers. In addition, the monitoring station is responsible for ensuring the interference-free and efficient use of communications and broadcasting satellite systems. The measuring station for space radiocommunications services is unique in Europe and allows other European Administrations a certain amount of access to its measuring capacity. Measurements are carried out against reimbursement of costs on the basis of a memorandum of understanding signed by the authorities in France, Great Britain, Luxembourg, the Netherlands, Spain and Switzerland.

Radio frequency interference occurs as a functional disruption to radio reception and other radio services. In total, more than 6,000 incidents of interference were dealt with in 2014. Dealing with interference is of special significance in the context of safety-related radiocommunications services – in aeronautical radio alone there were more than 500 cases of disturbance. In principle, such incidents are always given the highest priority by the radio monitoring service. Only a small percentage of incidents involved electromagnetic incompatibility with other electrical or electronic equipment and devices, such as interference caused by defective heating controls.

In densely-populated conurbations, UMTS network operators regularly reported that their base stations were being compromised by other frequency users and consequently their network quality parameters were not being met. Technical checks carried out by the PMD revealed that both satellite receiver installations with insufficient suppression of the receiver radiation and DECT telephones that transmit in the UMTS receiver band owing to a defect can be sources of interference.

One special interference task involves investigating interference during major events. At certain events, the PMD will be on site the entire time so that it can respond immediately in the event of interference; this allows it to investigate the cause of interference even before the event starts as well as during the event. This timely investigation means that a high interference clearance rate can be achieved, which ultimately means that important events can be transmitted without any disturbance affecting the sound or image. Particularly important at such events is that all organisational and security agencies should be able to communicate with one another without any radio frequency interference (RFI).

Not only can the PMD measure and record radio interference, it also has statutory powers of intervention and, under certain circumstances, may order that any apparatus causing interference be taken out of service.

Rulings, activities and proceedings

The Bundesnetzagentur continued to support broadband expansion in 2014 through its decisions and proceedings. It further developed the infrastructure atlas and set out the definitive specific requirements for the use of vectoring technology. The Bundesnetzagentur also carried out preparatory work for the award of additional spectrum to expand mobile internet services.

Decisions on the specific conditions for the use of vectoring

Following its fundamental decision in August 2013, which gave the go-ahead for the use of vectoring technology in Telekom's networks and those of its competitors, the Bundesnetzagentur held extensive discussions with market players and subsequently the specific conditions on the use of vectoring were set out conclusively by decision of 29 July 2014. Thus the regulatory regime for vectoring in Germany has been in force since the end of July 2014.

The specific terms and conditions for the use of vectoring technology have been set out in detail in the "vectoring" reference offer defined by the relevant ruling chamber on 29 July 2014. These terms and conditions relate, for example, to sanctions in the event of anti-competitive practices in reserving cabinets for vectoring use, failure to interconnect at reserved cabinets with vectoring, and non-availability of the required alternative bitstream product, and in particular to the penalties to be paid in such cases. They also relate to the the required alternative bitstream product whose quality is to be based on the unbundled local loop which is no longer available for access as a result of implementing vectoring.

The vectoring reference offer likewise sets out how an application for inclusion on the vectoring list is to be made and the conditions that govern whether the application is accepted or rejected. As a result of the decision, since 30 July 2014 Telekom and its competitors may have their specific plans for broadband expansion using vectoring technology entered in a register, the "vectoring list". This means that the companies can be sure of having uninterrupted use of vectoring and that the investment they need to make is secure. In its fundamental vectoring decision of August 2013, the Bundesnetzagentur placed an obligation on Telekom to maintain a vectoring list to provide all market players – both Telekom and its competitors alike – with legal certainty and fair conditions in deploying vectoring. Entries will be made to the list detailing which company was the first to deploy vectoring technology at a street cabinet or which company plans to do so within 12 months of entering it on the list.

Since the vectoring list started on 30 July 2014, numerous companies have registered their intention in the vectoring list of introducing vectoring at tens of thousands of street cabinets.

Insofar as an application is made to have street cabinets entered on the vectoring list but for reasons that are listed exhaustively in the reference offer they cannot be included, the competent ruling chamber is to be informed of the rejection.

Those undertakings affected by the rejection of an entry can subsequently apply to the ruling chamber for a verification procedure in which compliance with the rules and regulations and the correctness of the rejection will be reviewed.

Initial figures and experience show that it is possible to use vectoring even in a competitive environment without having to completely relinquish the principle of unbundled access to the local loop.

Conditions for access to Telekom's local loop

Through a decision announced on 17 July 2014 the Bundesnetzagentur has improved the general conditions for broadband expansion. As a result of the decision, other providers have better access options to Telekom's "last mile", or local loop, which makes it possible to drive broadband expansion, especially in rural areas. This should likewise put Telekom's competitors in a position to take part in tenders for broadband expansion by making it possible for them to meet the coverage obligations in the eligibility guidelines.

The Bundesnetzagentur's decision pursues the aim of consistently developing and improving the general conditions for broadband. This takes account of the growing need for broadband in the coming years.

In principle the decision substantially raises the former threshold for setting up additional street cabinets on the distribution cable and distribution frames from 1 Mbit/s to 30 Mbit/s. These access points enable the DSL input point to be relocated closer to the end user and thus make it possible to achieve much higher bandwidths. Furthermore, it has also been envisaged that, under certain conditions and at the request and cost of a competitor, Telekom must change the course of its subscriber loops to make them viable for the transfer of high bandwidths. In its decision the Bundesnetzagentur took particular care to ensure that improved access options to Telekom's local loop did not impose a constraint on the use of vectoring technology.

The decision was rendered in access order proceedings between EWE TEL GmbH and Telekom. However, the decision took on a more fundamental significance beyond that of the specific relationship between the two undertakings as other competitors may likewise have an order issued for the new access conditions if they cannot reach a contractual agreement with Telekom. Happily, since the decision, the first contractual agreements have been reached between Telekom and its competitors on improved access options to Telekom's subscriber network without the Bundesnetzagentur having to resort to a regulatory procedure and issue a decision.

New fixed-line interconnection rates

At the end of November 2014, the Bundesnetzagentur approved Telekom's new rates for fixed line interconnections (interconnection charges). Given the then still outstanding European notification procedure, the approval was initially only provisional. According to the approval, as of 1 December 2014 Telekom is allowed to charge its competitors 0.24 cents per minute for interconnection traffic that it receives from competitors at the lowest network level. This rate applies both for terminating calls in its own network (call termination) and for routing calls, including those made on a call-by-call or pre-selection basis, from its network to competitors' networks (call origination). Where calls have to be routed at a higher network level and hence more of Telekom's network elements are used (price zone II), new per-minute origination rates of 0.35 cents (price zone II) and 0.41 cents (price zone III) will apply. The call termination rates for price zones II and III are not subject to approval. There is no longer any difference made between connection charges during the peak period (work days from 9.00am to 6.00pm) and those during the off-peak period. This distinction is no longer customary in the retail business, nor is it justified.

Infrastructure atlas

The infrastructure atlas has been managed by the Bundesnetzagentur since 2009 and contains data on infrastructure that may be used for broadband purposes (eg ducts, fibre optic cable, distribution points, distribution frames, radio towers or masts). Since 2012 it has been possible to access this data online, which is presented as a map showing the infrastructure and its owner (Web GIS application). Anyone who is involved in a specific broadband deployment project may use the infrastructure atlas. Upon application, the user is given access for a limited period to the area where he wants to expand broadband and can see the infrastructure in that area. As necessary, the user may use the contact data to contact the owners of infrastructure. The transparent nature of the infrastructure atlas encourages the sharing of existing infrastructure in expanding broadband.

Demand for information contained in the infrastructure atlas by those involved in broadband expansion is constantly growing. The number of requests for access shot up in 2014 and was the highest since the infrastructure atlas was set up. In 2014 the infrastructure atlas was used by 1,608 broadband projects, in 2013 this figure was 572. The rise in 2014 was due to the large number of enterprises amongst the users; telecommunications network operators and energy utilities are the most frequent users of the infrastructure atlas and now account for almost half the requests for access. Otherwise the infrastructure atlas is used by planning offices and local authorities at the municipality, district and state levels.

The Bundesnetzagentur improved the infrastructure atlas database again in 2014. Up to 31 December 2014, some 821 data items had been provided for the infrastructure atlas, which was more than 200 additional data sets compared with year-end 2013. It can thus be seen that the infrastructure atlas is gaining in significance, which is also reflected in the sharp rise in the number of users.

The Bundesnetzagentur has also made progress in integrating public authorities' infrastructure. As a first step, the Bundesnetzagentur wrote to all the districts in Germany to ask about their infrastructures and those of any municipalities within their district. This enabled even more data to be obtained for the infrastructure atlas. Moreover, the Bundesnetzagentur is in contact with the Federal Ministry of Transport and Digital Infrastructure in order to display the federal infrastructures running alongside federal highways and waterways in the infrastructure atlas too.

In order to improve the infrastructure atlas, the Bundesnetzagentur is monitoring how it is used. This involves asking users for any suggestions or requests for improvement and, following on from this, whether they find the infrastructure atlas to be an appropriate tool in speeding up and making use of synergies in their broadband projects. To this effect, in May 2014 the Bundesnetzagentur published a first report on its website on the use of the infrastructure atlas in 2013. The Bundesnetzagentur has taken the potential for improvement mentioned in this report as an opportunity to initiate changes to the infrastructure atlas. Consequently, the clarity of the Web GIS application has been enhanced to allow infrastructure to be selected and displayed by infrastructure owner.

Broadband expansion aid

All industrial countries face considerable challenges in broadband expansion. The federal government's broadband target is to achieve nationwide coverage with broadband connections of at least 50 Mbit/s by 2018. Important factors in market-driven investment choices in high-speed networks comprise the technology deployed and the population density of the regions involved on the one hand and, on the other, customer demand and willingness to pay, which determine the penetration rate and the revenues per customer. State aid can facilitate expansion of the high-speed networks even in those regions whose potential development cannot be brought about solely by industry-led investments.

Notwithstanding the welfare-enhancing potential of state aid programmes, care must be taken that any support schemes do not produce unnecessary ineffective network structures by superimposing infrastructure on any existing private sector infrastructures and that any distortion of competition is avoided as far as possible. To this end, any assisted networks must be organised in such a way that they are future-proof and open to competition so that private investment is not prevented or hindered by state aid. This means that third parties must also be granted access to the subsidised infrastructure.

To promote broadband expansion, the federal states have already set up state aid programmes totalling about €2bn to support municipalities in setting up passive infrastructure in rural regions or to enable private undertakings to fill any economic efficiency gaps that occur during the expansion. In addition to this, federal and European Union funds can be employed for the purpose of expanding broadband.

The broadband aid programme is exempt from notification to the European Commission if it complies with certain regulations, such as the Allgemeiner Gruppenfreistellungsverordnung (AGVO – block exemption regulation), the Bundesrahmenregelung Leerrohre (BRLR - federal guidelines on ducts) or specific state regulations (eg the Bavarian broadband guidelines). The revised AGVO entered into force on 1 July 2014. Under the revised regulation, state aid for broadband infrastructure is now also exempt from prior approval of the European Commission under certain conditions.

The Bundesnetzagentur gives its opinion as part of an evaluation of the access terms and conditions, including the prices in the agreements between the public office granting the aid and the network operator receiving the aid. This is intended to secure effective, open network provision for third party suppliers in the regions involved so that consumers in those regions have a choice of suppliers. Overall in 2014, the Bundesnetzagentur evaluated more than 300 agreements, three-quarters of which came from Bavaria.

Bavaria intends to create a high-speed network throughout the state by 2018. To achieve its aim, the federal state is making up to €1.5bn available in the coming years. This is intended to boost the expansion of high-speed networks with a minimum bandwidth of 50 Mbit/s. The Bavarian broadband guideline forms the basis for the aid and was amended in July 2014. The standard expansion agreement for the municipalities was agreed with the Bundesnetzagentur during the revision process.

In November 2014, the Bundesnetzagentur discussed comments on the AGVO with the market participants. The comments serve to explain the Bundesnetzagentur's evaluatory framework and criteria during the process.

Mobile broadband – Project 2016

Mobile broadband plays a role in speeding up nationwide expansion. The Bundesnetzagentur had already laid the foundations for the rollout of fast LTE networks in 2010 and through its Digital Dividend I spectrum auction it ensured that this spectrum's high potential could be deployed. This spectrum was key to the fast, economic expansion of broadband networks especially in rural areas. Just one year after the spectrum auction, radio technology had made a major contribution to eliminating the "not-spots" where mobile services could not be accessed.

The federal government's aim is to make broadband of 50 Mbit/s available throughout the whole of Germany by 2018. To make this possible, every available technology is to be employed, thus expanding not only the standard landlines but also mobile services. This means, in line with the fast growth in mobile data communications, the provision of all the available frequencies suitable for broadband service. In the 900 MHz and 1,800 MHz frequency bands, 170 MHz of spectrum will be available for mobile broadband from 1 January 2017. These frequencies have so far been used for both GSM and LTE. The physical propagation conditions of the 900 MHz frequencies make them especially suitable for providing thinly populated areas with service. In contrast, the 1,800 MHz frequencies are particularly suitable for increasing network capacity. The 900 MHz and 1,800 MHz frequencies, together with other available frequencies in the 700 MHz and 1.5 GHz bands, will be made available for mobile broadband in award proceedings as quickly as possible in line with demand. Spectrum in the 700 MHz band that is currently allocated to broadcasting enjoys particularly good propagation conditions for the cost-effective supply of rural areas. The award of these frequencies to mobile broadband should assist in achieving the objectives of the broadband policy and the Digital Agenda.

To make the award decision on a secure and stable foundation, especially in view of the change in the market structure caused by the merger between Telefónica and E Plus, in August 2014 the Bundesnetzagentur gave all interested undertakings the opportunity to notify or update their forecast requirements in the stated bands and in October 2014 it presented a draft decision on a spectrum auction for mobile broadband for discussion. The spectrum will be awarded by auction as frequencies are in short supply. The auction design is the same as for the auction in 2010.

To achieve the federal government's broadband objectives the decision requires assignees to provide broadband coverage to at least 97% of households in each federal state and at least 98% of households nationwide. Assignees must also provide a minimum transmission rate of 50 Mbit/s per sector. Households must be offered competitive services with an average transmission rate of 10 Mbit/s. Mobile broadband coverage is also to be guaranteed along national motorways and high speed railway lines. These requirements will apply to existing network operators only and not to new entrants.

The spectrum auction is expected to take place in May 2015.

Planned merger between Telefónica and E-Plus

Planned mergers or company acquisitions must be examined by the Bundesnetzagentur through the prism of telecommunications law to ensure that a distortion of competition in the relevant product and geographical market is not to be feared as a result of the companies' volume of spectrum and that efficient use of spectrum can continue into the future. With a view to ensuring an objective, transparent and non-discriminatory

procedure, the Bundesnetzagentur has examined the spectrum holdings by reference to the regulatory objectives and principles contained in the German Telecommunications Act. Particular attention was given to the regulatory aims of securing fair competition, promoting markets with sustainable competition, safeguarding user interests – especially those of the consumer – and ensuring efficient, interference-free frequency usage. To make sure that the decisions of the Bundesnetzagentur and the anti-trust authority were consistent and taken at the same time, the Bundesnetzagentur worked closely together with the Bundeskartellamt (Federal Cartel Office) and the European Commission.

In February 2014 the Bundesnetzagentur requested those network operators already on the market to back up the statements made in the preceding consultations by providing specific data on their existing infrastructures and the use intensity of the infrastructures. In March 2014 to begin with the Bundesnetzagentur provided a key paper on frequency regulatory aspects of the proposed merger for discussion.

Following the definitive approval of the merger by the European Commission on 17 June 2014 and the Bundesnetzagentur's decision of 4 July 2014, Telefónica Deutschland finalised its acquisition of the E-Plus group on 1 October 2014. Once the purchase is complete, E-Plus will become a 100% subsidiary of Telefónica Deutschland. The Bundesnetzagentur's decision on frequency regulatory aspects provides for the early return of spectrum in the 900 MHz and 1,800 MHz bands by Telefónica/E-Plus by 31 December 2015, closely timed to the reallocation of the "GSM spectrum" (Project 2016) in conjunction with a subsequent investigation into spectrum distribution.

On the basis of its decision and as part of its mandate the Bundesnetzagentur is closely monitoring the operative completion of the merger and the restructuring of the E-Plus and Telefónica networks. Telefónica must report to the Bundesnetzagentur every quarter on its planning and specific implementation measures with respect to the replanning. As part of this reporting, individual frequency regulatory issues are to be clarified and the administrative requirements for restructuring the networks established. At the same time, the merger between Telefónica and E Plus makes it necessary to conduct the latest award proceedings as swiftly as possible as the merger has created a need to take action quickly to ensure non-discriminatory broadband spectrum holdings for all mobile operators.

Following re-award of the frequencies at 900 MHz/1,800 MHz, Telefónica is required to vacate its frequencies in the 900 MHz/1,800 MHz bands not assigned beyond 31 December 2015 and to report every quarter on the status of the measures for vacating its frequencies.

New mobile call termination rates

The Bundesnetzagentur published its proposal on 3 September 2014 for new mobile call termination rates for the next two years. This proposal provides for German mobile network operators to change the mobile termination rate for delivery of voice calls in their mobile networks from the previous 1.79 cents per minute to 1.72 cents per minute as of 1 December 2014. In a second stage, the rates are to be lowered once again as of 1 December 2015 to 1.66 cents per minute until the end of November 2016.

To determine the applicable cost of efficient service provision, the Bundesnetzagentur took the analytical cost model for mobile radio networks of the Wissenschaftliches Institut für Infrastruktur und Kommunikationsdienste (WIK), Bad Honnef, as its basis, as it had done in the previous approval round.

Given that the previous approvals expired at the end of November 2014 and that the European notification procedure had not been completed at that time, the proposed mobile communication termination rates have been provisionally approved from 1 December 2014.

Regulatory measures for VHF transmission

The relevant Ruling Chamber issued an updated regulatory order against Media Broadcast GmbH on 19 December 2014 for VHF broadcast transmission. The repeat regulatory order had become necessary because according to the findings of the regular market definition and market analysis updated last year, the undertaking still had significant market power, which meant that regulatory obligations had to be imposed again. As part of the subsequent likewise regular examination of regulatory activity in VHF transmission services, account had to be taken of the legislator's liberalisation of the VHF frequency regime as of 31 December 2015 by the TKG 2012 amendment with the express intention of stimulating competition. The regulatory order issued on 19 December 2014 therefore lowered the infrastructural obstacles to the market entry of new competitors in VHF transmission services. For the end user the Media Broadcast rates, meaning those rates that the broadcasting organisations have to pay to Media Broadcast to transmit their programmes, will be subject in future to an ex post regulation insofar as they do not exceed the previous prices or do not significantly undercut them by more than 25%. Any charges that exceed the previous price level, or fall below it by 25% or more, are subject to prior approval in line with the benchmark for costs for efficient service provision. On the wholesale side, the regulatory order means Media Broadcast must allow other transmitter network operators the joint use of its antenna systems at an ex ante regulated price. The measures are accompanied by a duty of collocation, a prohibition of discrimination, transparency requirements and a duty to issue a standard offer. This harmonised regulatory regime for the retail and wholesale markets is intended to facilitate the entry of new competitors to the VHF transmission market yet at the same time Media Broadcast should still be able to compete fairly.

In the coming months the specific details of the access granted and the rates to be charged for the various services will be determined. Given that 31 December 2015 is the effective date, the regulatory decisions need to be taken quickly to allow content providers to consult prior to this on changing the network operator and, if necessary, to organise and make any changes.

Numbering issues in M2M communication

Machine to machine (M2M) communication refers to the mainly automated exchange of information between technical equipment and may be wireless or non-wireless. The devices communicate with each other and use different transport networks, eg mobile communications, satellite communications or fixed networks. M2M communication is used primarily to automate industrial processes but is also found in the automotive industry, consumer goods/households, the energy sector, public infrastructures and transport & logistics. High rates of growth in M2M communication are forecast for the coming years.

The Bundesnetzagentur provides the numbers and/or spectrum necessary for M2M communication in public telecommunications networks. Many M2M applications use mobile numbers and IMSI numbers (International Mobile Subscriber Identity), the latter being necessary to specifically address mobile devices. Some countries have introduced special number ranges for M2M communication. So far this has not been necessary in Germany as sufficient mobile numbers are available. However, a new number range can be created if required. IMSI numbers can essentially be allocated to mobile communications network operators in line with the allocation rules currently applicable. Allocation is made in blocks of numbers limited to 100 numbers. So far about one quarter of IMSI blocks have been allocated indicating that at present there is no shortage of numbers. Various market players, however, are demanding that the allocation entitlement be extended, which could lead to a shortage given the small amount of number blocks.

Hence in 2014 the Bundesnetzagentur carried out a market survey to determine the framework for any revision of the allocation criteria and to draw up a numbering plan. This must find a balance between the benefits of promoting competition and the need to avoid a shortage of numbers.

One further issue in connection with M2M communication is the international use of the mobile and IMSI numbers deployed in M2M. Products with an integrated M2M technology, having a national mobile number as well as a SIM card or a SIM module with a national IMSI number, are often produced for the world market. With the exception of international roaming, so far it

has generally not been permitted to use German numbers outside the German sovereign territory or to use foreign numbers in Germany. The Bundesnetzagentur is working at the national and international level on solutions that promote the commercial spread of M2M communication yet cater to public interests.

Public safety

Technical safeguards as per section 109 of the Telecommunications Act (TKG)
Protecting the privacy of telecommunications and personal data, protecting systems against faults resulting in considerable harm to telecommunications networks and services, and managing the risks to the security of telecommunications networks and services are the key objectives of section 109 TKG.

In 2014, the Bundesnetzagentur examined 69 new and 95 revised security concepts for compliance with the provisions of section 109 TKG, including concepts drawn up by public telecommunications network operators and also by public telecommunications service providers. In addition, 68 spot checks were made on the parties subject to this obligation.

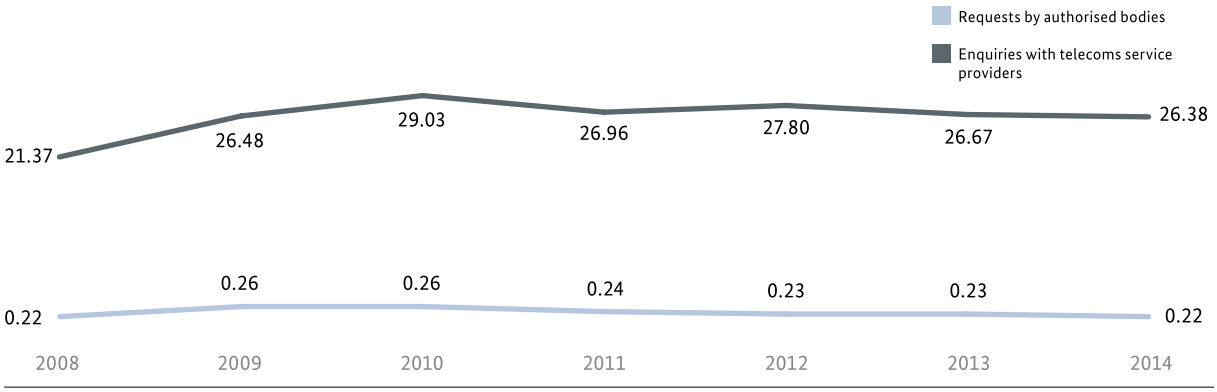
The national procedure for notifying security violations in accordance with section 109(5) TKG is set out in the implementation concept developed by the Bundesnetzagentur. Version 2.0 came into force upon publication on 29 January 2014. From a total of 27 security incidents that the Bundesnetzagentur was informed of in 2014, 22 were classified as security violations within the meaning of section 109 TKG.

Automated information procedure as per section 112 of the Telecommunications Act (TKG)
The information procedure as provided for by section 112 TKG makes a significant contribution to ensuring public safety in Germany. Authorised bodies, mostly public safety and criminal prosecution authorities, may request specific customer data (name, address, numbers) from the Bundesnetzagentur if the data is necessary for them to perform their statutory tasks. The Bundesnetzagentur does not maintain its own database with this information, instead it forwards any queries to the telecommunications service providers, collects their responses and returns them to the authorised bodies. There are currently 148 authorities registered as authorised bodies and 124 telecommunications undertakings obliged to participate in the process.

In 2014, the Bundesnetzagentur received a total of 6.92m requests from authorised bodies; the requests are divided into requests for the customer's telephone number and requests for the customer's name. The total number of requests made to telecommunications undertakings in the past year resulted in 34.30 million queries.

The Bundesnetzagentur forwards a customer name request to all the telecommunications service providers participating in the process because it is not known which provider a customer has received a number from or even how many numbers. Consequently, even for a low number of requests for customer names (0.22 million) a large number of queries have to be forwarded to telecommunications undertakings (26.38 million).

Name-based requests made by authorised bodies and resulting enquiries made with telecommunications service providers
m



Number-based requests made by authorised bodies and resulting enquiries made with telecommunications service providers
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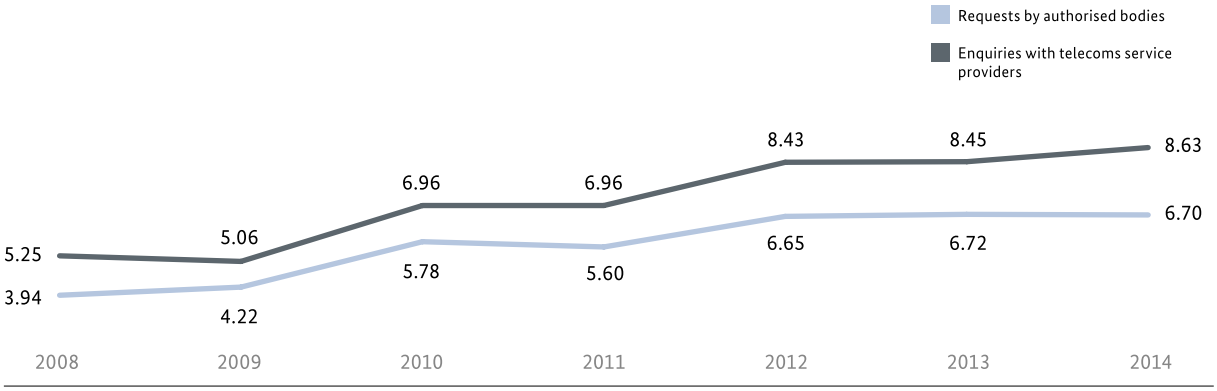


Call number requests need only be sent to a much smaller number of undertakings, therefore the number of queries corresponds more to the number of requests. Through the use of filter mechanisms, the Bundesnetzagentur made 8.63 million enquiries of telecommunications undertakings as a result of the 6.70 million telephone number requests received from public safety authorities.

To reduce the number of queries made of telecommunications undertakings even further, since 2014 the Bundesnetzagentur has been making greater use of telephone number portability and allocation databases to address queries to the specific telecommunications undertaking.

Qualified electronic signatures

The German trusted list – EU compliant infrastructure facilitates cross-border secure signatures

The Bundesnetzagentur draws up, maintains and publishes the German trusted list. Originally conceived as a tool to facilitate the commencement and performance of a service through electronically processing all the processes and formalities across borders, the trusted list contains all the providers of qualified certificates and time stamps for the purposes of the Electronic Signatures Act. The trusted list implements the requirements of the Directive of the European Parliament and of the Council on services in the internal market (Services Directive). In future, even more extensive use will be made of the trusted list within the Digital Agenda for Europe. The regulation on electronic identification and trust services for electronic transactions in the internal market (eIDAS), which will apply throughout Europe as of 2016, provides for the trusted list to be an obligatory verification tool for trust services. Trust services will then include not only signature services but also electronic seals, electronic registered delivery services and archival storage.

In anticipation of this development, the Bundesnetzagentur has revised the trusted list to meet the requirements of the eIDAS. Consequently the Bundesnetzagentur offers the most comprehensive trusted list in the European Union at present, thereby making it possible from anywhere in Europe to verify the trustworthiness of German service providers. The Bundesnetzagentur is thus playing a role in strengthening the single European market and is helping to develop the service industry's economic potential.

International cooperation

International cooperation is becoming more important in the Bundesnetzagentur's tasks and is a core element of its activities. In 2014 the plenary assembly of the Body of European Regulators for Electronic Communications elected Dr Wilhelm Eschweiler, the vice president of the Bundesnetzagentur, as its chair for 2016.

Committee work

Internationally, the main focus of the Bundesnetzagentur's work in the telecommunications sector is on cooperation within the Body of European Regulators for Electronic Communications (BEREC). Now in the fourth year since its inception, BEREC, which was institutionalised for the cooperation of regulatory authorities in the European Union, has once again proven itself to be more than an expert advisory body. Pursuant to the Directives on the European telecommunications market, BEREC's input is required in various measures, such as when checking whether national regulatory activities run counter to the aims of a single European market (Article 7/7a Framework Directive procedure).

BEREC itself is based on a two-pillar principle. The first pillar consists of the Board of Regulators formed by representatives from all the regulatory authorities. The Board's specialist work is mainly carried out by several working groups focusing on different issues, such as international roaming, network neutrality, implementing the legal framework, cost accounting methods and consumer protection provisions. The Bundesnetzagentur has sent many of its experts to these working groups and, at the same time as contributing many years' experience to these working groups, it can also ensure that German regulatory approaches are taken into account when any joint positions are drawn up. The Board of Regulators and its working groups are supported in their efforts by the BEREC Office, which has its headquarters in Riga. The BEREC office activities, in turn, are subject to control by the Management Committee, which forms the second BEREC pillar. In addition to the representatives from the regulatory authorities, representatives from the European Commission also have voting rights on the Management Committee.

BEREC is represented externally by a chair, who is elected for one year at a time by the Regulatory Council and who is assisted by four vice chairs. One of these vice chairs is always the "Incoming Chair", who then takes over the role of chair the following year. This ensures continuity in BEREC's work. Gören Marby from PTS, the Swedish regulator, who was the chair in 2014, was succeeded in 2015 by Dr Fátima Barros, the president of ANACOM, the Portuguese regulatory authority. The vice president of the Bundesnetzagentur, Dr Wilhelm Eschweiler, was elected at the fourth BEREC plenary assembly in December 2014 as the chair for 2016 and therefore took on the role of vice chair for 2015. Moreover, regulatory authorities in Europe have

formed the Independent Regulators Group (IRG), with the Bundesnetzagentur being one of the founding members. The IRG gives the regulators a discussion platform to form their own opinions and also covers those issues that fall outside BEREC's area of responsibility. The IRG has its own office and conference facilities available in Brussels, thus close to the pertinent decision-makers in the European Union as well as to the market participants' representatives.

More information can be found at http://www.irg.eu.

International cooperation also takes place in other organisations. For example the Bundesnetzagentur is active in the European Conference of Postal and Telecommunications Administrations (CEPT) and in the working groups of the International Telecommunication Union (ITU). It also holds the chair on key international bodies, such as the CEPT World Radiocommunication Conference Preparatory Group (CPDG) and the ECC Working Group Frequency Management (WGFM).

Article 7/7a procedure

Again in 2014 the European regulatory authorities for telecommunications notified the European Commission, BEREC and other regulatory authorities of numerous regulatory actions that were planned. The pertinent procedure is specified in Articles 7 and 7a of the Framework Directive (2002/21/EC) and gives the European Commission and the other regulatory authorities an opportunity to give their views and comment on whether the planned constraints comply with European law. In the event that the European Commission raises any serious doubts, this automatically triggers a Phase II investigation. During a Phase II investigation the regulatory authorities involved are prohibited from adopting the draft decisions submitted. Instead, BEREC sets up a working group to draft an opinion on the case and, after adoption by the BEREC Regulatory Council, to forward the opinion to the European Commission and publish it. The Article 7/7a procedure is to ensure that European legal framework provisions are applied consistently in order to make progress in developing the single European market for electronic communication.

In 2014, the European Commission launched a Phase II investigation in eight cases; in each case BEREC drew up its opinions within the prescribed time period. For the most part the opinions supported the European Commission's serious doubts although in several cases BEREC also found certain aspects reasonable from the point of view of the regulatory authorities affected and therefore did not share the European Commission's serious doubts.

Five of the eight Phase II investigations conducted in 2014 involved draft decisions notified by the Bundesnetzagentur. In each case the European Commission raised serious doubts about the cost accounting benchmark for the cost of efficient service provision applied to the calculation of call termination charges for fixed networks (DE/2014/1642, DE/2014/1660, DE/2014/1685) and mobile communications (DE/2014/1605, DE/2014/1666-1667), which it suggested did not meet the objectives stated above.

International spectrum management

As part of international cooperation in spectrum management the Bundesnetzagentur supports numerous developments, especially those in mobile broadband, and it continued its successful work on committees of the European Conference of Postal and Telecommunications Administrations (CEPT), the European Union and the International Telecommunication Union (ITU) throughout 2014. The Electronic Communications Committee (ECC) of the CEPT responded to a mandate of the European Commission on the 700 MHz band, which has been used for terrestrial digital video broadcasting (DVB-T). In this respect the ECC has notably drawn up a band plan for wireless access that enables roaming worldwide. Under the chairmanship of the Bundesnetzagentur, the ECC Frequency Management Working Group also responded to the European Commission mandate on the use of the L band (1452-1492 MHz) by broadband mobile communications (the "supplemental downlink") and paved the way for mobile broadband with high data rates in this band, too. At the ECC level within the CEPT, the various project groups in which there was German participation dealt with the following main items in 2014: spectrum for broadband applications for authorities and organisations concerned with public safety, use of the 1,492 – 1,518 MHz band by radio microphones, broadband direct air-to-ground communications (DA2GC).

Special focus was also placed in 2014 on the completion of studies for the World Radiocommunication Conference 2015 (WRC-15). As the United Nations' authorised body, the WRC-15 adopts resolutions on amendments to the Radio Regulations necessary to reflect technical and political development and hence makes significant decisions on future international frequency management. The WRC-15 topics that are crucially important from a German point of view, and which have reported considerable progress in the year under review, are the future spectrum package for mobile broadband, the use of the 700 MHz band for mobile broadband, the worldwide harmonisation of existing frequency bands for radio applications for public protection and disaster relief (PPDR), the possible use of frequency bands allocated to the fixed satellite service to control unmanned aircraft systems, the extension of the current worldwide allocation to the Earth exploration-satellite service in the frequency band by 9.6 GHz to improve the resolution of earth exploration satellites, allocations to mobile aeronautical services (R) to use wireless avionics intra-communications (WAIC) and additional allocation of the 77.5 – 78 GHz band to the non-navigational radiolocation service for automotive short-range high resolution radars. The WRC-15 Conference Preparatory Group of the CEPT (CPG) worked on joint European proposals, which ideally will be shared by the 48 CEPT member administrations at the WRC-15. The Bundesnetzagentur currently chairs the CPG and thus is the CEPT chief negotiator for the WRC-15. The specifics of the 33 items on the WRC agenda are being developed with the active participation of the Bundesnetzagentur in four project groups, each of which is responsible for one topic area of the WRC-15 agenda items. Preparatory work takes place at the national level in specifically-organised working parties under the leadership of the Bundesnetzagentur. The working parties are open for the participation of any stakeholders.

Another field of activity in European Commission bodies is work in the Radio Spectrum Committee (RSC) and the Radio Spectrum Policy Group (RSPG), where the Bundesnetzagentur addresses the regulatory and political aspects of European spectrum harmonisation. In 2014 the Bundesnetzagentur participated in a decision to harmonise frequencies for wireless microphones and a decision to change the frequency requirements for broadband radio applications in the 3.5 GHz band, which were put into force upon completion. As part of the first European RSPG programme, opinions on the UHF radio band and on the WRC-15 were drawn up.

Connected Continent package

Last year the European Commission initiated a far-reaching legislative package on creating a digital single market for electronic communications ("connected continent"). Following its first reading in the European Parliament in April 2014 and subsequent European Council negotiations, the package was examined with regards to international roaming and net neutrality. In-depth discussion is taking place on the issue of international roaming due to the changes instituted by the European Parliament, in particular since its proposal to introduce a "roaming like at home" (RLAH) model. According to this model, providers would no longer be allowed to levy any surcharges vis-à-vis domestic tariffs for roaming services up to a "fair use limit". In its opinion (BoR 14(50)) BEREC generally welcomed the introduction of "roam like at home", especially from the consumer's perspective, but at the same time it pointed to the associated parameters that had to be pre-defined (especially the "fair use" criteria and examining the upper price limits at the wholesale level) as well as any interactions (BoR 14(209)). Intense consultation is also continuing on net neutrality. An important question in this regard is when and under which conditions providers of internet access services can apply measures to manage the traffic. However, the question of where the distinction lies between internet access services and special services is highly significant. In December 2014 the federal government presented a negotiating position on net neutrality, according to which, all data packets in the open internet should be treated equally.

The federal government's proposal included a definition of special services. The same definition was included in the original proposal of the European Commission and in the text adopted by the European Parliament. Moreover, the federal government's proposal envisaged that special services should not be offered as a substitute for internet access services and that the best effort internet and its development as a consequence of technological progress may not be impeded.

Further treatment of these two issues remains to be seen and will have an impact on the starting point of the forthcoming review of the current legal framework.

Further information and all the BEREC documents are available at http://berec.europa.eu/eng/document_register/welcome/.

International roaming

As a result of the latest roaming regulation, two core developments have been noted as of 1 July 2014. One of these is a further reduction in the upper charges limit at the retail and wholesale level, that is, the charges that providers charge each other. Of particular note is the considerable reduction in charges by more than half for data use. The retail charge has thus been reduced from its former 45 cents per megabyte to a maximum of 20 cents per megabyte. The other development is that as of 1 July 2014 the roaming regulation provides for the possibility of separating roaming services from domestic mobile services ("decoupling") in an effort to generate more competition in the mobile market. This is intended to make it possible for consumers to buy domestic and international roaming services from different providers yet still use the same mobile number (SIM card). However, so far no alternative providers offer this service to consumers on the German market.

Roaming: cheaper surfing abroad

On 1 July 2014 the next stage of the European Union roaming regulation enters into force. This considerably lowers prices once again for smart phone data use within the EU.

In the next stage of the Roaming Regulation, the upper price limits on mobile telephone calls, text messaging and the increasingly important use of mobile data on a smart phone or tablet, or via a notebook and surf stick, will be reduced for end users by up to 50%. From July 2014, roaming mobile phone calls made from another EU country will be charged at a maximum of 19 cents per minute and incoming calls will be charged no more than 5 cents per minute. The upper limit on text messages is now 6 cents; incoming text messages continue to be free-of charge. The upper price limit for data use that was introduced in 2012 will fall from 45 cents per megabyte to 20 cents per megabyte (charges per kilobyte of use and excluding VAT in each case).

To foster more competition on the roaming market, the decoupling of roaming services from domestic mobile services has been envisaged since July 2014. Domestic providers will have to enable their end users to use the roaming services of other providers. In principle, customers will have the possibility of buying mobile services from other providers while retaining the use of their own SIM card and thus their own mobile number. In the case of roaming, a switch to the alternative provider chosen by the customer occurs automatically, similar to how preselection operates in the fixed network. However, there are not yet any alternative providers on the German market offering this service. At present proposals are under discussion at the EU on completely doing away with roaming prices. This would allow customers to telephone, text and surf anywhere in Europe at the same price as if they were at home ("roam like at home").

In other European countries there are also hardly any offers or none at all as mobile network operators are obviously hesitant about or are waiting to implement any changes in view of the ongoing discussions on roaming following the connected continent proposals.

Moreover, as in previous years, the data obtained by BEREC and the national regulatory authorities confirms the utmost compliance with the requirements of the Roaming Regulation as regards permissible charge amounts and transparency requirements to protect consumers (BEREC Benchmark Data Report (BOR (14) 16) and (BOR (14) 115)).

The second BEREC Report on Transparency and Comparison of Roaming Prices (BOR (14) 170) shows that consumers in Europe can choose from a wide variety of international roaming tariffs, starting from linear (eg the Eurotariff) through to various packages at daily, weekly or monthly prices. The supply of data on real-time consumption by providers has improved throughout Europe compared with the previous year but cannot yet be considered satisfactory.

BEREC strategy

At the BEREC plenary meeting in December 2014 the direction of future activities and the issues that would be focused on by the European regulatory body were set out in the BEREC Strategy 2015-2017 (BoR (14) 182). The main objective of the position paper, following on from the BEREC Medium Term Strategy from 2012, is to define the strategic priorities and the organisation's main areas of focus for the period 2015 to 2017 in light of the fundamental technological, commercial and market changes in the telecommunications sector and the challenges they pose. This applies not least with respect to the body's advisory role in the context of the forthcoming revision of the European legislative framework in electronic communications. The strategy paper is based on three strategic pillars of the regulatory framework: promoting competition and investment, promoting the internal market and increasing consumer protection.

New Commission Markets Recommendation of 2014

On 9 October 2014 the Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services (Recommendation 2014/710/EU) published in the Official Journal of the European Union No L 295 of 11 October 2014, page 79 (in the following referred to as "Markets Recommendation") entered into force. This replaces the previous Markets Recommendation of the Commission of 2007 (Recommendation 2007/879/EC).

Instead of the seven markets in the Markets Recommendation of 2007 that were listed as potentially requiring regulation, only five wholesale markets have now been named, that is if markets 3a and 3b are counted separately.

Deleting some markets from the Recommendation does not automatically mean the end of regulation. In any event, further market definition, checking the need for regulation and, if necessary, a market analysis are required at the national level if the need for regulation has already been determined for those markets that are no longer specified in the Market Recommendation for 2014.

Irrespective thereof, additional markets can be defined or regulated on the basis of specific national characteristics even if this deviates from the Commission Regulation. However, any further regulation would require substantial additional justification.

Mobile network standardisation into the 5th generation

Since the early 1990s the booming mobile market has increasingly influenced our social, business and economic life. With the development of mobile broadband services and smart phones, mobile networks can now make a variety of very data-heavy applications available for mobile use. This development will continue into the future and boost demand for mobile data transmission capacity.

Various standardising bodies, including the Bundesnetzagentur, have already started to define the performance characteristics of the 5th generation mobile networks. Depending on the standardising body, the aim is to develop the 5th generation of mobile networks by 2020. In addition to enhancing existing technology, 5th generation mobile networks will also contain new developments so as to transmit more data or to support new services.

The consensus is that making new spectrum available will only partly cover the growing demand for transmission capacity. Therefore as part of standardisation, new technological approaches are or have been developed to design more efficient use of spectrum and therefore to optimise network structures. Mixed cell structures (HetNet), the widespread use of small cells, carrier aggregation and multi-standard base stations are just some examples of this. These additional features require new conditions of coexistence with neighbouring radio services, which must likewise be taken into account when standardising 5th generation mobile networks.

Furthermore, new innovative concepts, such as reconfigurable radio systems (RRS), could take on a key role in the more efficient use of spectrum. For example this could include adopting local unused spectrum or changing radio technical parameters adaptively – without interfering with other radio services. It could therefore be possible for RRS to contribute significantly to solving the problem of "spectrum scarcity".

However, the mobile radio networks are not developing as networks just for mobile broadband applications. In the "Internet of Things", where a great number of data connections with very low data rates are expected through machine-to-machine communication, further progress in developing standards is likewise necessary. This also applies to the integration of specific characteristics for communications in the public security and safety organisations' area. These characteristics include increased quality requirements, the possibility of group communication and the possibility of mobile devices communicating with each other without using a base station ("direct mode").

Developing such complex and technologically sophisticated mobile radio networks takes place over a long period and requires the timely provision of regulatory framework conditions by the administration, as well as the coordination and harmonisation of activities throughout Europe and the world. Many of these tasks in Germany are the responsibility of the Bundesnetzagentur pursuant to statutory regulations (TKG, EMVG, FTEG, Regulation (EU) No 1025/2012 on European Standardisation).

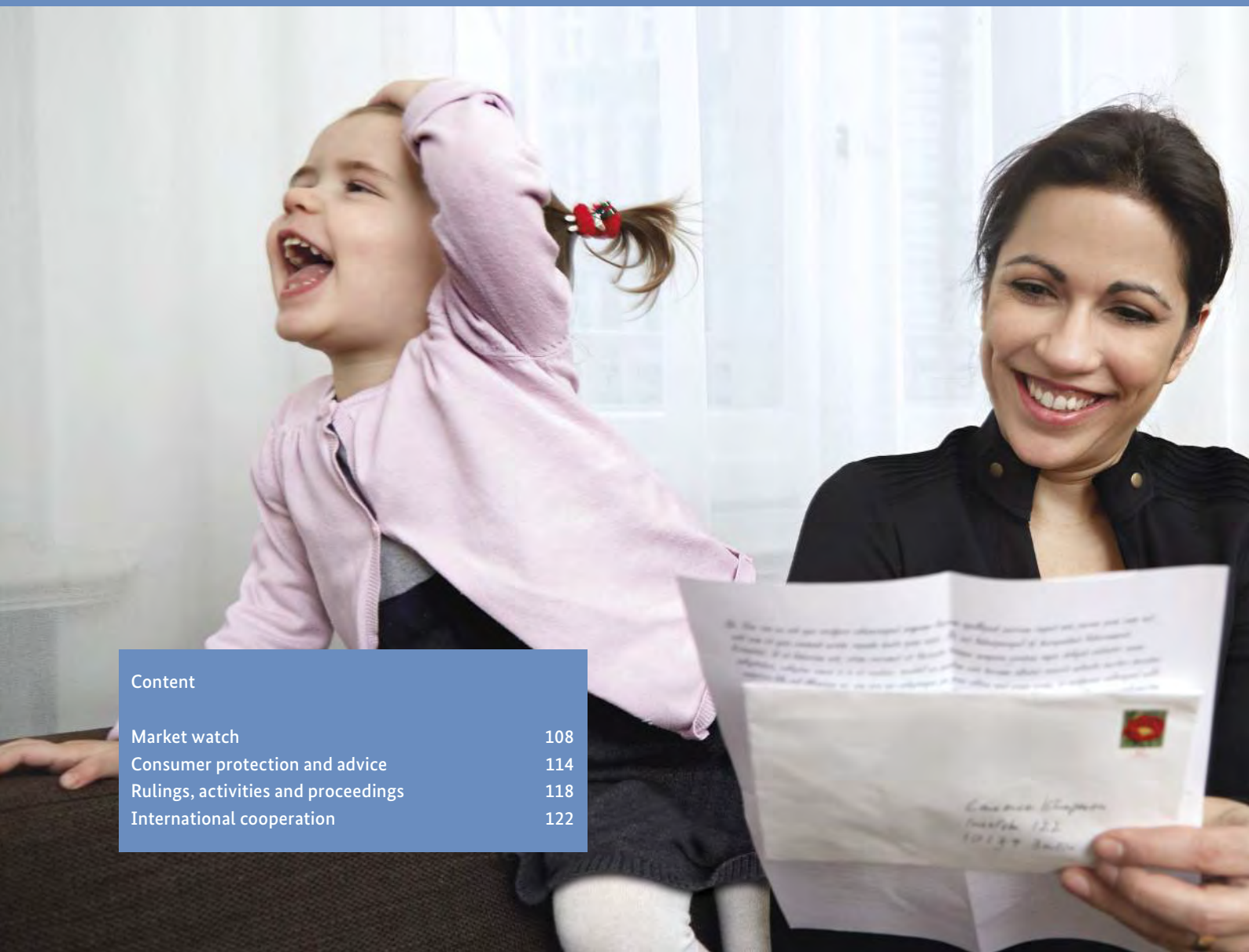
The Bundesnetzagentur plays an active part in numerous technical standardisation bodies nationally, within Europe and worldwide. Cooperation takes place for the development of 5th generation mobile radio networks most notably in ETSI, 3GPP, CEPT, the ITU, oneM2M and selected research projects, in particular those relating to RRS.

Overall, through the targeted and – more importantly – the early participation of the Bundesnetzagentur, the relevant standardisation activities can be steered in the desired direction and statutory requirements that benefit companies and consumers can be introduced.

POST

Stability and dynamism

The German postal market showed stable development in the letter segment, while the rapidly expanding parcel market is responding to the exceptionally dynamic growth in online retail with new services and an enhanced delivery infrastructure.



Content

In 2014 the postal market saw a number of innovative products and new business models, not least motivated by competition and increasing digitisation.

Among the most notable innovations were optimised last-mile delivery structures, with parcel carriers improving customer services and introducing new delivery strategies. For instance, in many cases customers are now able to determine when and how they wish to receive goods that were ordered online. Current options range from live tracking with advance notice of the delivery date and approximate time – with some carriers offering weekend or evening delivery – to package redirection at short notice and advance notification of delivery by text message or e-mail. Many carriers have also started offering a convenient, safe returns service.

In 2014 the industry developed and trialled some new, consumer-friendly infrastructural solutions, for instance "parcel boxes" which are typically located in front of detached or semi-detached family homes. In the year under review, the network of parcel drop-off points with customer-friendly opening hours became denser in both rural and metropolitan areas.

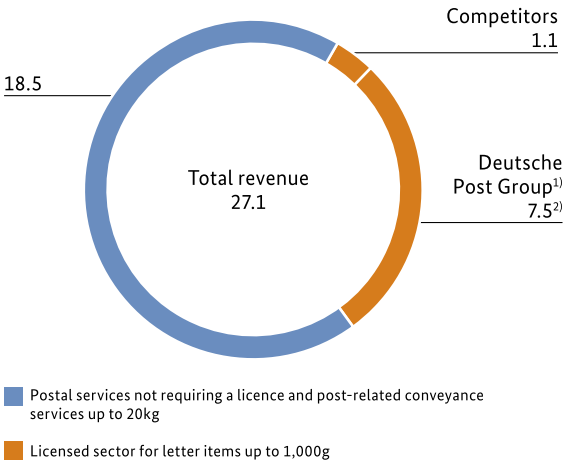
Market watch

The letter market showed continued high-level stability. The parcel market was marked by strong competition, with new service options and infrastructures eagerly embraced by customers.

Postal market

The German postal market developed positively overall, with total revenue in 2013 reaching around €27.1bn. Of this, around €8.6bn were accounted for by the licensed letter sector (letter items up to 1,000g). The market for postal services not requiring a licence and post-related conveyance services, which includes the conveyance of advertising and press items as well as courier, express and parcel services (CEP), reported a record high with revenue of approximately €18.5bn.

Revenue in the German postal market in 2013
€ bn



1) Deutsche Post AG including subsidiaries (DHL, Deutsche PostCom and Deutsche Post InHaus Services GmbH)
2) Forecast figure

Source: WIK, Bundesnetzagentur

However, the market did not develop at an even pace: while the letter sector saw a linear increase, the dynamic CEP segment again emerged as a driver for the entire postal market, with the rise in parcel volumes a strong contributor.

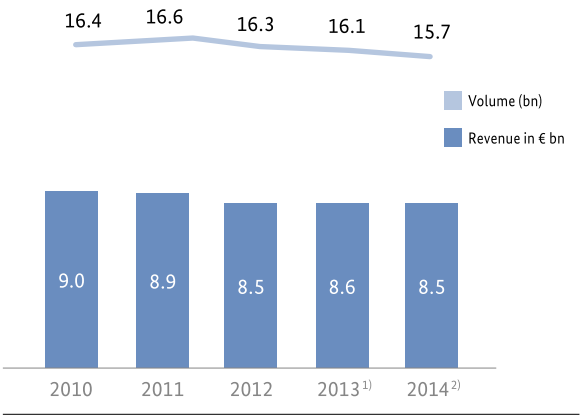
Licensed letter market

Revenue and volumes

The market for letter items saw only negligible movement in 2013. Revenue in the licensed letter market in 2013 reached €8.6bn[1)], a level that is not anticipated to change in 2014. In 2013, 16.1bn items were conveyed. This number is expected to drop in 2014 to approximately 15.7bn[2)]. In fact, letter volumes have shown this slight downward trend for a number of years now.

1) Updated figure

Revenue and volumes in the licensed letter sector up to 1,000g



1) Updated figures
2) Forecast figures

Revenue generated by competitors of Deutsche Post Group rose to around €1.1bn in 2013 and is expected to remain at a level of around €1.1bn[2)] in 2014. Considering the decline in volumes, the rise in 2013 is largely due to postage rate increases by some licensees. Deutsche Post AG (DPAG), too, raised its postage rates (see also the diagram entitled "General price development and DPAG letter prices" on page 110). Overall, then, prices have risen slightly.

Network access

The vast majority of letters is handled via what is known as access to incidental services (network access). Of the approximately 10.7bn[1)] incidental service items handled by DPAG in 2013, around 1.7bn were posted by competitors. The expected number of DPAG incidental service items in 2014 is 10.3bn[2)], slightly below the prior-year level.

In 2013 Deutsche Post Group generated €4.6bn in revenue in the incidental service sector (2014: €4.5bn[2)]). The corresponding revenue generated by competitors in 2013 was €122.3m[1)]. For 2014 another, although small, increase in revenue is expected.

End-to-end competition

Provided the carriers have the right delivery infrastructures, they can also handle the entire conveyance chain from the sender to the addressee themselves, without having to make use of incidental services.

Deutsche Post Group's end-to-end volumes stood at 3.5bn in 2013; associated revenue reached €2.9bn. The forecast figures for 2014 are approx. 3.3bn[2)] items and around €2.8bn[2)] in revenue. In 2013 Deutsche Post Group's competitors handled 2.0bn items in this segment, generating revenue of around €0.9bn. For 2014, the Bundesnetzagentur has again forecast volumes of around 2.0bn[2)] and around €0.9bn[2)] in revenue. All told, competitors expect to see low-level volume and revenue increases, while Deutsche Post Group anticipates a decline in letter volumes in 2014.

Market shares in the letter market

In 2013 Deutsche Post Group remained the undisputed market leader in the licensed letter sector with a market share by revenue of 87.7%. The other providers together held a market share of 12.3%, slightly more than in prior years.

Market shares in the licensed letter sector by revenue and volume

	Market shares			
in %	**2010**	**2011**	**2012**	**2013**
Revenue				
Deutsche Post Group[1)]	89.6	90.0	88.5	87.7
Competitors	10.4	10.0	11.5	12.3
Volume[2)]				
Deutsche Post Group[1)]	89.8	89.4	88.6	87.7
Competitors	10.2	10.6	11.4	12.3

1) DPAG including subsidiaries (DHL, Deutsche PostCom & Deutsche Post InHaus Services GmbH)
2) Volumes for Deutsche Post Group include incidental service items

1) Updated figure
2) Forecast figure

Number of operators in the licensed sector by revenue[1] (without Deutsche Post Group)

Revenue in €	Up to €100,000	€100,001 to €500,000	€500,001 to €1,000,000	> €1m to €10m	> €10m
2010	~ 330	108	44	93	20
2011	~ 330	117	42	90	22
2012	~ 350	113	36	103	28
2013	~ 350	95	42	94	26

1) The number of operators shown here is lower than the total number of licensed operators, as in many cases the parent company or group provided data for all affiliated licence holders.

Competitors' market structure

In 2014 around 600 carriers handled letters up to 1,000g on their own account. Of these, around 350 licensees were small businesses with revenue of less than €100,000 a year and whose operations were managed only by the firms' owners (occasionally assisted by family members and/or a small number of employees).

A number of larger providers withdrew from the market owing to insolvency or having merged with other licensees. Although the number of licensees generating over €10m or more in revenue declined slightly, their revenue underwent a pronounced increase. In 2013 the 20 largest carriers (excluding Deutsche Post Group) generated an increase in revenue of just over €100m year on 2012.

The five largest competitors of Deutsche Post Group together accounted for more than one third of all competitors' revenue. In 2012 their share stood at 33.2%, rising to 36.6% in 2013. For 2014, the five largest competitors' market share is forecast to rise to over 37.1%[2] of all of Deutsche Post Group's competitors' revenue.

Letter prices

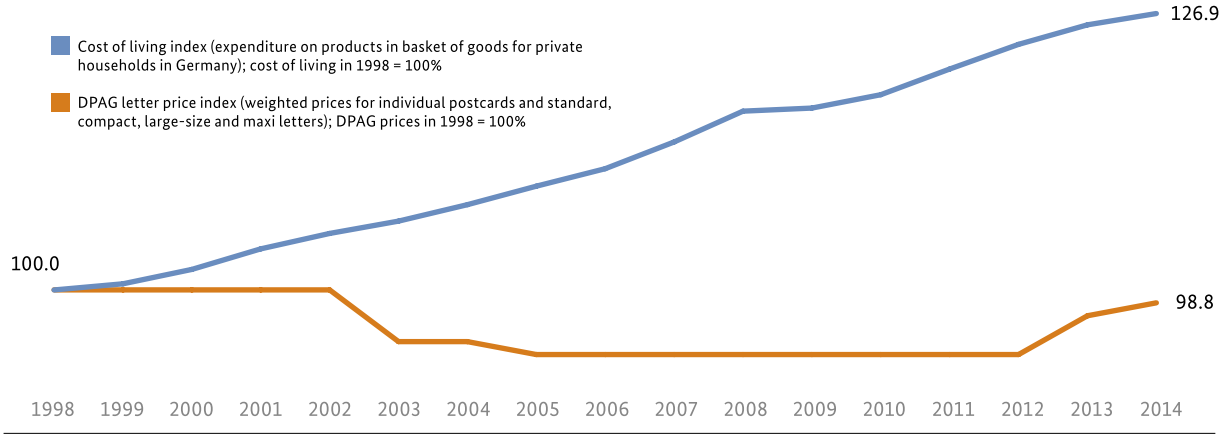
Since the letter market was liberalised in 1998, DPAG's prices for single letter items (eg, postcards, standard and compact letters) have remained comparatively stable. Adjusted for inflation, real prices for letter services have dropped by more than 22% since 1998, despite price increases in 2013 and 2014. Letter prices have hence clearly not risen to the same extent as the general cost of living index did during the same period.

Workforce development

The licensed sector for letter items (excluding sub-contractors) had a total average headcount in 2013 of 174,226, of whom 150,963 were employed by Deutsche Post Group and 23,263 by other market players. 61% of Deutsche Post Group's workers were employed on a full-time basis, 39% worked part-time.

The competitors had 22% full-time and 78% part-time staff.

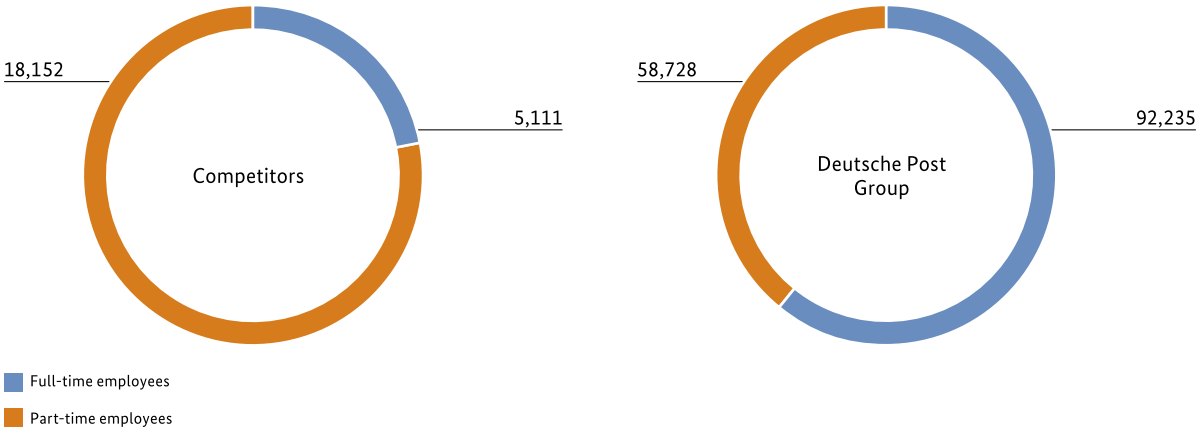
General price development and DPAG letter prices



Source: Consumer price index 2014; as of December 2014

2) Forecast figure

Employees in the licensed letter sector

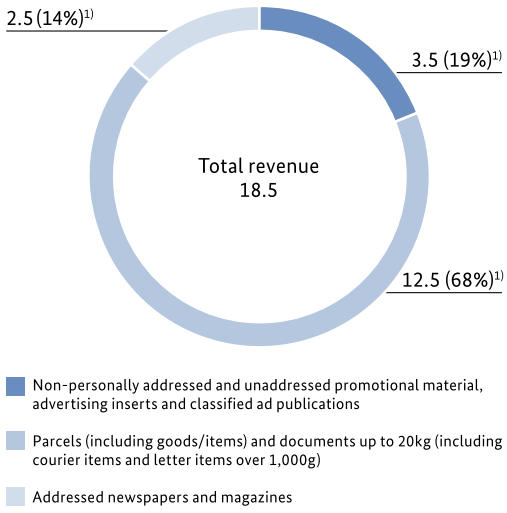


Postal and conveyance services not requiring a licence

Revenue

The market for parcels (including goods items) and documents up to 20kg (including courier items and letter items over 1,000g, non-personally addressed and unaddressed promotional material, advertising inserts, classified ad publications and addressed newspapers and magazines) reported revenue of €18.5bn in 2013. In 2012, this figure was €17.7bn, falling far short of the €18bn mark.

Revenue in the unlicensed sector in 2013
€bn



1) Rounding differences

Source: WIK 2014

Revenue in the segment for courier, express and parcel items up to 20kg (CEP) is forecast to reach €12.9bn[2] in 2014 (up 3.1%). Volumes in 2014 are expected to reach 2.7bn[2] (up 3.7%). Most of this growth is accounted for by parcels, an area that as in previous years is driven by the rise in e-commerce.

CEP revenues and volumes

Year	2011	2012	2013	2014
Revenue in €bn	11.2	11.5	12.5[1]	12.9[2]
Volume (bn)	2.4	2.4	2.6[1]	2.7[2]

1) Updated figures
2) Forecast figures

Source: WIK, Bundesnetzagentur

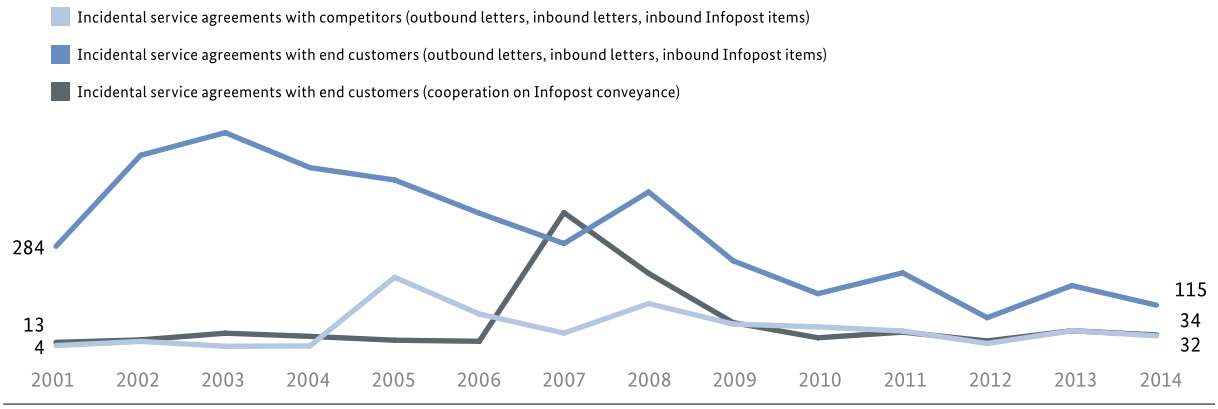
Access to incidental services, P.O. boxes and change-of-address information

Incidental services, P.O. boxes, change-of-address information

All incidental service agreements signed by the incumbent provider have to be submitted to the Bundesnetzagentur for approval. This also includes agreements with end customers and competitors. This obligation was expressly confirmed by the Federal Administrative Court in its ruling dated 20 May 2009 and ensures that the Bundesnetzagentur can exercise its responsibility to monitor the market and prevent market abuse effectively. In 2014, 16,540 new incidental service agreements were signed with DPAG. These included, amongst others, 32 agreements with competitors on incidental services (outbound letters, inbound letters, inbound Infopost items), 115 agreements with

2) Forecast figure

Incidental service agreements concerning acceptance offices for bulk mail
Number of agreements (excluding supplementary agreements)



end customers on incidental services (outbound letters, inbound letters, inbound Infopost items) and 34 agreements with end customers on cooperation on Infopost conveyance.

In addition, 16,094 new incidental service agreements were concluded in 2014 on franking end customers' and competitors' items plus 250 incidental service agreements on participation in automated franking (letter service)/franking of items using IT systems and mailing systems.

As the incumbent, DPAG is obliged to grant competitors access, in return for a fee, to its change-of-address records. In the year under review, DPAG submitted five new agreements on access to change-of-address information to the Bundesnetzagentur.

The incumbent is also obliged to allow competitors, in return for a fee, to deliver any postal items addressed to a P.O. box to DPAG's own P.O. box facilities. In 2014, DPAG submitted three new agreements on P.O. box access to the Bundesnetzagentur.

Market access

Licensing (including review of licensees)

Issue of licences

Between 1998 and 2014 the Bundesnetzagentur granted 1,169 companies and individuals a licence for the conveyance of letter items up to 1,000g. In addition, in 2011 and 2013 the Bundesnetzagentur approved the transfer of a number of licences to other legal entities. At the end of 2014, 1,158 valid licences were in existence, with around 600 postal service providers active in the market (see also section headed "Competitors' market structure" on page 110). 39 licences were issued in 2014. During this period there were 81 market withdrawals, with the corresponding licences either returned or declared void. The number of licences hence continued to decline in 2014.

On the one hand, the pronounced decrease in the number of licence applications (42) and licences granted (72) over the course of 2014 indicates that the market is saturated. On the other, the high number of business deregistrations and insolvent licensees suggests that the market is also consolidating. A disproportionately high number of micro-companies were among the insolvencies. The Bundesnetzagentur reported 81 lapsed licences in its Official Gazette in 2014 alone.

Working conditions in the licensed area

In 2014, the Bundesnetzagentur examined the basic working conditions in the licensed postal market, with licensees and subcontractors alike subject to a detailed review.

Although the Postal Act makes no specific mention of these working conditions, it is possible to draw some conclusions by looking at the type of employment contracts, wage levels, any bonuses paid, and holiday entitlements. Based on these criteria the Bundesnetzagentur drew up a questionnaire that was sent by way of an official survey to almost 1,400 licensees. The results of the survey were submitted to the Advisory Council of the Bundesnetzagentur in spring of the year under review. One of the main conclusions to be drawn was that wages and salaries have risen considerably since the last survey in 2009.

Respondents were also requested to supply the names and addresses of their subcontractors.

In the year under review, working conditions at the subcontractors, too, were then examined and compared with the results of the licensee survey. By the end of the year, the Bundesnetzagentur had written to a random sample of 3,900 subcontractors, pointing out their statutory obligation to respond.

The results of this survey will be evaluated in the second quarter of 2015 and subsequently submitted to the Advisory Council of the Bundesnetzagentur.

Notification requirement

Providers offering postal services that do not require a licence are obliged to notify the Bundesnetzagentur in writing when their operations commence, change or terminate. This requirement specifically extends to subcontractors that offer letter and/or parcel conveyance.

The following services are subject to this requirement: conveyance of letter items weighing over 1,000g individually; conveyance of addressed parcels weighing no more than 20kg individually; courier services; conveyance of books, catalogues, newspapers or magazines if handled by a carrier that provides letter or parcel services; and conveyance of letter items weighing up to 1,000g individually if the carrier is a subcontractor acting on behalf of another licensee.

Since 1998 the Bundesnetzagentur has received some 50,000 notifications, of which around 90% were submitted by subcontractors, many of them parcel shops affiliated with major parcel carriers.

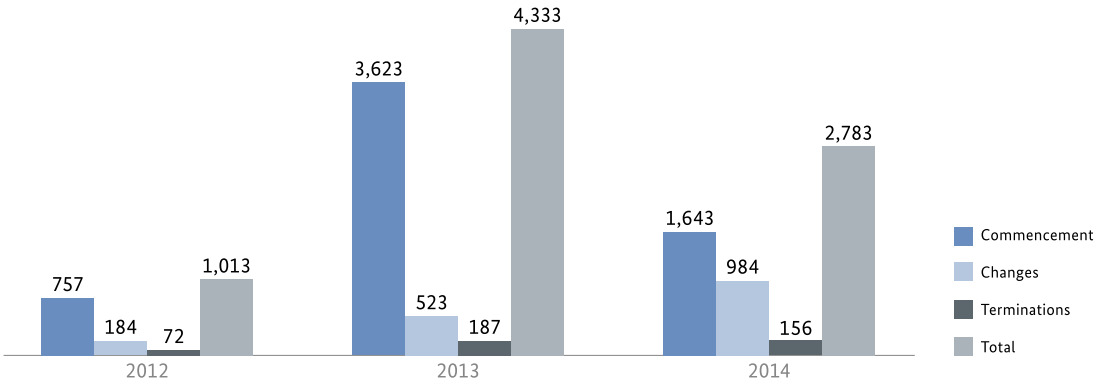
A large number of breaches in the obligation to notify the Bundesnetzagentur were identified, in which case the Bundesnetzagentur initially contacted the provider to advise them. In some instances fines of at least €1,000 were imposed under an administrative offence procedure.

Standardised electronic registration of postal service providers subject to notification and electronic licence application processing

To improve communication between citizens and the private sector on the one hand and between citizens and public administration on the other, the Bundesnetzagentur has launched an IT project for the electronic registration and processing of notifications in accordance with section 36 of the Postal Act and of licence applications.

To ensure that all processing can be done online, traditional paper forms will be replaced by electronic forms for individual target groups probably as early as 2015.

Notifications received 2012 – 2014



Consumer protection and advice

The Bundesnetzagentur monitors the standard of quality of universal services and is on hand to provide a professional response and dispense advice concerning any post-related complaints.

Postal service provision

The Bundesnetzagentur monitors the provision of sufficient and affordable postal services across the entire country, from the far north to the very southern tip of Germany. It also monitors compliance with the quality standards that apply to these services. The Postal Universal Service Ordinance (PUDLV) stipulates which criteria have to be met by providers of postal universal service, that is, Deutsche Post AG (DPAG) and its competitors. Besides stating which postal services are considered universal services, the Ordinance also makes reference to the quality criteria that letter and postal services have to meet. They include, inter alia, the number and density of fixed-location posting points and post boxes, average transit times for letters and parcels, and the frequency and mode of delivery.

Among the most important quality standards that apply to universal services in Germany are the existence of at least 12,000 fixed-location posting points; as a rule at a distance of no more than 1,000m the nearest post box; delivery of letters and parcels every working day; and delivery of at least 80% of domestic letters on the next working day after posting (95% within two working days of posting).

In 2014, the Bundesnetzagentur found that once again, the infrastructure for the collection and conveyance of parcels had been enhanced, with improvements made by DPAG as well as its competitors. Several parcel carriers have also announced plans to set up new parcel shops across the country.

Further development of universal service

Postal markets are currently seeing profound change. Thanks to increasing digitisation, in particular, many opportunities for innovations have opened up which are putting traditional business models under pressure, however. This leads to the question of how to maintain a postal universal service that is both modern and capable of meeting the population's needs.

The Bundesnetzagentur is legally obliged to publish an activity report every two years in which it can recommend any changes to the scope of postal universal service. In preparation for these reports the Bundesnetzagentur engages in a constructive dialogue with market players.

In preparation for the next report, it has published a discussion paper outlining the current challenges on the postal markets and the future of universal service, and has invited comment. Specifically, the document details the legal framework, the developments and innovations that are taking place on the letter and postal markets, and the resulting challenges for universal service. Any comments received will be used as input for the ongoing results-driven discussion.

Consumer complaints

For the Bundesnetzagentur, consumer complaints are a valuable indicator of potential irregularities in postal universal service. In 2014 the Bundesnetzagentur received 1,950 written complaints (e-mails and letters). This year-on-year rise of almost 60% is also attributable to increased media coverage and other PR measures instigated by the Bundesnetzagentur to sharpen its profile as a port of call and provider of advice for consumers wishing to voice a complaint about postal services.

A particularly large number of complaints were filed in Hamburg (356) and surroundings. Many complaints were also filed in North Rhine-Westphalia (247), followed by Hesse (170), Baden-Württemberg (169) and Bavaria (161). In the other federal states, the number of complaints in 2014 ranged from 147 in Berlin to ten in Saarland.

Parcel markets: The last mile, a success factor

Parcel delivery companies are responding to the explosive growth in online retail with new "last mile" infrastructures designed to make delivery faster and more precise.

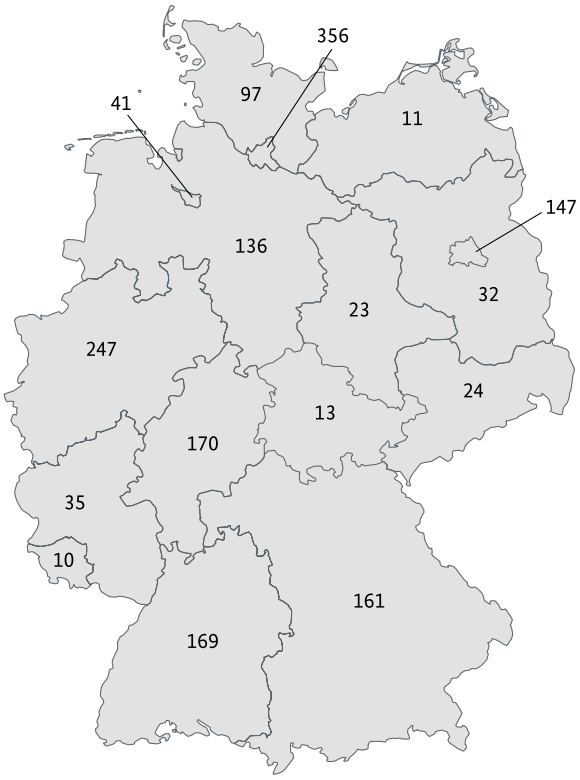
The heart of the German retail sector is increasingly shifting to the internet. Goods ordered online have to be transported to buyers' homes rapidly and easily. With the number of parcels having risen to around 2.7 billion, this is a major challenge for parcel service providers. They have to increase capacity and invest enormous sums in building reliable, modern delivery networks. Competition is on the rise, and so are consumers' expectations. Providers are responding with new delivery strategies, many of which are designed to improve the consumer experience.

For the providers, optimising the cost structures associated with the last mile is a major priority. Repeated delivery attempts cost time and money and artificially inflate the number of parcels handled. Providers are hence attempting to reduce the number of unsuccessful delivery attempts by giving customers a choice of delivery options such as weekend or evening delivery or the ability to change the point of handover at short notice.

New parcel shops are springing up and parcel boxes, parcel "butlers" and strongboxes are emerging, indicating that delivery and collection structures are changing profoundly. Not least, these new infrastructures are helping providers to improve the way they handle the rising number of returns of goods bought online. According to industry experts, one in four parcels handled is a return.

The Bundesnetzagentur is aware that there is much room for development in this area and is keeping a close eye on providers' activities so as to ensure a level playing field for all market players.

Complaints[1] received in 2014, shown by federal state



1) The sum of complaints listed here does not correspond to the total number of complaints in 2014 since some complaints could not be attributed to one federal state.

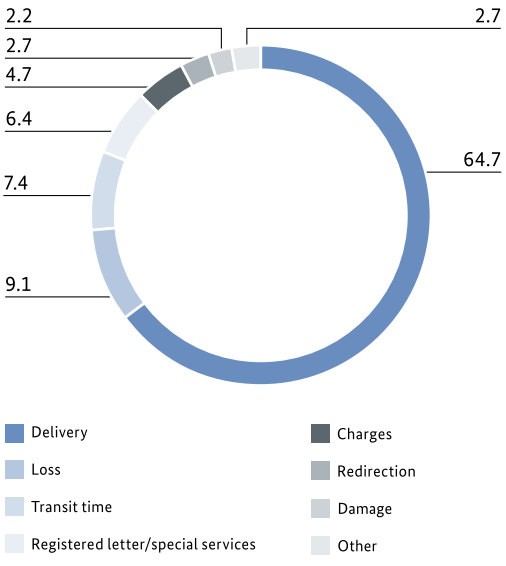
Some letters contained a number of complaints relating to the "classic" aspects of postal delivery. Of the 2,350 reasons cited, around 1,250 cases (53.7%) related to letter conveyance and around 600 (25.6%) referred to parcel conveyance. The remainder was broken down as follows: newspaper conveyance (2.2%), fixed-location posting points (1.9%), post boxes (0.8%) and other (15.8%).

Delivery and all of its related aspects, such as lack of delivery on certain days of the week or over a longer period, delivery to a substitute or wrong address and returns, were frequently cited, followed by complaints about charges, cash-on-delivery and registered letters and lost and damaged letters and parcels. Several complaints related to statutory transit times, postal providers' complaints management, opening hours of post offices, and the number of post boxes and parcel drop-off points.

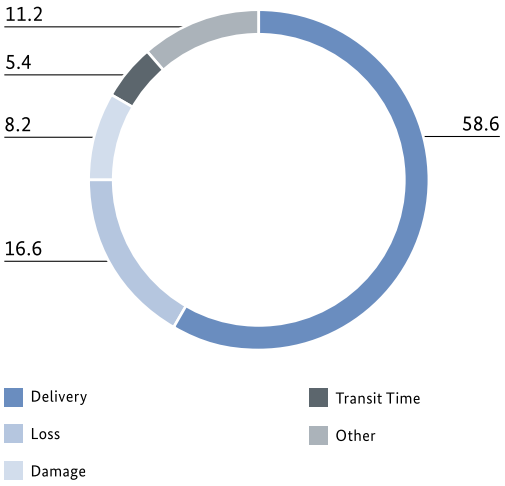
Dispute resolution

Postal items that are lost, damaged or not redirected correctly are not just an annoyance; customers are also often put at a financial disadvantage. However, if postal service providers are not willing to offer compensation, it is rarely worth pursuing a costly and time-consuming court case to force them to do so. In these cases customers may apply to the Bundesnetzagentur to have it pursue a low-cost, non-bureaucratic alternative to a civil suit on their behalf. Applicants must have a valid reason for applying and must have previously and unsuccessfully attempted to settle the dispute with the provider.

Letters: Reasons for complaints
%



Parcels: Reasons for complaints
%

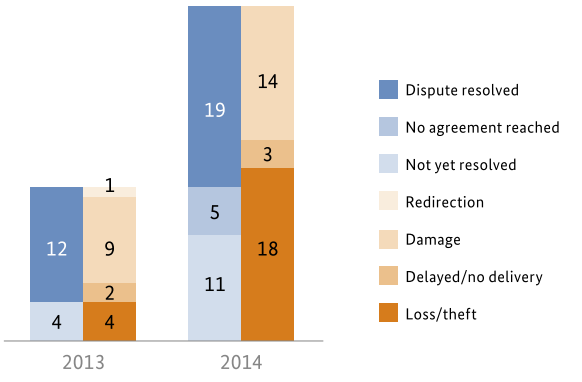


The Bundesnetzagentur's dispute resolution panel initiates a voluntary process during which it mediates between the parties and where possible, suggests ways to settle the dispute amicably. In this context the parties have full control over the process. They can terminate it at any time and are not obliged to follow the panel's suggestions.

In 2014 the Bundesnetzagentur received 56 requests for dispute resolution. Ten were rejected since they did not meet the preconditions for dispute solution. In five cases the provider in question declined to participate. The remaining 41 cases went before the panel. Six applicants decided to withdraw their application for resolution before the process ended.

By 31 December 2014, 24 of the cases initiated in the year under review had been resolved. In the majority of cases the parties came to an agreement, with providers reimbursing their customers on average with around 52% of the amount under dispute.

Dispute resolution cases in 2013 and 2014
Outcomes and reasons for application



Rulings, activities and proceedings

The Ruling Chamber for post approved various rates of Deutsche Post AG. Abuse proceedings against Deutsche Post InHaus Services GmbH were dropped.

Price cap decision for letter rates in 2015

In a decision dated 15 October 2014, under price cap proceedings the Bundesnetzagentur approved the prices of Deutsche Post AG (DPAG) for letter items up to 1,000g for 2015.

On the basis of the price cap decision of the prior year, on 1 October 2014 DPAG had applied for new prices for 2015. In the benchmark proceedings the Bundesnetzagentur set the main criteria for price adjustments for the approval period, namely the rate of inflation and the productivity increase, also referred as the X factor. In the prior year, the X factor was set at 0.2% per annum for the period 2014 to 2018. DPAG has invested heavily in new sorting equipment, so in future the company will find it more difficult to cut costs. Rising wage costs and decreasing volumes, too, have led the X factor to decline to a low level. However, DPAG is still not permitted to pass on higher prices to its customers that result from the rate of inflation, which reflects an annual general increase in consumer prices. Until 2018, any price increases hence have to remain at least 0.2% under the rate of inflation.

In the Bundesnetzagentur's annual price cap proceedings to fix actual prices, it will only verify whether the room for manoeuvre for price increases has been correctly applied to all products that are subject to rates regulation. The main changes for 2015 relate to an increase in postage for domestic standard letters to €0.62 and an increase in postage rates for international postcards and standard letters from €0.75 to €0.80. Since these increases exceeded the permitted cap, DPAG had to compensate by cutting the price of a compact letter from €0.90 to €0.85. DPAG hence increased its price for standard letters yet again for the third time in as many years. There are no plans to change the discounts for incidental services, so standard letter prices for business customers will also be raised.

Approval of rates for "Wert national"

On 12 March 2014 DPAG applied for approval for the price of its new "Wert national" product. The competent Ruling Chamber duly approved the application on 21 May 2014. With "Wert national", an additional service that was introduced on 1 July 2014, customers can insure domestic letter items (standard, compact, large-size and maxi) containing valuables for up to €500 (cash: up to €100) against loss or damage during transit.

Besides the regular postage rate for the product in question (eg 60 cents), this attracts a charge of €2.15 for the "registered" service plus €1.80 for the "Wert national" service, bringing the total price of the insured item to at least €4.55. Other formats, weights and additional services (registered letters for personal handover to the addressee or advice of receipt) may attract an additional charge.

Approval of rates for "Hin und weg"

On 20 November 2014 the Ruling Chamber replaced the rates approval for DPAG's "Hin und weg" collection and delivery service, which was to expire on 31 December 2014. The product is designed for both private and business customers. As in the case of the previous rates application, its price is determined by way of a price formula, the most significant parameters of which are the customer-specific length of the trip and the time required per customer. These parameters are then multiplied with a factor that is specific to the branch office in question.

A monthly flat fee is calculated that reflects the time and effort involved, the number of trips and an average factor. This cause-based calculation also ensures that the monthly flat fee is non-discriminatory for similar customer groups (with trips of comparable duration and length). The rates were approved for the period 1 January 2015 to 31 December 2019.

Approval of rates for "E-Postbrief"

Effective 1 January 2015, the competent Ruling Chamber approved a follow-up application filed by Deutsche Post E-POST Solutions GmbH, a subsidiary

of DPAG, concerning the product "E-POSTBRIEF mit klassischer Zustellung".

E-Postbrief items are posted electronically by senders who have to register with DPAG in advance of using the service. The items are subsequently delivered either electronically to addressees who have also signed up to the service, or physically. In the case of physical delivery, the electronic messages dispatched by the sender are transmitted to Deutsche Post E-POST Solutions GmbH or one of its subcontractors, printed, folded, inserted in an envelope and franked with what postage is applicable for a comparable DPAG product, eg €0.62 for a standard letter. These items are subsequently handed over to Deutsche Post InHaus Services GmbH (DPIHS), the consolidator that injects these items into DPAG's system, for delivery to their addressees.

The rates to be approved only related to the portion of the service provided by the applicant, that is, the physical conveyance of licensed letter items. In other words, the rates do not correspond to the full charge payable by the customer. Senders also have to pay for electronic posting, letter production and VAT, so the rate payable by them is not €0.41, the approved rate for "Standard-E-Postbrief", but rather €0.62.

Both variants of the E-Postbrief, the purely electronic version and the variant with physical delivery, were launched in July 2010. Since 2012 several providers have launched a competing product under the name DE-Mail. Digitisation has hence arrived on the postal market, too, and is expected to change the world of written communication. The rising popularity of E-Postbrief and DE-Mail and the potential substitution of traditional letters this could entail will require the attention of postal regulatory authorities. The approved rates are valid until 31 December 2015.

Proceedings against DPIHS dropped

The formal abuse proceedings that were brought against DPIHS were dropped by order of the Ruling Chamber on 18 November 2014. The suspicion of preferential treatment for Compador that would have put a competitor, PostCon Konsolidierungs GmbH (PostCon) at a disadvantage, could not be confirmed. In late 2012 DPAG acquired a minority stake in Compador Dienstleistungs GmbH (CD). CD began trading in spring 2013 and requested DPIHS to provide consolidation services. PostCon also approached DPIHS around this time, initially requesting that it be granted the same posting terms and conditions as CD. DPIHS responded by assigning PostCon earlier posting slots than Compador. Forced to deliver earlier in the day, PostCon would have not been able to offer delivery on the next business day, unlike CD.

The competent Ruling Chamber subsequently opened investigation proceedings against DPIHS to verify whether CD, which belongs to the Deutsche Post Group, was receiving preferential treatment.

It emerged that PostCon in fact requested the provision of a different service than CD (and other customers of DPIHS), namely merely the sorting of items by the first two digits of the postcode. Specifically, PostCon did not wish DPIHS to inject its items into DPAG's system under DPIHS's incidental service agreement with DPAG, but under its own incidental service agreement with DPAG. The sorting service PostCon requested is quite unlike the consolidation services DPIHS provides for CD (and other customers), also in terms of the underlying process. Since the requested services are not comparable, the suspicion of preferential treatment for CD versus PostCon could not be confirmed.

Whether DPIHS has to offer PostCon access to pure sorting services (which no other market player has so far requested) can only be verified in proceedings that examine access, but not in these particular proceedings, which only served to establish whether there was any evidence of unequal treatment. PostCon was informed of the possibility to file a motion for ordering network access to be granted, also in intermediate proceedings before the Administrative Court in Cologne. DPIHS has since submitted an offer for the provision of pure sorting services. It remains to be seen whether the parties will come to an agreement.

Whether DPIHS offers its services at rates that fail to cover costs (because it passes on its entire incidental service discount less a "flat handling fee" that does not cover costs) was not the subject of these proceedings either. This is currently being verified in separate proceedings.

Approval of rates for the service of documents

The rates approval procedure for the service of documents is a special form of rates regulation. All competitors, not just the incumbent, have to file for rates approval from the Bundesnetzagentur, since these services are used by government authorities for judicial administration purposes and the providers in question are given the sovereign authority to provide formal proof of delivery. The rates of all providers, even non-incumbents, have to be based on the cost of efficient service provision.

In 2014 the number of rates applications and approvals declined sharply compared to previous years. Nine new approvals were granted in 2014 (2013: 25). The number of applications declined from 36 in 2013 to just twelve in 2014, most of them first-time applications. Applications were filed both for rates for single items and for rates on a sliding scale. The highest approved rate was €3.05; the lowest was €1.65 and applies only for a very limited area. The decline in the number of applications and approvals is mainly due to a decline in the number of applications for extensions of established providers. Most applicants had a regional footprint. Some providers established joint delivery networks or alliances so they can serve larger areas.

Court cases

Actions against price cap decisions between 2003 and 2005 dismissed also in the second instance
In a decision dated 9 December 2013 (reference: 13 A 476/08 to 13 A 478/08) the Higher Administrative Court of the state of North Rhine-Westphalia (OVG NRW) in the second instance dismissed the appeals brought by an industry association against rates approvals granted under price cap proceedings between 2003 and 2005. The plaintiff, a customer of DPAG, had brought actions for rescission against rates approvals granted to DPAG for various postal services including standard letters.

The Cologne Administrative Court had dismissed the plaintiff's appeals in the first instance. OVG NRW initially refused the association leave to appeal, yet after the plaintiff lodged a constitutional complaint the Federal Constitutional Court annulled the decision, ruling that it was a matter of fundamental importance whether or not postal customers are entitled to have an administrative court review the legitimacy of a rates approval, so leave of appeal needed to be granted. OVG NRW subsequently allowed the appeals to go ahead but subsequently dismissed them, ruling that the appeal against the first-instance decisions were unfounded.

The rates approvals did not, it continued, directly violate the association's rights. Neither section 87f of the Basic Law nor the provisions of the Postal Act relating to rates approval gave postal customers a personal right to rates approvals that correspond to the provisions of the Postal Act, the court considered.

Independently of the absence of personal rights that could have been violated by the unlawfulness of the rates approvals, the 13th Senate considered the rates approvals to have been lawful. The benchmarks used in the decision underlying the rates approvals of 26 July 2002 had been complied with, the Senate concluded, as had the sections of the Postal Act relating to rates approval. To the extent that the plaintiff had objected to the lawfulness of the benchmark decision of 26 July 2002, too, the decision is incontestable and hence cannot be subjected to a review. But even according to the facts of the case the Senate found no indication that the benchmark decision was unlawful.

OVG NRW has allowed leave to appeal. The appellate proceedings are pending before the Federal Administrative Court. It is already clear that further actions against rates approvals granted under price cap proceedings will have to be suspended until the Federal Administrative Court hands down a decision.

Cologne Administrative Court rules on industrial and business secrets
In a decision dated 26 March 2014 (reference: 22 L 1439/13), the Cologne Administrative Court has ruled on the scope of protection for industrial and business secrets in abuse proceedings.

In proceedings relating to the special control of anti-competitive practices in accordance with section 32 of the Postal Act, Ruling Chamber 5 reviewed whether a provider of consolidation services had discriminated against customers by offering them unequal terms and conditions. Specifically, potential customers felt that the posting windows and volumes offered to them put them at a disadvantage versus other customers. In the proceedings before the Ruling Chamber, the provider in question had objected to the disclosure of unredacted documents to the other parties, citing industrial and business secrets. In particular, the provider cited the obligation to maintain confidentiality concerning the volumes and posting windows offered to individual customers (without disclosing any locations), and concerning the type of services offered (which consisted of both consolidation and pure sorting services). The Ruling Chamber did not consider this information to be of a confidential nature and stated that the disclosure of the details of the offer to all

parties would be beneficial to the proceedings. The companies in question were informed that they could request (provisional) judicial protection in advance of the information being disclosed.

Concerning the information on posting windows and volumes contained in the documents, the Cologne Administrative Court concurred with the opinion of the company in question, considering these to be of a confidential nature. The court considered the information to be exclusive, competition-relevant knowledge, the disclosure of which would impair the provider's ability to operate successfully.

As for the type of services offered to the customers (consolidation and pure sorting services), the court concurred with the interpretation of the Bundesnetzagentur, denying that this information was of a confidential nature. There was no necessity to maintain secrecy in any case, it continued, since section 28 of the Postal Act obliges companies to offer pure sorting services, too.

Under section 36(2) of the German Restraints on Competition Act, which is also applicable to postal carriers, the dominant position in the market of its parent company also has implications for the consolidator. Section 28 of the Postal Act obliges the company in question, being an incumbent, to offer parts of its "overall conveyance offering" separately on request. Conveyance, here, is taken to mean the collection, transfer and delivery of postal items. The sorting of items is hence to be considered a significant part of the conveyance chain and as such is a "work sharing service" as defined by section 28 of the Postal Act.

Postal market reviews/Data protection

In the period under review, the Bundesnetzagentur conducted so-called "postal market reviews" to verify whether postal service providers across Germany meet the requirements associated with holding a licence and notification, and comply with the legislation concerning the service of documents, data protection, and postal secrecy. 71% of these reviews were unprompted, 29% were prompted. The review exercise produced 664 review reports.

The reviews also covered data protection and postal secrecy. In connection with the review, several service providers requested the Bundesnetzagentur to answer questions on individual cases, but also asked for advice on putting in place processes that guaranteed data protection and postal secrecy. The Bundesnetzagentur responded to any questions it was unable to answer immediately after the review. The large number of questions asked by the providers reflect an ever growing public awareness of the importance of data protection and postal secrecy.

Cooperation with the Federal Commissioner for Data Protection and Freedom of Information continued also in 2014. One area of emphasis was the discussion of data protection issues in the light of current developments and of the results of joint assessments. The regular, fruitful meetings with the Federal Commissioner on fundamental issues relating to data protection and postal secrecy and the communication of the outcomes to the postal service providers ensured that the providers were fully informed of their obligations in this regard and could act accordingly.

International cooperation

In the period under review, the Bundesnetzagentur focused on transparent development of standards, clear communication with all competitors in the market and the elimination of barriers to market access in the form of standards which are not open to competitors. Moreover, the growing importance of e-commerce dominated all activities in this area.

Universal Postal Union

In 2014, under the leadership of the Federal Ministry for Economic Affairs and Energy, the Bundesnetzagentur again contributed to the work of the Universal Postal Union (UPU), a UN Specialised Agency with 192 member states, and of its councils, the Council of Administration (CA) and the Postal Operations Council (POC). The POC is the technical and operational arm of the UPU; the CA ensures the continuity of the UPU's work between conferences, monitors its activities, and works on legal and regulatory issues. In many meetings the German delegation, with input from the Bundesnetzagentur, contributed to the ongoing debates and was hence able to help produce strong outcomes.

The UPU's activities are increasingly dominated by the continually growing market for e-commerce as well as by the strong role that IT plays in the transformation process that many postal service providers are undergoing. In late March 2014, a forum on e-commerce was held in Berne, Switzerland to identify and discuss the potential and the challenges of online retail for all stakeholders including consumers, retailers and postal service providers. Besides UPU representatives, the forum was also attended by regional and national postal associations and representatives of postal service providers, and by high-ranking representatives of the International Telecommunication Union (ITU), the World Customs Organization (WCO) and the United Nations Conference on Trade and Development (UNCTAD).

In addition, a special POC committee for e-services discussed all aspects of digital services and products, including e-commerce. Other POC working groups also worked on various aspects of e-commerce, specifically the challenges relating to its international character such as the establishment and simplification of international products and services, improved cooperation with the customs authorities, improved delivery services and standards, and simpler returns handling. In April 2014, a decision was adopted at the POC's annual assembly to further accelerate the many activities and projects to support the development of e-commerce. E-commerce was also high up on the agenda of an additional POC working meeting in the

autumn of 2014. During this meeting, the POC adopted, inter alia, specifications for a new service for parcels up to 30kg including track and trace options, as well as a standard for delivery within five working days of a parcel arriving in the destination country. It also adopted a set of e-commerce guidelines for postal service operators that includes a set of recommendations on developing e-commerce activities and offering relevant services in domestic and international markets.

November 2014 saw the second UPU regulatory forum (the first took place in 2013), entitled "Organizing the market – a new horizon for the postal sector", with a series of presentations on the changes in the postal sector, access regulation, universal service obligation in changing markets, and innovation- and development-friendly regulation. Several presentations highlighted how market frameworks are changing and what impacts this is having, eg on the scope of universal service. For instance, using the e-commerce value chain as an example, it was shown where the bottlenecks and stumbling blocks are and how the participating players can adapt their processes accordingly. Finally, participants also discussed new business models at the interface between postal and digital services.

ERGP

The Bundesnetzagentur has a seat in the European Regulators Group for Postal Services, which was founded in 2010. The ERGP supports the dialogue between European regulatory authorities and helps coordinate common positions in joint reports and position papers. One of its main tasks is to provide advisory services and assistance to the European Commission as the internal market consolidates. In this context, the ERGP is particularly concerned with the consistent application of postal services legislation across all EU Member States. The Group consists of representatives of the regulatory authorities of the EU Member States, the European Economic Area and EU candidate countries, with the European Commission in an observer role. Only the representatives of the national regulatory authorities are entitled to vote, with each authority having one vote.

In 2014, Romania's regulatory authority ANCOM chaired the ERGP. The 2014 plenary meetings of the Group, during which the reports and opinions produced by the various sub-groups are adopted by the executive level of the authorities, took place in Lisbon and Bucharest.

The ERGP's work programme is managed by five sub-groups, each with their own area of expertise: (1) Allocation of common costs and price regulation, (2) Net cost calculation of universal service obligation/ Effects of VAT exemption, (3) End user satisfaction, (4) Cross-border e-commerce parcel delivery, and (5) End-to-end competition and access regulation. Sub-group 4 is jointly chaired by the Bundesnetzagentur and the French regulatory authority.

The sub-groups produced reports and joint opinions that focused, inter alia, on current issues in regard to tariff regulation in the context of volume decline, the quality of postal services, the implementation of the report on indicators for market monitoring, and a better understanding of the European cross-border parcel market. A report on the benchmarking of universal service tariffs was also adopted in 2014. The 2013 report on best practices in the field of consumer protection, specifically quality of service and complaint handling, was discussed and subsequently published in 2014. A discussion paper on the implementation and scope of universal service in the postal sector was the subject of a public consultation and a public workshop in November 2014 in Bucharest. The outcomes of the consultation and the workshop will feed into the ERGP's work in 2015.

The Bundesnetzagentur actively supported all sub-groups with its long-standing regulation experience and provided constructive input for the reports and opinions in line with its "regulation philosophy". While the ERGP's reports and opinions have no legal force and compliance with them is not mandatory, they are indeed effective in promoting the consistent application of the regulatory framework governing postal services in the Member States (known as "soft law").

For more information, go to http://ec.europa.eu/internal_market/ergp/index_en.htm.

European and international standardisation

At the European level, technical standard-setting in the postal sector is focused consistently on the Community-wide harmonisation of technical processes for the external measurement of universal service quality, and on building capacities among all stakeholders to improve collaboration within the postal sector (referred to as interoperability). Since 1993 the European Commission has contributed towards technical standardisation in Europe's postal sector by issuing mandates to CEN, the European Committee for Standardisation. To this end, a dedicated Technical Committee (CEN/TC 331) has been established that develops European standards and technical specifications for postal services. CEN/TC 331 currently consists of four working groups, each of which have a "shadow" working group within the Postal Services Committee of the German Institute for Standardisation (DIN).

In 2014 the Bundesnetzagentur again contributed actively to CEN's standardisation work and in doing so, was able to represent the interests of the German regulatory authority at this level. For one, this enables the Bundesnetzagentur to take into account technical expertise and market developments in its own regulatory work. For another, the Bundesnetzagentur can also verify that national and European legislation is complied with and that market dominance does not shift from the physical to the electronic postal sector, which would entail the emergence of new monopolies. In the year under review, the work of the Bundesnetzagentur again highlighted the importance of greater transparency in the standard-setting process, promoting clear communication with all market players, and ensuring equal access to the market for all competitors by means of a universally applicable set of standards. In this context the Bundesnetzagentur took particular care to ensure that the voice of consumer representatives was heard in the standardisation activities.

Of the standards that were produced and published in the year under review and put forward for formal adoption, two deserve specific mention. In the quality of service field, a standard to measure end-to-end transit time for bulk items was drawn up and subsequently put forward for adoption. Its adoption and publication is expected in early 2015. Another major standardisation project relates to the development of standards for a "parcel box" for consumers. This standardised facility is part of an open infrastructure that is accessible to all competitors. Here, too, standardisation work was completed in 2014 and the standard is about to be finalised.

A new CEN/TC 331 working group was established in early 2014 entitled "New digital postal services". This group is currently reviewing standards for secure electronic communication involving electronic documents and services for the delivery of electronic registered letters. Regulation (EU) No. 910/2014 on electronic identification and trust services for electronic transactions in the internal market, which was adopted on 23 July 2014, was particularly relevant to the group's activities in the second half of the year.

Also in the second half of the year, other initiatives of the European Union impacted heavily on the work of CEN. In response to increasing digitisation and the growth in e-commerce, the European Commission published its Communication COM 2014/500: The annual Union work programme for European standardisation for 2015 on 30 July 2014, pointing out the need for further development specifically in e-commerce, including improved cross-border parcel delivery. This is to be achieved by means of a set of measures, preferably through more interoperability, to which end CEN is developing standards. Specifically, the European Commission plans to issue a mandate to CEN in the first quarter of 2015 so it can start working on relevant projects. In light of this, already in 2014 CEN/TC 331 began working on a standard for measuring transit times for cross-border parcels including a track-and-trace system and on a standard for defining physical and digital interfaces for cross-border parcels.

Within the UPU, too, digitisation and e-commerce are being pushed higher up the agenda. To avoid any overlaps between the work of CEN/TC 331 and the relevant working groups of the UPU, in the year under review the two bodies signed an agreement and discussed the continued collaboration between the two organisations in these two fields.

CERP

The European Committee for Postal Regulation (CERP) counts 48 European countries among its members. Germany chaired CERP for two consecutive periods, or six years in total. At the CERP plenary session on 29-30 May 2014 in Skopje, Mr Ljubisa Mitevski from the Former Yugoslav Republic of Macedonia (FYROM) was appointed the new chair.

The chair of one of the two working groups was reappointed, the chair of the other newly appointed. CERP's UPU working group represents the interests of European regulatory authorities within the UPU, while

its Policy working group focuses on the regulatory aspects of the postal sector, specifically the future structure of universal service.

TAIEX projects and bilateral cooperation

In summer 2014 the Bundesnetzagentur implemented a TAIEX (Technical Assistance and Information Exchange) project in FYROM. This project served to discuss the European legislative framework for rates regulation and any practical questions relating to its application, preparing FYROM to comply with the legal obligations in the postal sector and the relevant EU directive should the country eventually accede to the European Union. An introduction was given to the regulatory regime in Germany and current cases highlighted to demonstrate that accounting separation is a vital prerequisite for efficient rates regulation. In addition, the experiences of Germany and other European countries were discussed to show how to design a rates regulation regime for universal services in an as yet unliberalised market (reserved area).

In September 2014 the Bundesnetzagentur hosted a bilateral dialogue meeting with a delegation from Gibraltar's regulatory authority. The Bundesnetzagentur gave a number of presentations on universal service and universal service financing, licensing, regulatory accounting, and European postal policy. There was also ample time for an exchange of ideas and to discuss regulatory issues.

RAIL

Rail and Competition

Two years after long-distance passenger transport was opened up to coaches on 1 January 2013, intercity coaches are competing more and more effectively with the railways. 2014 saw the completion of the proceedings on the understaffing of signal boxes in Mainz and Bebra. The development of the DB Netz AG's new track access pricing system for the 2016/2017 working timetable period is making progress.

Contents

The matters dealt with by the Bundesnetzagentur in the sphere of rail regulation in 2014 included the introduction of optimised planning and management of capacity; procedures for improved staff planning at signal boxes; and the next framework timetable period, December 2015 to December 2020. Two other matters of primary importance were: new rules for usage windows at freight terminals that were not utilised, or utilised late, and a check on DB Netz AG's price levels.

Overall, revenue from long-distance passenger transport stagnated in 2014 compared with the previous year, whereas revenue from regional passenger transport showed an increase. Freight traffic by rail is expected to deliver only marginal revenue growth in the same period. All in all there has been a gratifying growth of competition in the regional passenger transport segment and in freight transport generally.

International cooperation is becoming ever more important in the field of rail regulation. The key role is played by the Independent Regulators' Group (IRG-Rail), which has grown in size to 25 members, and the European Network of Rail Regulatory Bodies (ENRRB). The Bundesnetzagentur represents the Federal Republic of Germany in both these organisations.

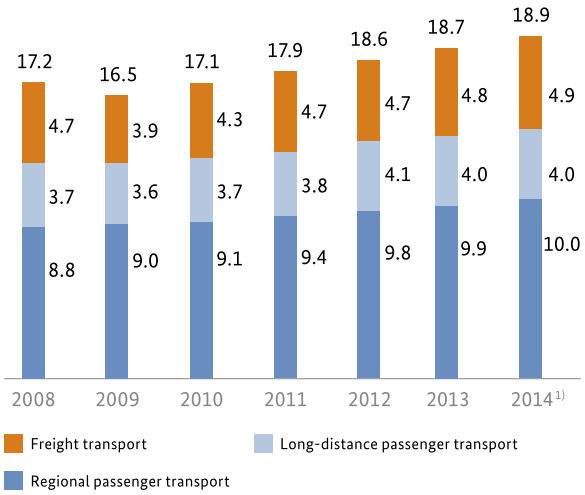
Market watch

Competition in the rail freight segment has shown continuous growth. In 2005, Deutsche Bahn AG (DB AG) undertakings accounted for 86% of traffic volume; in 2014 the figure was only 66%. In the long-distance passenger transport segment, DB AG's competitors contributed less than one percent of the total.

Key trends

Whereas the revenue from long-distance passenger transport stagnated in 2014 compared with the previous year, revenue from regional passenger transport showed a further increase. Freight transport is expected to deliver very little sales growth. It can be said in general terms that over a period of five years there has been consistent growth in all segments.

Revenue in the rail transport market
€bn

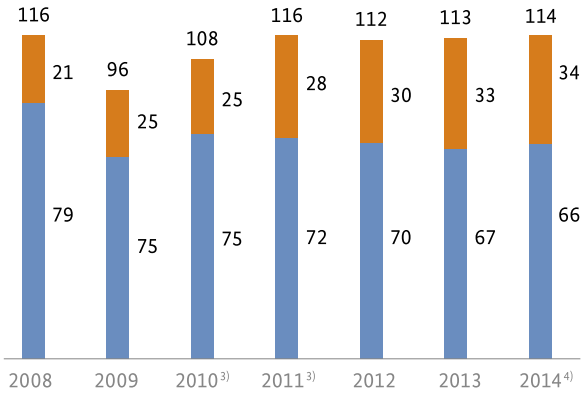


1) Forecast figures

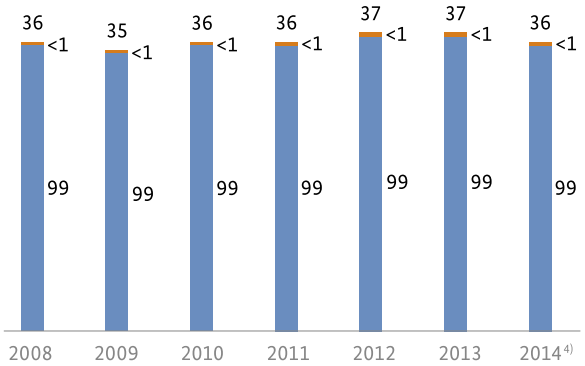
The figure of 114bn tkm means that a slight rise in traffic volume in the freight segment was achieved in 2014 as against 2013. Competition has increased overall since 2005. While, in 2005, DB AG undertakings accounted for 86% of traffic handling capacity, in 2014 the figure was only 66%. Competitors' share of annual traffic volume in the freight segment has thus more than doubled in the last ten years.

Traffic volume and competition in the rail market

Freight transport
bn tkm [1]



Long-distance passenger transport
bn pkm [2]

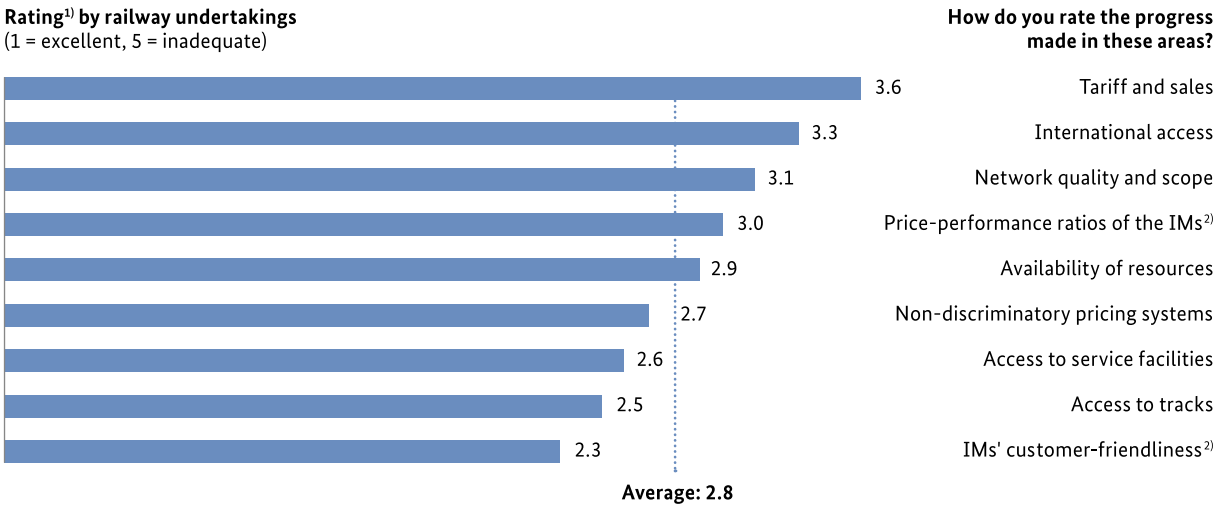


Regional passenger transport
bn pkm [2]

1) Tonne-kilometres
2) Passenger kilometres
3) Updated figures
4) Forecast figures

Source: Bundesnetzagentur, DB AG, Federal Statistical Office

Factors influencing the railway market



1) Mean values of the critical aspects (individual values) in the listed areas
2) Infrastructure managers

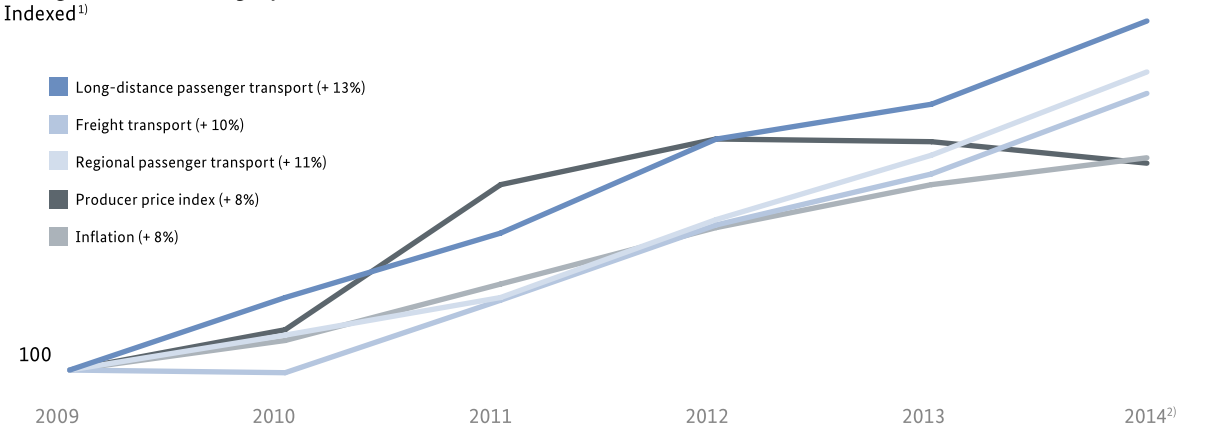
The total distance covered by long-distance passenger transport in 2014 came to about 36bn pkm. The vast majority of the transport services – more than 99% – was again provided by the DB AG undertakings, which means that the competitor contribution was, once more, less than one percent. The figure will be even lower next year, as one of the few competitor offers, Interconnex, ceased operations at the end of 2014.

The traffic generated by regional passenger services was at a level of roughly 55bn pkm in 2014, which reflects a 30% over the past ten years. The share of this market held by competitors has also developed in a positive direction. DB AG undertakings accounted for some 94% of the relevant traffic in 2005, but by 2014 they were contributing only about 80%. In other words, the share held by the competition has more than trebled in the last ten years.

Market assessment

In the annual survey of the factors influencing the railway market, railway undertakings (RUs) were invited to assess the categories listed in the chart by giving a rating between 1 and 5. 1 stands for "excellent" and 5 means "inadequate".

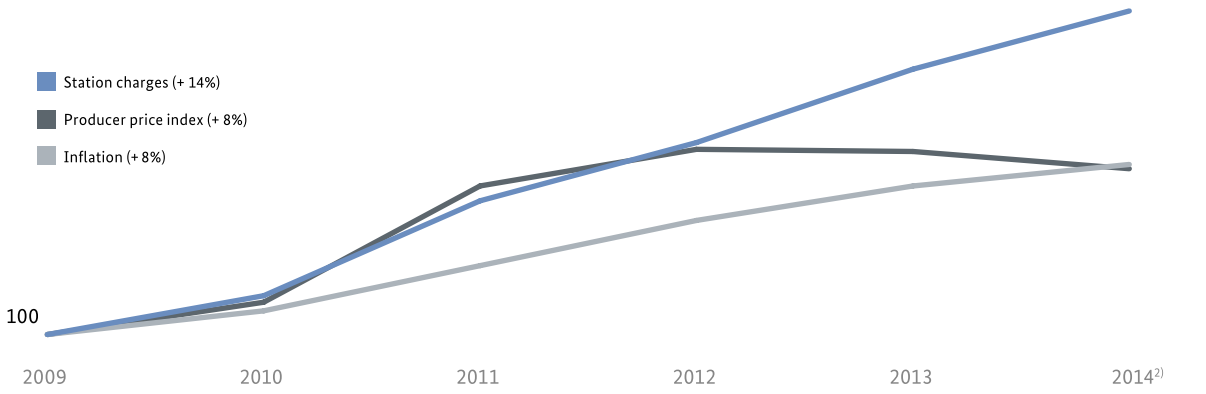
Average track access charges per train kilometre
Indexed[1]



1) Calculated as quotient of track charges and operating performance
2) Forecast figures

Source: Bundesnetzagentur, Federal Statistical Office

Average revenue per station stop
Indexed[1)]



1) Calculated as quotient of station charges and station stops
2) Forecast figures

Source: Bundesnetzagentur, Federal Statistical Office

According to the railway undertakings, the situation in the rail market has deteriorated slightly. The average rating fell from 2.7 to 2.8. This decline, while marginal, can be pinned down to specific areas, namely deterioration in the tariff and sales categories, and also in access to service facilities. But there are also positive aspects to set against the negative ones. The ratings given to network quality and scope and to the customer-friendliness of infrastructure managers (IMs) were better than in the previous year.

Infrastructure access charges

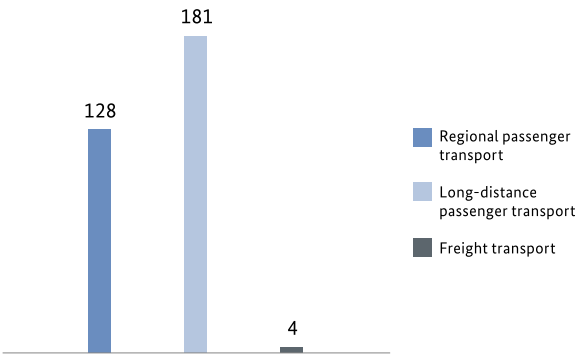
While inflation and the producers' price index for industrial products rose by about eight percent between 2009 and 2014, track access charges went up as follows: for freight transport by 10%, regional passenger transport by around 11% and long-distance passenger transport by as much as 13%.

Since 2009 station charges have risen by 14%. This rate of increase is also distinctly higher than the approximately 8% rise in inflation and the producers' price index for industrial products.

Operating results and results from ordinary business activity

The mean operating result generated for long-distance passenger transport was the equivalent of €1.81 per average train kilometre. The corresponding result for regional passenger transport was similarly satisfactory, at €1.28. It proved to be harder to achieve a positive operating result in the rail freight segment, where the mean result was only €0.04 per train kilometre. In comparison with the previous year, however, the revenue situation improved slightly in both the freight transport and regional passenger transport segments.

RU operating result[1)]
in cents per train km[2)]



1) Railway undertakings
2) Train kilometres

Rulings, activities and proceedings

In 2014 the Bundesnetzagentur reviewed the DB Netz AG's network statement, the effect of which was to strengthen non-discriminatory access to rail infrastructure. In continuous dialogue with DB Netz AG it is also working on an improved and market-oriented track access pricing system.

Track access

Network statement 2016

The Bundesnetzagentur reviewed the proposed amendments to DB Netz AG's network statement (SNB 2016) in October 2014. Since not all the proposed provisions were compatible with the requirements of railway law, the Bundesnetzagentur filed objections to certain provisions on 14 November 2014 and ordered additions to be made to others. Specifically, it was intended to introduce two modules in Directive 810 (technical network access), in which enhanced technical requirements were to be prescribed for all vehicles which are not currently registered in Germany, in connection with the use of all the DB Netz AG's bridges and track superstructures, although neither the Federal Railway Authority nor DB Netz AG saw any urgent safety reasons for such measures. The Bundesnetzagentur also demanded the addition of passages defining the requirements to be fulfilled by parties entitled to use the ETCS (European Train Control System). Finally, the Bundesnetzagentur again objected to an amendment – which had been proposed in similar form in previous years – according to which, for train movements with a delay of more than 20 hours, not only the originally agreed track access charge would be made but in addition the charge for a newly allocated track. As the original track access charge could possibly be reduced by 20%, the current charge for the train movement would have been increased at least 1.8 fold. In addition, for a movement with a delay of more than 72 hours, both the originally agreed charge would have been applied in full and also the charge for the newly allocated track, in full. In this case the charge would in fact have been doubled. The lawsuit directed against this amendment is still pending before the Federal Administrative Court.

Complaints about DG Netz AG's physical works

2014 again saw a number of construction projects on the DB Netz AG's rail network, resulting in a growing number of complaints to the Bundesnetzagentur by access beneficiaries. The complaints tended to focus on deficiencies in the provision of information and inadequate consultation with access beneficiaries, as well as faulty planning resulting in operating processes having to be changed at short notice. The result was as well as a series of proceedings and on-site inspections aimed at clarifying the facts. The plan for 2015 is to set up a working party composed of representatives of DB Netz AG, the access beneficiaries and the Bundesnetzagentur, with a view to finding joint solutions to the mounting problems.

Dispatching rules working party
The high level of capacity utilisation in the DB Netz AG's rail network leads to delays when there are breakdowns and operational irregularities. The instrument used for getting trains back on schedule is dispatching, which is governed by a number of rules. The rules are set forth in the undertaking's network statement. One of them, dispatching rule number five, reads: "Fast trains basically take precedence over slow-moving trains." It is a rule that prompts complaints from the railway undertakings (RUs) which provide regional services. Application of this dispatching rule often means that the RUs' punctual regional trains are overtaken by unpunctual long-distance trains, which results in delays, and connections are missed. The Bundesnetzagentur has launched a working party for the purpose of developing solutions together with all the parties involved. Proposed solutions are to be recorded in a position paper and presented to market players for their comments. This position paper is intended to help both DB Netz AG and the Bundesnetzagentur consider the steps to be taken next.

Capacity problems
A number of railway undertakings have complained to the Bundesnetzagentur about DB Netz AG's refusal to approve applications for train lengths of more than 600m, although permission had always been given in the past. The Bundesnetzagentur looked into the matter and found that the usability of many station platforms had been sharply reduced by signalling system adjustments carried out as part of a modernisation program after 1994. The tracks affected were in the eastern federal states, the region formerly served by the Deutsche Reichsbahn. The result was that in many cases only 600m of platform were available for freight trains. Growing demand, however, has meant this is no longer enough. As the actual length of the platforms is greater than the signalling system capacity, operational exceptions were made of the kind that usually apply only to breakdowns. But a short time ago DB Netz AG stopped this practice, with the result that, until the signalling systems are converted, many freight trains can only run if they are no longer than 600m. The result is financial losses for the railway undertakings affected. The conversion of the signalling systems at the stations concerned is a process for which DB Netz AG needs lengthy planning times. It cannot be done at short notice.

Staffing problems (signal boxes)
In 2014 the Bundesnetzagentur continued to be concerned with problems related to the staffing of signal boxes and resulting impairments of access to the rail network.

The impairments that were due to understaffing at the Mainz Central Station signal box were followed by proceedings which were brought to a successful conclusion once the DB Netz AG's necessary staff qualifications plan had been drawn up and implemented. The notice issued by the Bundesnetzagentur to DB Netz AG on 15 August 2013 became legally valid.

The proceedings on the understaffing of the Bebra Station signal box also had a positive outcome in terms of securing access to the infrastructure. DB Netz AG drew up a staff qualifications plan which had been very largely implemented by the end of 2014, and once this process is complete the proceedings can be concluded.

Framework agreements
Notifications of framework agreements for the next framework timetable period, which starts in December 2015 and ends in December 2020, were submitted to DB Netz AG by 6 October 2014.

Only at the end of January 2015 was the Bundesnetzagentur informed, by way of formal communication under section 14d 1st sentence para 4 of the General Railways Act (AEG), about the intended conclusion, or the intended rejection, of a framework agreement. It then initiated preliminary examination proceedings. But before that, prior to the notifications of framework agreements and during the design phase, there was already strong demand by access beneficiaries for advisory services.

As early as the time notification was given of framework agreements, it was necessary in certain cases to check on whether the applications for the agreements had been filed correctly. During the coordination and conflict resolution phase prescribed under section 9 of the Rail Infrastructure Usage Regulations (EIBV), the Bundesnetzagentur also received enquiries from access beneficiaries about the legal framework for the resolution of conflicts of use.

Access to service facilities

Access of freight forwarders to railway infrastructure
Freight transport is driven to a large extent by undertakings which have goods transported ("shippers", eg freight forwarders) and commission the railway undertakings to carry out the transport. However, DB Netz AG and the largest German transhipment terminal operator, Deutsche Umschlaggesellschaft Schiene Straße mbH (DUSS), which belongs to the DB Group, want in future to conclude usage agreements only with railway undertakings, thus cutting out the shippers.

An arrangement to this effect was prohibited by the Bundesnetzagentur, which regards it as an unacceptable restriction of the shippers' right of access, a right which is expressly granted them under section 14(2) para 2 of the General Railway Act (AEG). The shippers are deprived of an essential basis for implementing their business models reliably and economically if it is not possible for them to make a free choice of the railway undertaking to transport freight by rail.

There followed a series of actions before the administrative courts. Cologne Administrative Court (VG) reaffirmed the view of the Bundesnetzagentur (judgement of 17 May 2013; Ref. 18 K 3168/12 and judgement of 19 July 2013; Ref. 18 K 4277/12). The Higher Administrative Court for the Federal State of North Rhine Westphalia (OVG NRW), however, did not (judgements of 16 September 2014; Ref. 13 A 1733/13 and 13 A 1847/13). The Bundesnetzagentur has filed an appeal with the Federal Administrative Court against the judgements of the OVG NRW.

Regulation of trimodal container terminals
Freight terminals, as one of the rail sector's service facilities, perform an important function in connecting the various modes of transport.

Non-discriminatory access to terminals for transhipment to and from the rail network is a major precondition for the competitive development of freight transport by rail.

As several of the terminal operators refuse to accept that they are obliged by law to allow non-discriminatory access and prepare a service facilities statement (NBS), the Bundesnetzagentur is conducting model proceedings, which will be continued in the context of legal action in 2015.

In 2014 the Bundesnetzagentur examined the NBS statements of the operator concerned. One important subject was regulations covering failure to use, or late use of, the time windows provided. The regulations are of central importance for smooth operation and for efficient use of the infrastructure. If the regulations are not formulated clearly, however, they furnish the infrastructure operators with room for manoeuvre and thus the potential for discriminatory action. These and other regulations were adapted by the operator in such a way that objections to the NBS could be avoided.

Occupancy of tracks by construction vehicles
Large-scale construction work on railway infrastructure is due in the next few years. Apart from the tracks on which the construction work will take place, this will also affect the tracks used by the construction vehicles.

As maintenance work on the railway infrastructure is urgently necessary, the track capacities required for the purpose must be made available to the construction logistics undertakings. However, experience shows that construction work is frequently postponed. If the said capacities were "reserved" for the needs of construction logistics without any other conditions having to be fulfilled, the rail market would in practice be deprived of available capacity – and this at a time of general track shortage.

A number of talks were held with DB Netz AG in 2014 with a view to finding a suitable accommodation of interests. The company has presented a basic plan for the management of tracks needed for projected construction logistic work together with its revised network statement for the 2016 working timetable period. The tracks in question are clearly marked. They will be available for other purposes in the following timetable period for as long as they are not needed for the construction work.

The Bundesnetzagentur will keep an eye on how the track management plan is implemented in practice.

Decisions on conflicts over access to railway infrastructure
Infrastructure managers (IMs) are obliged by law to approve, as far as possible, all applications for the use of railway service facilities.

If the uses applied for clash to an irreconcilable extent or if there are other reasons for not approving, the IM must reject an application or, if need be, more than one application. The Bundesnetzagentur must be informed of this in advance (under section 14d first sentence para 3 AEG).

The Bundesnetzagentur has a right to examine and object to the intended rejections. Its responsibility for doing so, and for examining the terms of use, is of central importance for the monitoring of non-discriminatory access in practice.

In 2014 the Bundesnetzagentur received notice of intended rejections of applications for access from various IMs, including DB Netz AG and Bremische Hafeneisenbahn (Bremen Port Railway). Among the reasons given for rejection were: conflicting usage agreements with other access beneficiaries, application for services which the service facilities operator does not offer, and reduced capacity owing to construction work.

The Bundesnetzagentur found evidence of various procedural errors on the part of the EIU. In some cases the notices of rejection were withdrawn. In the other cases the Bundesnetzagentur did not make any objection.

Introduction of optimised capacity planning and management

Since the beginning of 2014 the Bremische Hafeneisenbahn has attained an unprecedented and consistently high level of traffic. This, together with the construction work about to be carried out on the railway tracks in Bremerhaven, provided the occasion for introducing more efficient management of capacity. The Bundesnetzagentur and the access beneficiary contract partners cooperated in incorporating the necessarily amended procedures in the NBS service facilities statements.

Since 1 July 2014 these service facilities have been required to report to the working timetable annually on a coordinated basis. This means that the bulk of facility uses notified in Bremen and Bremerhaven are held in view simultaneously during a working timetable period. Important information on train arrival and departure times are incorporated in the planning.

In addition, in cases of acute capacity constraints (eg resulting from breakdowns), the deployment of trains is to be directed according to separate criteria (eg according to the earlier start of loading at the terminal). The idea is for the scarce capacity to be utilised as efficiently as possible and the congestion to be dispersed as quickly as can be.

Incentive systems for passenger stations

The attractiveness of the offer of passenger transport is determined to a large extent by the condition and efficiency of the stations. In order to ensure the right quality the station operators are obliged to set up a system of incentives and implement it on a contractual basis with the companies providing transport services. The system must be shaped to contain effective incentives to reduce breakdowns and increase the performance capacity of the stations.

The key elements for the creation of such a system were developed jointly with the stakeholders concerned and then formally adopted. They represent the starting point for putting the system in practice. Regrettably it proved impossible to implement it on a consensual basis in 2014, which means that the Bundesnetzagentur will probably have to resort to administrative measures to put the key elements in place in 2015.

Infrastructure access charges

Prolongation of transitional solution for transport performance factor

On 4 September 2014 the Bundesnetzagentur concluded an agreement with the DB Station&Service AG supplementing the agreement under public law of 31 August 2012. The latter agreement, which is still basically in force, had the effect of removing the train length factor from the station price system. Since 1 January 2013 the train length factor has been replaced by the so-called transport service factor in simplified form. The factor was originally intended to be applicable for a maximum of two years, and then to be replaced by a factor based on costs and market viability. The two-year transitional period has now however been extended by one year, which means that the current transport service factor of 2.4 for passenger transport will continue to be applicable until 31 December 2015.

The thinking behind the decision to prolong relates to the lawmakers' plans for revising the statutory provisions governing access to railway infrastructure via the implementation of Directive 2012/34/EU. Any changes that the new railway regulation act may make to the pricing criterion could have a particular impact on the calculation of the transport service factor. If for example the factor and its exact level were calculated

purely on a cost basis, as is allowed by the aforesaid agreement of 31 August 2012 and preferred by DB Station&Service AG, it would possibly no longer be compatible with the new statutory provisions.

The conclusion of the supplementary agreement and the associated prolongation of the current transport service factor make it possible to take due account of the above-mentioned changes to the pricing criterion caused by the amendment when working out the new transport service factor. The effect would be to rule out any need for the factor to be revised twice within a very short time, in each case resulting in shifts of financial burden as between regional and long-distance passenger transport. The prolongation of the application of the current price component until the new statutory framework comes into effect thus produces a higher level of planning and calculation certainty on the market.

DB Netz AG's track access charging system 2017
Throughout 2014 the Bundesnetzagentur was in continuous dialogue with DB Netz AG with the aim of launching an improved and market-orientated track access charging system with effect for the working timetable period 2016/2017. The guiding idea is not a simple further development of the existing system but the establishment of a fundamentally revised pricing system. The biggest innovation is to price the tracks not by category and product, as in the current system, but by market segment, thus moving the system away from a supply-orientated to a demand-orientated approach. Another basic criterion is to ascertain marginal costs as a basis for the calculation of the prices to be charged. In addition consideration is to be given to the pricing flexibility of the various market segments.

The incorporation of the three above elements (marginal costs, the creation of market segments and giving due weight to viability) is mandatory under European law and prescribed for all rail operators without exception. DB Netz AG will submit the new track access charging system for public consultation until the end of March 2015, taking the objections and suggestions of the market players into account. The process will be supervised by the Bundesnetzagentur. It will be followed by revision of the undertaking's network statement and a review by the Bundesnetzagentur.

Review of prices charged by DB Netz AG
The Bundesnetzagentur continued and intensified its review of price levels in DB Netz AG's track access charging system in 2014. Apart from its systematic check on whether the calculation of price levels fulfils the requirements of railway law and achieves the returns permitted by regulation, the Bundesnetzagentur added to its range of controls by carrying out sampling-type audits of DB Netz AG's accounting. The audits were both risk-orientated and done on a random sample basis. In spite of the complexity of the undertaking's bookkeeping and the large number of business transactions, the audits helped Bundesnetzagentur to make a reasonably valid assessment of what costs DB Netz AG in fact incurs through the provision of the required services and what returns it is entitled to under regulation. The review has made substantial progress, so that it will probably be possible to complete the process in spring 2015.

Evaluation of the relevance of infrastructure managers to competition on the German railway market
All infrastructure managers are under an obligation to give notice of and publish their price list. In the context of proceedings to ensure compliance with this obligation the Bundesnetzagentur carried out an evaluation of individual undertakings in terms of their relevance to competition on the German railway market. The aim pursued was to exempt, for a limited period, undertakings where there is little risk of impairment of their competitiveness from the obligation to give annual notice of their price lists. On the basis of the evaluation results, the Bundesnetzagentur decided to waive the notification obligation for the 2016 working timetable year in the case of about 30% of the infrastructure managers. A limited extension beyond 2016 is in principle intended, but it will depend on the lawmakers' plans for the above-mentioned railway regulation act and thus on possible amendments to the statutory requirements governing exemption.

The Bundesnetzagentur plans to introduce, in 2015, a systematic presentation form for the undertakings whose market relevance makes them ineligible for exemption from the notification obligation. The idea is to guarantee compliance with uniform minimum presentation standards.

International cooperation

International cooperation in the field of railway regulation is becoming ever more important. One form it takes is the exchange of information on regulatory practices within the framework of the Independent Regulators' Group – Rail (IRG-Rail). There has been intensive discussion of trans-European rail freight corridors and the way they work, which still needs fixed procedures at the national and European level.

Working groups at the IRG-Rail and in the ENRRB

International cooperation in the field of railway regulation is becoming ever more important. The organisations primarily responsible are the Independent Regulators' Group – Rail (IRG-Rail), which now has 25 members, and the European Network Rail Regulatory Body (ENRRB) under the auspices of the European Commission. The IRG-Rail has in particular made provision for exchanging information on regulatory practices.

For more information go to: www.irg-rail.eu

In 2014 IRG-Rail prepared various position papers on subjects of importance for European railways – eg on the Fourth Rail Package, on access to service facilities and on price issues. As an IRG-Rail member, the Bundesnetzagentur made an active contribution to the deliberations of the various working groups. It also participated in ENRRB meetings and took part in the various sub-group sessions on subjects like rail freight corridors and RMMS (Rail Market Monitoring Scheme).

Implementing acts by the European Commission under Directive 2012/34/EU[1)]

Directive 2012/34/EU provides for the introduction of so-called implementing acts by the European Commission to give concrete form to the various sections of the Directive. The Commission is therefore working on the legal texts needed for the purpose. The IRG-Rail working groups concerned themselves with the specific subjects of the Commission's drafts on the calculation of the direct costs of a train journey, access to service facilities, RMMS definitions, framework agreements and criteria for access beneficiaries. The positions taken by the IRG and the relevant comments were published in the form of IRG discussion papers or were directly incorporated in the communication and consultation process with the Commission.

Fourth Railway Package[2)]

The European Commission published its proposals for a Fourth Railway Package on 30 January 2013. Included among the priority aspects were the improvement of railway competitiveness, the easing of market access through non-discriminatory access terms, the reduction of barriers to access and the opening of the national passenger transport markets. The first reading by the European Parliament on the various proposals and proposed legislation took place on 26 February 2014. The responsible IRG-Rail working group, jointly chaired by the Bundesnetzagentur and the British regulatory authority, the Office of Rail Regulation (ORR), developed and submitted comments on the subject areas under discussion.

1) Directive establishing a single European railway area (Directive 2012/34/EU)
2) The Fourth Railway Package consists of proposals for three directives:
- Directive establishing a single European railway area (Directive 2012/34/EU)
- Railway Safety Directive (2004/49/EC)
- Directive on the interoperability of the rail system within the Community (2008/57/EC), and three regulations
- Amendment to the Regulation [(EC) No. 1370/2007] on public passenger transport services by rail and by road
- Amendment to the Regulation [(EC) No. 881/2004] establishing a European railway agency
- Repeal of the Regulation on common rules for the normalisation of the accounts of railway undertakings [(EEC) no 1992/69]

Other areas focused on were the monitoring of the implementation of statutes in the Member States and the exchange of information on best practices.

Access issues/Corridors/Service facilities

There was also intensive discussion of trans-European rail freight corridors and the way they work and combine with each other. Established procedures in this area are still needed at the national and European level. Regulation (EU) 913/2010[3)] sets out an initial framework inter alia for regulatory reviews. The "Access" IRG-Rail working group, chaired by the Bundesnetzagentur, adopted a working paper on the monitoring of the corridor one-stop shop (C-OSS), which is the sole point of contact for applications for infrastructure capacity in the freight corridors.

Furthermore, there are regular meetings of the regulatory bodies for each corridor, and the first cooperation agreements governing the collaboration of these bodies have been concluded.

A separate comment was provided by the responsible IRG-Rail working group, chaired by the Bundesnetzagentur, in response to the implementing act planned by the European Commission for the subject area "Service facilities". The comment focused inter alia on the subjects access criteria, capacity allocation and transparency.

3) Regulation concerning a European rail network for competitive freight [Regulation (EU) No. 913/2010]

From the Benelux ports to Genoa: first European corridor launched

Regulation (EU) No 913/2010 provides for the creation of a European rail network for competitive freight traffic. On that basis, previously defined track access rights were for the first time offered, as of the timetable changeover in mid-December 2014, for a corridor of great importance to Germany, the Rhine-Alps corridor between the North Sea and Italy.

The European Union wants to shift freight traffic away from the roads and onto the railways, as a way of easing pressure on the environment – and on the frayed nerves of drivers stuck in traffic. The Regulation therefore provides for the creation of nine freight corridors passing through the Member States. One of the first to leave the starting blocks is the so-called Rhine-Alps corridor. The route is Zeebrugge – Antwerp/Rotterdam – Duisburg – Basel – Milan – Genoa. Planning and preliminary work were completed in November 2013.

Then, in January 2014, so-called pre-designed paths for freight traffic were offered for the first time in the form of previously defined track access rights. They can be utilised as from the timetable changeover in mid-December 2014. In Germany up to twelve train paths were offered daily inter alia for the connection between Rotterdam or Antwerp and Milan, and in addition up to six paths between Mannheim and Chiasso or Milan. The paths are published in a catalogue and can be ordered from a central office, a so-called corridor one-stop shop (C-OSS, the only contact point). The C-OSS

was set up at DB Netz AG in Frankfurt am Main and regulatory control is exercised by the Bundesnetzagentur in accordance with EU requirements and the agreement between the regulatory bodies of the corridor member states. 220 applications for access accounted for 66% of the transport capacity awarded to railway undertakings for one year. The remaining capacity is available for use by occasional traffic. All in all, the centralised management of European freight traffic greatly simplifies the application procedures for freight forwarders and industrial undertakings. It also shortens journey times.

The Bundesnetzagentur's core tasks and organisation

The Bundesnetzagentur is primarily responsible for promoting competition in the regulated areas and ensuring non-discriminatory access to networks. In doing so it profits from a task-oriented organisational structure, which meets the many and varied requirements and at the same time allows the Bundesnetzagentur to accommodate new tasks in an open and flexible manner.

Functions and structure

The Bundesnetzagentur, originally known as the Regulatory Authority for Telecommunications and Post, was set up on 1 January 1998 as a separate higher federal authority under the then Federal Ministry of Economics and Technology. It took over the responsibilities of the former Federal Ministry of Posts and Telecommunications and the Federal Office for Posts and Telecommunications. On being assigned responsibilities under the Energy Act (EnWG) and the General Railway Act (AEG), the Regulatory Authority for Telecommunications and Post was renamed the Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post und Eisenbahnen in 2005.

First and foremost, the Bundesnetzagentur's remit is to promote competition through regulation in the energy, telecommunications, postal and rail sectors and to guarantee non-discriminatory network access. Alongside regulatory measures in the energy sector, as the national planning authority the Bundesnetzagentur is also responsible for electricity transmission lines crossing national or state borders in the context of the *Energiewende*. In the telecommunications and postal sectors it ensures appropriate, adequate and nationwide services and, on the basis of various pertinent laws and ordinances, provides regulations for the use of frequencies and numbers. Furthermore, the Bundesnetzagentur is the competent authority under the Electronic Signatures Act (SigG).

The Bundesnetzagentur's tasks are complex and highly diversified. They range from cases addressed in quasi-judicial proceedings in regulation areas, to reporting requirements and planning authority responsibilities, consumer protection and information activities in the regulated sectors, right down to the nationwide presence for investigating and processing frequency interference complaints.

Below the management level the Bundesnetzagentur comprises ruling chambers and departments. The President's Chamber takes decisions in particular on award proceedings for scarce radio spectrum resources and the imposition of universal service obligations. In the telecommunications sector it determines which markets require regulation and which companies have significant market power in these markets. On the basis of these determinations, the ruling chamber responsible decides on the regulatory measures to be imposed on companies with significant market power. This is how decisions on specific details of obligations are reached, for example in the field of network access conditions or ex-ante or ex-post price reviews. In the postal sector the ruling chamber focuses on (ex ante and ex post) rates approval and the control of anti-competitive practices, including the regulation of access to the postal network. In the energy sector the Energy Act gives the ruling chambers decision-making powers on issues of general and individual access to electricity and gas networks and on network tariffs.

The departments perform specialised and central administrative functions. These include economic and legal policy issues in the various areas of regulation and the relevant international coordination, as well as technical aspects of frequencies, standardisation, numbering and public safety. The Bundesnetzagentur is involved in international standardisation bodies, cooperating in the development of next generation networks and new radio systems. In the energy sector, the Bundesnetzagentur has been assigned key market supervisory tasks from the gas and electricity network development planning, from the Market Transparency Unit for Wholesale Electricity and Gas Markets set up in 2013, and from its responsibility for safeguarding security of supply. A major departmental function overall is to provide ruling chambers with specialist assistance in their decision-making. All relevant rail regulation tasks are performed by the rail department, as the General Railway Act does not yet provide for a ruling chamber.

All of the Bundesnetzagentur's responsibilities have a strong international element. Coordination at European level, in particular, has always been an important aspect of its regulatory activity. This is reflected by the fact that the international functions are mostly concentrated in one department.

In the telecommunications sector the Bundesnetzagentur is mainly responsible for the key decisions and objectives that promote investment, innovations and competition for the benefit of all citizens. Consumer protection remains another key focus area in the telecommunications sector. For this purpose, emphasis is placed on investigating problems that hinder a trouble-free change of supplier. In addition, the Bundesnetzagentur continues to vigorously combat misuse such as infringements of competition law, the unlawful use of telephone numbers and cold calling, for instance by carrying out searches. In protecting the consumer, particular attention is given to preventing the illegal billing of call queues. Another primary function is to ensure transparency of consumer contracts, in particular with respect to the bandwidth guaranteed in the contract. The Bundesnetzagentur also maintains a database of sites of fixed transmitters operating above a specified power level. Also of particular importance for consumers are the resolution of radio frequency interference, the dispute resolution procedures under section 47a of the Telecommunications Act (TKG) and section 10 of the Postal Services Ordinance (PDLV) and the general consumer advice service. Under Part 7 of the Telecommunications Act, the Bundesnetzagentur plays an important role in ensuring public safety. Its tasks include checking the technical protection measures for critical telecommunications infrastructure, protecting personal data and telecommunications privacy, the technical implementation of interception measures, and implementing and safeguarding information procedures.

In the energy sector it is the Bundesnetzagentur's duty to create and secure the basis for efficient competition in the electricity and gas markets, in particular through unbundling and regulating non-discriminatory access to the energy networks, including rates regulation. The statutory decision in 2011 to phase out nuclear power as part of the *Energiewende* and the continued expansion of renewable energy require additional state measures with respect to the various market players. These include, for instance, monitoring the electricity and gas wholesale markets, supervising the redistribution mechanism under the Renewable Energy Sources Act (EEG), registering photovoltaic systems to determine the progressive reduction in the EEG-regulated feed-in tariff and any interventions necessary to safeguard security of supply, for example if system-relevant power plants are to be decommissioned. The latter task is statutorily limited in duration to 2017. The Bundesnetzagentur also monitors the development of upstream generation and import markets along with consumer markets. One of the major tasks for the Bundesnetzagentur in the context of the *Energiewende* is the fast, large-scale expansion of the electricity transmission networks. To achieve this, the Bundesnetzagentur has been given wide-ranging authority in network development planning and in planning law. Planning law includes implementing the federal sectoral planning for extra-high voltage lines crossing federal state and national borders and, as of 2013, their planning approval.

As a part of network development planning, key decision-making information was prepared and presented to the legislator as a basis for determining the priority needs of network expansion set by the energy sector. Following the adoption of the Federal Requirements Plan in 2013, planning procedures for extra-high voltage lines crossing federal state and national borders take place as part of the federal sectoral planning process and the subsequent approval procedure. As part of the iterative planning process set out by statute, the network development plan is constantly being updated to take account of the latest developments. This also involves network planning and connection in the offshore sector.

In rail regulation the Bundesnetzagentur monitors compliance with the legislation on rail infrastructure access. In doing so, one of its main tasks is to ensure the non-discriminatory use of rail infrastructure for railway undertakings and other access beneficiaries. The term rail infrastructure includes the infrastructure and services connected with both tracks and service facilities (eg stations, freight terminals). Rates regulation includes examining the amount and structure of infrastructure charges and of other charges levied by the infrastructure managers.

A nationwide presence is vital for the Bundesnetzagentur to perform its duties well. To ensure consistency the Bundesnetzagentur's regional offices, the contact point with consumers and the industry, are managed and coordinated centrally by a single department.

The regional offices are mainly responsible for technical matters. They provide information, for instance, on compliance with the Telecommunications Act, electromagnetic environmental compatibility provisions and the Electromagnetic Compatibility of Equipment Act (EMVG). They are also in charge of frequency assignment, for instance for private mobile radio systems, for granting site certificates and for sampling equipment under their market surveillance duties. Another important area is the investigation and processing of radio interference using state-of-the-art measuring equipment, monitoring compliance with regulations and carrying out radio monitoring and inspection orders under the Telecommunications Act and the Electromagnetic Compatibility of Equipment Act.

Additional executive tasks are carried out by specific regional offices. In particular this involves activities in number administration, number misuse and cold calls, consumer protection and information, the registration of photovoltaic systems and the registration of railway infrastructure. Moreover, they also carry out some personnel management functions for other government bodies and institutions, primarily those falling under the Federal Ministry for Economic Affairs and Energy.

Human resources management

Human resources management is a top priority at the Bundesnetzagentur. It is important both to assign staff optimally and to recruit new qualified staff. This is only possible when human resources management takes account of work requirements and staff skills and preferences in equal measure. Only a combination of pro-active and appropriate staff deployment and motivated employees will allow the Bundesnetzagentur to perform its responsibilities in an efficient and cost-effective way even in times of tight budgets. Aspiring to modern human resources management, the Bundesnetzagentur offers not only corporate health schemes, but also models for balancing work and family life.

In recruiting new staff the Bundesnetzagentur requires not only excellent specialist knowledge, but also the ability to structure and address complex new tasks in an interdisciplinary team quickly and with a flair for practical solutions.

Given its diverse areas of activity, the Bundesnetzagentur attaches particular importance to an interdisciplinary work approach. In total the Bundesnetzagentur employs about 2,900 specialists, including legal experts, economists, engineers and scientists from various fields, to ensure the efficient, proper performance of tasks in all areas.

The Bundesnetzagentur has been offering apprenticeships since 1999. In view of the recruitment of future staff and the challenges of demographic change the training qualifications offered by the Bundesnetzagentur have become ever more diverse. Vocational training is available for office communication trainees, electronic equipment and systems trainees, and for IT trainees in system integration and applications development. Since 2011 the Bundesnetzagentur has also offered a practice-oriented study programme to qualify students (Bachelor of Engineering/Electrical Engineering and Bachelor of Science) to work as technicians for electronic equipment and systems at the Bundesnetzagentur. Moreover, since 2012 two civil servants preparing for the rank of *Regierungsinspektor* are selected annually to take a university degree in "IT in Public Administration". Vocational training courses are offered at a total of eight Bundesnetzagentur locations, in particular at the regional offices.

In 2014, a total of 167 young people were trained at the Bundesnetzagentur in various occupations. Of the 35 trainees who successfully completed their training in 2014, 32 decided to stay with the Bundesnetzagentur.

Budget

The Bundesnetzagentur's income and expenditure is budgeted for in the federal budget in the departmental budget of the Federal Ministry for Economic Affairs and Energy.

The table below shows the income for 2014 (target and performance) and 2015 (target).

Type of income	Target 2014 (€000)	Perform-ance 2014 (€000)	Target 2015 (€000)
Telecoms fees, contributions and other charges	81,968	14,788	45,438
Fees and other charges in the postal sector	6	64	58
Fees and other charges in the rail sector	87	42	100
Fees and other charges in the energy sector (electricity and gas)	851	4,614	6,341
Fees and other charges under the Grid Expansion Acceleration Act (NABEG)	11,250	290	15,000
Other administrative income, eg fines, rents and disposals	1,117	3,228	1,043
Administrative income	**95,279**	**23,026**	**67,980**

Lower income than expected in the telecommunications sector is mainly due to interference protection contributions being reimbursed or not being collected as a result of court rulings. Income from fees in the energy sector, by contrast, was higher than expected.

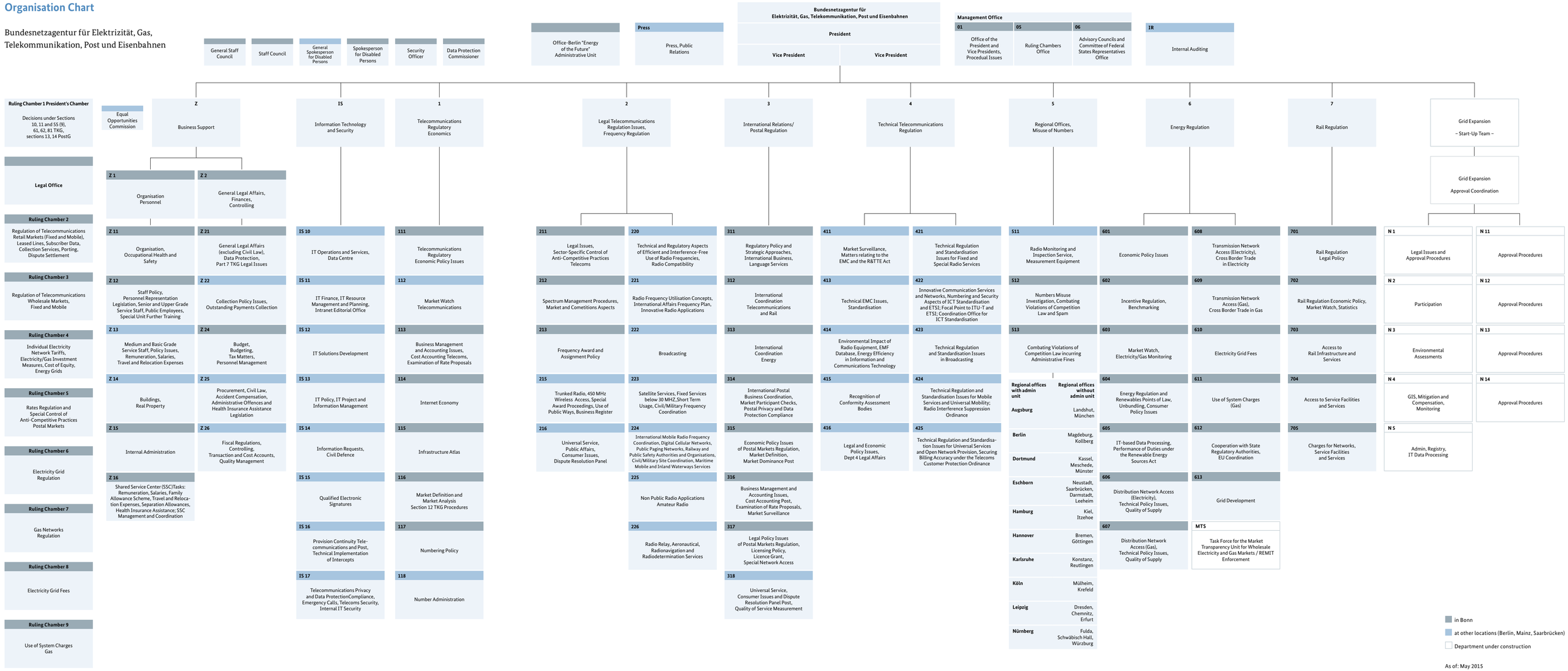
In connection with network expansion, the 2014 budget estimates income of some €11.2m. Owing to the continued long delays in application submissions for federal sectoral planning, the fees collected amounted to only €290,000. The additional expected income will be delayed until subsequent financial years.

The chart below shows the expenditure for 2014 (target and performance) and 2015 (target). The increase in budgeted expenditure for 2015 is again attributable to building up and extending the human and material resources in organisational units in response to the transfer of an extensive range of new tasks, especially in network expansion.

Type of income	Target 2014 (€000)	Perform-ance 2014 (€000)	Target 2015 (€000)
Personnel costs	132,433	124,418	135,738
General administrative expenditure, appropriations	54,964	48,819	56,484
Investment	10,875	9,982	14,909
Total expenditure	**198,272**	**183,219**	**207,131**

Organisation Chart

Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post und Eisenbahnen



As of: May 2015

List of abbreviations

A

AbLaV Ordinance on Interruptible Load Agreements

ACER Agency for the Cooperation of Energy Regulators

ADR Alternative dispute resolution

AEG General Railway Act

AGVO General Block Exemption Regulation

ANACOM Portuguese Regulatory Authority

ANCOM Romania's Regulatory Authority

ARegV Incentive Regulation Ordinance (Anreizregulierungsverordnung)

Art. Article

AT Austria

AusglMechAV Ordinance implementing the Equalisation Scheme Ordinance

B

B2C Business-to-Consumer

BAL Balancing

BBPlG Federal Requirements Plan Act (Bundesbedarfsplangesetz)

BDEW Bundesverband der Energie- und Wasserwirtschaft e. V. (German Association of Energy and Water Industries)

BE Belgium

BEREC Body of European Regulators for Electronic Communications

BFP Federal sectoral planning

BGB German Civil Code (Bürgerliches Gesetzbuch)

BGBl. Federal Law Gazette

BK Ruling chamber

Bn Billion

BNetzA Bundesnetzagentur

BoR (14) 50 BEREC Opinion (14) 50

BOS Authorities and organisations concerned with public safety

BRLR Federal guidelines on ducts

BVerwG Federal Administrative Court

BWA Broadband Wireless Access

C

CA UPU Council of Administration

CACM Capacity Allocation and Congestion Management

CAM Capacity Allocation Mechanisms

CbC Call by Call

CD Compador Dienstleistungs GmbH

CEER Council of European Energy Regulators

CEN European Committee for Standardization

CEN TC 331 Technical Committee of the European Committee for Standardization

CENELEC European Committee for Electrotechnical Standardization

CEPT European Conference of Postal and Telecommunications Administrations

CEREMP Centralised European Register for Market Participants

CERP European Committee for Postal Regulation

CFV-SDH Carrier leased line – Synchronous digital hierarchy

CISPR International Special Committee on Radio Interference

CMP Congestion Management Procedures

CO_2 Carbon dioxide

C-OSS Corridor One-Stop-Shop

COM (2014) 500 Communication of the Commission with the designation 2014/500

CPG Conference Preparatory Group

ct/kWh Cent per kilowatt hour

ct/min Cent per minute

D

DA2CG Direct Air-to-Ground Communications

DB AG Deutsche Bahn AG

DB Netz AG Deutsche Bahn Netz AG

DB Station & Service AG Deutsche Bahn Station & Service AG

DECT Digital Enhanced Cordless Telecommunications

DE-Mail Legally secure platform to exchange letters electronically

DHL Deutsche Post DHL

DIN German Institute for Standardisation

DK Denmark

DKE German Commission for Electrical, Electronic and Information Technologies of DIN and VDE

DOCSIS Data Over Cable Service Interface Specification

DPAG Deutsche Post AG

DPD Dynamic Parcel Distribution

DPIHS Deutsche Post InHaus Services GmbH

Dr Doctor

DSL Digital Subscriber Line

DSO Distribution system operator

DTAG Deutsche Telekom AG

DUSS Deutsche Umschlaggesellschaft Schiene Straße mbH (German Road-Rail Transshipment Company)

DVB-T Digital Video Broadcasting-Terrestrial

DZK Dynamically allocable capacity

E

E+1-Zustellung Delivery on the next business day

E-Commerce Electronic commerce

ECC Electronic Communications Committee of the CEPT

ECTA European Competitive Telecommunications Association

EEG Renewable Energy Sources Act

EG European Community

EIBV Rail Infrastructure Usage Regulations

eIDAS-Regulation Regulation (EU) on electronic identification and trust services for electronic transactions in the internal market

IM Rail infrastructure manager

E-mail Electronic mail

EMF Electromagnetic fields

EMVG Electromagnetic Compatibility of Equipment Act

EnLAG Grid Expansion Act (Energieleitungsausbaugesetz)

ENTSOG European Network of Transmission System Operators for Gas

ENTSO-E European Network of Transmission System Operators for Electricity

ENRRB European Network of Rail Regulatory Bodies

EnWG Energy Act

E-Postbrief A hybrid mail service linked to a web site that facilitates the exchange of electronic messages online. (The goal: to offer a higher level of authenticity, better data protection and a higher level of integrity as opposed to conventional unencrypted e-mails that can be compared to electronic postcards.)

ERTMS European Rail Traffic Management System

ERGP European Regulators´ Group for Postal Services

ESAP Energy Security Advisory Panel

etc. et cetera

ETCS European Train Control System

ETSI European Telecommunications Standards Institute

EU European Union

EU-US Roundtable Roundtable talks between representatives of the US and the EU

e.V. Registered association (eingetragener Verein)

F

FAQ Frequently Asked Questions

FNB Gas transmission system operator

FSR Florence School of Regulation

FTEG Radio Equipment and Telecommunications Terminal Equipment Act

FTTB Fiber to the building

FTTH Fiber to the home

FYROM Former Yugoslav Republic of Macedonia

G

g Gram

GaBi Gas Determination on the redesign of the gas balancing system

GasNEV Gas Network Charges Ordinance

GasNZV Gas Network Access Ordinance

GB Gigabyte

GDRM Gas pressure regulating and metering station

GG Basic Law

GHz Gigahertz

GLS General Logistic Systems

GmbH Limited liability company (Gesellschaft mit beschränkter Haftung)

GPS Global Positioning System

Grid Planning WG Grid Planning Working Group

GSM Global System for Mobile Communications

GW Gigawatt

GWB Restraints of Competition Act

GW/h Gigawatt hours

H

HetNet Heterogeneous Networks

HF High frequency

HFC-Netze Hybrid fibre coaxial network

H-gas High-calorific gas

HVDC High voltage direct current transmission technology

I

ICE Intercity-Express

ICT Information and Communication Technology

IEA International Energy Agency

IEC International Electrotechnical Commission

IKT Information and Communication Technology

IMSI International Mobile Subscriber Identity

IP Internet Protocol

IPTV Internet Protocol Television

IRG-Rail Independent Regulators' Group – Rail

ISDN Integrated Services Digital Network

ISDN-PMx Primary rate multiplex access

ISM-HF Industrial, scientific and medical high frequency

IT Information technology

ITU International Telecommunication Union

J

JVEG Court Payment and Reimbursement Act

K

KARLA Gas Capacity arrangements and auctions in the gas sector

kbit/s Kilobits per second

KEP Courier, express and parcel services

kg Kilogram

kHz Kilohertz

km Kilometre

KMU Small and medium-sized enterprises

kV Kilovolt

KVz Street cabinet

kWh Kilowatt hour

KWKG Combined Heat and Power Act

L

L-gas Low-calorific gas

lit. litera/letter

ltd. limited

LTE Long Term Evolution

M

m Metre or million, depending on context

m³ Cubic metre

M2M Machine-to-machine

MAR Marbach Power plant unit

MB Megabyte

Mbit/s Megabits per second

MHz Megahertz

MRC Multi Regional Coupling

MRU Market area conversion

MSP European Multi-Stakeholder Platform

MTS Market Transparency Unit for Wholesale Electricity and Gas Markets/REMIT Enforcement

MW Megawatt

N

NABEG Grid Expansion Acceleration Act (Netzausbaubeschleunigungsgesetz)

NAP Grid expansion plans

NBS Service facilities statement

NCG NetConnect Germany

NEP Network development plan

NF Low frequency

NGA Next Generation Access

NKP Network interconnection point

NOVA-Prinzip Network optimisation ahead of reinforcement ahead of expansion

No Number

NRW North Rhine-Westphalia

NWE North-Western Europe

O

ODR Online dispute resolution

OECD Organisation for Economic Co-operation and Development

OLG Higher Regional Court

ORR Office of Rail Regulation

OVG NRW Higher Administrative Court of North Rhine-Westphalia

P

PCI Projects of Common Interest

PDLV Postal Services Ordinance

Pkm Passenger kilometre

PMD Radio monitoring and inspection service

POC Postal Operations Council

PostCon TNT subsidiary in German

PostG Postal Act

PPDR Public Protection and Disaster Relief

PRISMA Prisma European Capacity Platform GmbH

Prof Professor

Prognos AG Prognos stock corporation

PSTN Public switched telephone network

PTS Swedish regulatory authority for telecommunications and post

PUDLV Postal Universal Service Ordinance

Q

Qu./M+R Crossover/measuring and control station

R

R&TTE Directive Directive on radio and telecommunications terminal equipment and the mutual recognition of their conformity

RBP Regional Booking Platform

RED Radio Equipment Directive

REMIT Regulation on Wholesale Energy Market Integrity and Transparency

ResKV Reserve Power Plant Ordinance

RL Directive

RLAH Roam like at home

RMMS (European) Rail Market Monitoring Scheme

RRL Framework Directive

RRS Reconfigurable Radio Systems

RSC Radio Spectrum Committee

RSPG Radio Spectrum Policy Group

RU Railway undertaking

S

SigG Electronic Signatures Act

SIM Subscriber Identity Module

SME Small and medium-sized enterprises

SMS Short Messaging Service

SNB Network Statement

SRD Short Range Devices

StromNEV Electricity Network Charges Ordinance

T

TAL Local loop

TAIEX Technical Assistance and Information Exchange Instrument

TaK Temperature dependent capacity (capacity is firm within a defined temperature range and interruptible outside of it)

TEN-E Regulation Regulation (EU) of the European Parliament and of the Council on guidelines for trans-European energy infrastructure

TK Telecommunications

TKG Telecommunications Act

tkm Tonne-kilometre

train km Train-kilometre

TSC Transmission System Operator Security Cooperation

TSO Transmission system operator

TV Television

TWh Terawatt hour

U

UHF Ultra-high-frequency

UMTS Universal Mobile Telecommunications System

UNCTAD United Nations Conference on Trade and Development

UPS United Parcel Service

UPU Universal Postal Union

UVPG Environmental Impact Assessment Act

UWG Unfair Competition Act

V

VAT Value-added tax

VDS Compressor station

VDSL Very high speed digital subscriber line

VG Administrative court

VHF Very high frequency

VoIP Voice over Internet Protocol

vs. versus

VzK Distribution cable

W

WAIC Wireless Avionics Intra-Communications

WAL Power generation unit

WCO World Customs Organization

Web-GIS Online geographic information system

WIK Wissenschaftliches Institut für Infrastruktur und Kommunikationsdienste GmbH

WRC World radiocommunication conference

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